Patient Online:

Perceptions of GP online services

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1. Executive summary

There is a growing trend in the adoption of Web-based appointment booking systems[1]. In 2016, 51% of Internet users turned to the Internet for health-related searches, but only 15% of adults (aged 16 and over) made an appointment with a doctor or health practitioner via a website[2].

In 2016, a survey was conducted by the Patient Online team to:

- understand which GP online services were actively being used by respondents;
- through which media these services were being accessed;
- how easy to use these services were;
- what the benefits of these services were; and
- what respondents perceived the disadvantages of GP online services to be.

A total of 22,134 people took part in the survey. Of these, 31.8% respondents stated to be 65 years and over and 61.6% identified themselves to have a long-term condition. These two groups are the heaviest users of health services in England[3–5].

Most respondents used online services for ordering repeat prescriptions (83.4%) and booking appointments (74.9%). The least used services were contacting the GP surgery (9.6%) and viewing health records (21.7%). Interestingly, 40.1% of respondents stated they did not use their online record. However, it is important to note that it is uncertain whether this is because they did not have access to their record or if they saw no use of it. The survey highlighted that respondents were sometimes not aware of access to services, and this included access to records online.

Most respondents agreed that online services were convenient to use (92.2%), saved time (90.3%) and had increased their satisfaction (51.6%). Also, a high percentage (71.9%) trusted that their information was kept safe by their GP practice. Nonetheless, 64.9% of respondents believed that their knowledge of where to look on the Internet for health-related information had not improved. The majority of respondents (51.9%) also stated that online services had not improved communication with their GP surgery.

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A thematic analysis of 22,134 responses was conducted to investigate the perceived disadvantages of GP online services identified by respondents. Twenty-three themes were identified in the qualitative analysis, which was consistent with evidence from previous research conducted by NHS England around barriers to engagement with digital health technologies.

Disadvantages

1. awareness

Personal characteristics

2. age (generational divide)

level of education

3. digital skills
4. health literacy

Trust

5. trust
6. security
7. privacy
8. confidentiality
9. accuracy and reliability

Technology

10. perceived irrelevance
11. difficult to use
12. unfit-for-purpose
13. unmet expectations
14. lack of access

Psychosocial

15. perceived stigma
16. emotional distress
17. patient-doctor relationship

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Disadvantages *(contd.)*

Others

18. lack of social contact
19. opportunity
20. equity
21. infrastructure
22. safety
23. incomplete record information

This report focuses on describing respondents' perceived disadvantages and presents these findings in context with answers to the other survey items. The top five major themes discussed were:

1. unmet expectations;
2. lack of access;
3. perceived irrelevance;
4. awareness; and
5. lack of social contact.

Unmet expectations and perceived irrelevance were the most recurrent themes. Respondents were disappointed to find they could not complete a task they expected to (e.g., book an appointment) or to find an empty record, which may contribute to an increase in attrition rates.

From the analysis, age was associated with low engagement with and usage of GP online services, perceived stigma and digital skills. It was also found that many respondents saw the online registration process to be cumbersome.

Although 58.8% of respondents found that the online booking appointment service provided them with more choice, many stated that they had stopped using the online appointment booking service due to the paucity of available dates. For this reason, many reverted back to traditional methods of contacting their surgery. The analysis showed that the offer of GP online services was inconsistent across the country. A standard set of online services across GP practices is recommended to minimise confusion and reduce the risk of some groups perceiving they are treated as

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'second class patients'[6]. Those aged 65 and over, in particular, should be supported by Patient Online and other programmes within the Digital Transformation Portfolio.

A further recommendation is to conduct regular patient-level surveys to gauge patients' views around online services. This practice should also be extended to GP practice staff and clinicians to fully understand their views on these services and what the perceived benefits are.

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2. Introduction

The academic literature[7–10] has suggested that people living with long-term conditions would benefit the most from accessing eHealth tools in the management of their health. A recent systematic review[1] evidenced a growing worldwide trend in the adoption of web-based appointment booking systems.

In 2017, the Office for National Statistics (ONS)[11] reported that 90% of households in Great Britain had Internet access; 73% of adults (aged 16 and over) accessed the Internet using a mobile phone or smartphone. The most popular Internet activity has been sending or receiving emails (82% or adults) for several years, followed by finding information about goods and services (71%). Interestingly, using the Internet for health-related purposes is not as popular as other Internet-related activities (e.g., reading online news, newspapers or magazines, Internet banking, social networking, telephoning or making video calls over the Internet via a webcam, and uploading self-created content to be shared through a website).

According to the ONS[2], 51% of Internet users looked for health-related information in 2016, but only 15% of adults made an appointment with a doctor or health practitioner via a website. That same report showed that people aged 25 – 44 were more likely to use the Internet to search for health-related information, whilst people aged 65 or older were the group least engaged in this activity. This last group account for the highest level of demand for healthcare services across the NHS[3,4].

In 2017 4.8 million adults had never used the Internet, with 2.6 million of those aged 75 and over[12]. Adults aged 75 years and over had the highest rate of lapsed Internet users at 7% (up from 5% in 2016). This suggests that, although more adults aged 75 years and over started using the Internet, they are not necessarily continuing to use it. People within the 10% without Internet access at home reported that they did not feel the need for Internet, perceiving it as not useful or interesting (64%), felt they didn't have the digital skills (20%), or reported having access to the Internet elsewhere (12%)[13].

The Department of Health reported in 2015 that 15.4 million people in England suffered from long-term conditions, which accounted for 50% of all GP appointments, 64% of outpatient appointments and 70% of all inpatient bed days, and 70% of total

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health and social care spend[5]. People aged 65 or over make up 53% of all admissions to assessment units and 63% of admissions to hospital from assessment units[3]. Nearly 4 million patients aged 65 or older were admitted to A&E in 2015/16[4]; indicating a higher cost than previous years.

3. Patient Online

A key aspect of modern primary care has been to provide patients with online access and digital tools to support them, their families and carers' needs. This aims to improve the quality of their care[14]. The Patient Online programme has been designed to support GP practices to offer and promote online services for patients, which include: booking and cancelling appointments, ordering for repeat prescriptions, and viewing their GP record[15]

Some of the websites and apps available for patients to access online services include[16]:

- Patient Access;
- Evergreen Life;
- SystmOnline;
- Engage Consult;
- Patient Services;
- The Waiting Room;
- EMIS; and
- others.

Some of the key benefits of online interactions between patients and GP practices identified by Patient Online include[17]:

- Improved access to care services;
- Increased health knowledge for patients;
- Increased information knowledge;
- Increased information sharing;
- Reduced administrative workload for practice staff;
- Increased patient satisfaction;
- Improved communication between patients and practices;

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- Increased operational efficiencies for practices;
- Reduction of DNAs for practices;
- Reduced travel for patients; and
- Increased ability of patients to make more informed decisions.

4. Aim

This report summarises the qualitative findings from a survey that took place in 2016 around patients' views on GP online services. The qualitative focus was on patients' perceived disadvantages of using GP online services. The report presents these findings in the context of some of the findings from the quantitative responses to the survey questions.

5. Methods

An online survey to understand which services were mostly used by patients, how services were being accessed, people's perceptions on the ease-of-use of the systems and patients' perceived disadvantages of online technologies was conducted in 2016. Their responses to item 7 of the survey: '*Please use this box to tell us what you think are the disadvantages of using GP online services*', were analysed.

A total of 22,134 responses were collected and analysed. Responses stating 'no disadvantage', 'none' or a similar response, as well as those where there was no response, were removed from the analysis. The remaining responses were included in the qualitative analysis. Insight from the analysis was grouped into themes based on the identified barriers to digital technologies in healthcare settings, as reported in a literature review by NHS England[*].

[*] Maximising patient uptake and engagement with eHealth. NHS England. 2017.

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6. Summary of findings

6.1 Sample characteristics

The table below (Table 1) summarises the characteristics of the individuals who took part in the survey. These results are used to contextualise the qualitative findings.

Sample characteristics		*n* = 22,134
Gender		
Male		9,427 (42.6%)
Female		12,280 (55.5%)
	Do not wish to disclose/Not answered	427 (1.9%)
Age group		
18-24 years		681 (3.1%)
25-34 years		1,945 (8.8%)
35-44 years		2,649 (12.0%)
45-54 years		4,224 (19.1%)
55-64 years		5,252 (23.7%)
65-74 years		5,091 (23%)
75-84 years		1,677 (7.6%)
85 years or older		264 (1.2%)
	Do not wish to disclose/Not answered	351 (1.6%)
Long-term condition diagnosis		
Yes		13,624 (61.6%)
No		5,718 (25.8%)
	Do not wish to disclose/Not answered	2,792 (12.6%)
Ethnic group		
White		20,389 (92.1%)
Mixed/multiple ethnic groups		152 (0.7%)
Asian/Asian British		465 (2.1%)
Black/African/Caribbean/Black British		196 (0.9%)
Another ethnic group		125 (0.6%)
	Do not wish to disclose/Not answered	807 (3.6%)

Table 1 - Sample characteristics

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From the 22,134 individuals who took part in the survey, 45.3% were excluded from the analysis because they responded to item 7 by providing no answer or by saying: 'none', 'no disadvantage', or similar.

Responses to item 7	*n* = 22,134
Removed from analysis	10,034 (45.3%)
Analysed	12,100 (54.7%)

Table 2 - Number of responses included in the analysis

6.2 Responses to the survey

Tables 3-8 summarise the responses to items 1-6 of the survey. These results are used in section 7 to contextualise the qualitative findings. Table 3 (below) shows that ordering repeat prescriptions was the most actively used service followed by booking and cancelling appointments.

Responses to survey item 1	*n* = 22,134
1. Which of the online services are you actively using?	
Booking appointments	16,571 (74.9%)
Cancelling appointments	8,222 (37.1%)
Ordering repeat prescriptions	18,454 (83.4%)
Viewing health records	4,795 (21.7%)
Contacting GP surgery	2,124 (9.6%)
Other	499 (2.3%)

Table 3 - Services most actively used

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Computers (desktop and laptops) were the medium most used to access online services, but individuals also used mobile phones and tablets.

Responses to survey item 2	*n* = 22,134
2. How do you access your online services?	
Computer (desktop or laptop)	17,787 (80.4%)
Mobile phone	7,169 (32.4%)
Tablet	7,280 (32.9%)
Other	133 (0.6%)

Table 4 - Medium to access online services

Online services were perceived as being straightforward to use; however a large percentage of respondents said they do not use online records.

Responses to survey item 3	*n* = 22,134
3. Would you say that…	
Registering for online services was straightforward?	
Yes	19,420 (87.7%)
No	1,117 (5.0%)
Don't use this service	294 (1.3%)
No answer	310 (1.4%)
Booking appointments online is straightforward?	
Yes	16,392 (74.1%)
No	2,178 (9.8%)
Don't use this service	2,797 (13.1%)
No answer	767 (3.5%)
Cancelling appointments online is straightforward?	
Yes	14,085 (63.6%)
No	526 (2.4%)
Don't use this service	6,101 (29.5%)
No answer	1,422 (6.4%)

Table 5 - Perceptions of how straightforward it is to access different online services

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Responses to survey item 3	*n* = 22,134
Ordering repeat prescriptions online is straightforward?	
Yes	18,319 (82.8%)
No	1,166 (5.3%)
Don't use this service	2,100 (9.7%)
No answer	549 (2.5%)
Accessing my records online is straightforward?	
Yes	8,777 (39.7%)
No	3,501 (15.8%)
Don't use this service	8,206 (40.1%)
No answer	1,650 (7.5%)

Table 6 *(continued)* - Perceptions of how straightforward it is to access different online services

The majority of respondents agreed that online services are convenient to use, they save time, they have increased satisfaction and that online information was kept safe by GP practices. However, opinions are divided on whether the quality of care is improved. The majority of respondents did not perceive an improvement in their knowledge of where to look for health information. Although 43.9% stated that communication with their GP surgery was improved by online services, a collective 51.9% remarked that either there had been no change or online services did not improve communication.

Responses to item 4	*n* = 22,134
4. Would you say that…	
Using online services is more convenient for me than telephoning or calling?	
Yes	20,408 (92.2%)
No	1,117 (5.0%)
Neither	422 (1.9%)
No answer	187 (0.8%)

Table 7 - Perceived benefits of online services

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Responses to item 4	*n* = 22,134
Using online services saves me time compared with telephoning or calling into my surgery?	
Yes	19,981 (90.3%)
No	1,292 (5.8%)
Neither	498 (2.2%)
No answer	363 (1.6%)
Using online services has improved the quality of care that I receive?	
Yes	7,825 (35.4%)
No	7,836 (35.4%)
Neither	5,593 (25.3%)
No answer	880 (4.0%)
Since starting to use online services I am more satisfied with the service provided by my GP surgery?	
Yes	11,416 (51.6%)
No	6,200 (28.0%)
Neither	3,740 (16.9%)
No answer	778 (3.5%)
Since using online services my knowledge of where to look on the Internet for health-related information has improved?	
Yes	6,772 (30.6%)
No	10,116 (45.7%)
Neither	4,245 (19.2%)
No answer	1,001 (4.5%)
Using online services has improved the communication I have with my GP surgery?	
Yes	9,710 (43.9%)
No	8,336 (37.7%)
Neither	3,153 (14.2%)
No answer	935 (4.2%)

Table 8 *(continued)* - Perceived benefits of online services

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Responses to item 4	*n* = 22,134
Using online services has given me more choices on how I communicate?	
Yes	*no data collected*
No	*no data collected*
Neither	*no data collected*
No answer	*no data collected*
I feel confident that my information is kept safe by my practice?	
Yes	15,919 (71.9%)
No	1,116 (5.0%)
Neither	4,520 (20.4%)
No answer	579 (2.6%)

Table 9 *(continued)* - Perceived benefits of online services

Although respondents believed that booking appointments online provided them with more choice of time/dates of appointment that suit them, a higher percentage stated that they were not able to get an appointment sooner than they used to before online services were available.

Responses to item 5	*n* = 22,134
5. Would you say that…	
Booking appointments online helps me to remember when my appointment is?	
Yes	13,153 (59.4%)
No	5,111 (23.1%)
Don't use this service	3,250 (14.7%)
No answer	620 (2.8%)
Booking appointments online provides me with more choice of times/dates of appointments that suit me?	
Yes	13,013 (58.8%)
No	5,247 (23.7%)
Don't use this service	3,246 (14.7%)
No answer	628 (2.8%)

Table 10 - Perceived advantages of online appointment booking

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Responses to item 5	*n* = 22,134
I can get appointments sooner than I used to be able to before online services were available?	
Yes	7,136 (32.2%)
No	8,782 (39.7%)
Don't use this service	5,430 (24.5%)
No answer	786 (3.6%)

Table 11 *(continued)* - Perceived advantages of online appointment booking

Table 8 shows that most of the respondents did not look at their online health information, test results or immunisations.

Responses to item 6	*n* = 22,134
6. Would you say that…	
Being able to look at my health information online helps me to manage my own health better?	
Yes	6,938 (31.3%)
No	5,063 (22.9%)
Don't use this service	9,166 (41.4%)
No answer	967 (4.4%)
Being able to look at my health information online helps me to prepare for my appointments before I attend them?	
Yes	6,080 (27.5%)
No	6,085 (27.5%)
Don't use this service	8,811 (39.8%)
No answer	1,158 (5.2%)
My online data is accurate and up to date?	
Yes	10,287 (46.5%)
No	2,267 (10.2%)
Don't use this service	8,536 (38.6%)
No answer	1,044 (4.7%)

Table 12 - Perceived advantages of looking at online health information

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Responses to item 6		*n* = 22,134
Being able to see my test results online is useful? (e.g. blood test results)		
	Yes	7,543 (34.1%)
	No	1,745 (7.9%)
	Don't use this service	11,639 (52.6%)
	No answer	1,207 (5.5%)
Being able to see what immunisations I've had and the dates is useful?		
	Yes	8,672 (39.2%)
	No	1,747 (7.9%)
	Don't use this service	10,373 (46.9%)
	No answer	1,342 (6.1%)

Table 13 *(continued)* - Perceived advantages of looking at online health information

6.3 Qualitative findings

This section of the report describes the results, including direct quotes from respondents and links to academic literature related to the different themes found in the thematic analysis. A total of 23 themes emerged from the qualitative analysis of the survey; these are summarised in Figure 1 in the form of a word cloud. The size of each theme is proportional to the number of responses associated with it.

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Figure 1 – Word cloud summarising the 23 themes that emerged from the qualitative analysis of the GP Online services survey conducted in 2016.

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In item 7of the survey, respondents shared what they perceived as *disadvantages* of GP online services. Some of the most representative responses are offered below.

1. Awareness

Respondents believed that more information should be provided in order to make patients aware of online services. This has been also identified by the literature as a disadvantage[18]. Unawareness of certain online services highlights that some patients do not always feel informed; this is particularly true for older people using eHealth[19].

> *"I was not aware that I could look at my health record or get blood test results on line. Perhaps more 'user' information could be supplied"*
>
> Respondent 9249

Surprisingly, some respondents stated that they did not know that GP online services existed at all.

> "*.I didn't know they existed!*"
>
> Respondent 2843

Other respondents emphasised that they had not been given the opportunity to register for online services or they were not aware of access to some functionalities within the system. These comments stress the need for clearer communication by GP surgeries around what is accessible across different surgeries.

> "*Was not given the opportunity to register for online medical, etc. information. Given the chance I would have liked access to this.*"
>
> Respondent 10839

> "*I wasn't aware you could look at your records online*"
>
> Respondent 17115

Personal characteristics

2. Age (generational divide)

Evidence has shown that older people are the least likely age group to use the Internet[20,21], and this includes using it for health purposes[22]. Engagement with GP online services may seem unnecessary for older people because they do not feel a need to engage with digital technologies for healthcare, and consider their current service suffices their needs.

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> "*Age related, i.e. I am not really computer literate and find the current system of telephone or face to face contact perfectly ok and service is superb.*"
>
> Respondent 16583

Patients over 65 years of age are highly dependent on health care services[3,23], being the most demanding group of health services. They account for 70% of all inpatient bed days and 50% of all GP appointments[5]. The discrepancy between the use of primary care services by the elderly and their access to online services has been highlighted, as a respondent said:

> "[…] *unfortunately the elderly are often the most frequent users of GPs but many of them are unable to access online.*"
>
> Respondent 12018

A push towards the use of digital technology for health by the NHS and a perceived difficulty in its use for older people may lead to the belief held by some respondents that GP online services favour younger people:

> "[…] *Favours younger people rather than helping elderly/disabled*"
>
> Respondent 0004

Evidence suggests that negative attitudes towards technology can be associated with a cognitive and physical decline in older people[24]. When this decline occurs, society may assume that younger people - who are generally more engaged with digital technology - should support and care for an older generation. This has been noted and could lead to feelings of burden[25].

> "*as my health deteriorates in time I will not be able to remember this process & the assumption that the young will step in to care for us is way off the mark.*"
>
> Respondent 9778

Level of education

3. Digital skills

A lack of digital skills is considered as a barrier to the uptake of digital technologies[26–28] and this has been identified as a concern.

> "*Fine for people who are computer literate, but no use to people who aren't.*"
>
> Respondent 19702

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Respondents have commented on the inadequate management of patient-facing online systems, attributing it to the poor digital skills of GP surgeries' staff. This could make it difficult for patients to take full advantage of GP online services, as they are not being supported effectively.

> "*The lack of digital knowledge of GP surgeries*"
>
> Respondent 9094

There are also concerns that a lack of digital skills may alienate those who feel unable to use online services.

> "*The only negative comment I have is that the online service by nature requires a level of skills to utilise it which thus alienated many people.*"
>
> Respondent 17218

Evidence shows that some people have withdrawn from trials using digital technology because they do not believe they have the technical competence to use it[29]. As consequence, this may lead to missed opportunities for some patients to utilise GP online services.

4. Health literacy

Health literacy is an important barrier to patient engagement in digital technologies for health and it has been found to be a cause for abandonment of the personal health record[30]. A lack of understanding of the terminology used within GP online services (e.g., viewing test results) may lead to patients unnecessarily contacting the surgery for information, increasing practice workload. This has been seen as a concern for practice staff in the academic literature[31]. Health literacy may be impacted by a lack of information provided by the online system. This may increase levels of confusion about the most useful steps to take full advantage of the information provided in the system effectively.

Some patients are unable to understand the terminology used in their medical record and so they would have to contact the surgery, potentially wasting the GP's time. For example, a respondent said:

> "*If I read my records I may not understand the medical terminology and then will have to speak to GP which may waste their time*"

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Respondent 3705

A lack of knowledge about the terminology was also emphasised by other respondents. This may contribute to a poor understanding about who to make an appointment with on the system to discuss a particular health issue.

> "*It uses some terminology that I don't understand (e.g GP assistant, GP fellow, Registrar)*"

Respondent 6130

Respondents sometimes observed a lack of explanation available for online test results. This may lead to further confusion if results are not within the normal range or patients may misunderstand the results, contributing to increased levels of anxiety[32].

> "*Test results don't mean anything to me and often when tge results shown are outside the normal range yet there are no comments telling me what I need to do about that.*"

Respondent 13585

> "*Patients misunderstanding what is in their own record.*"

Respondent 17492

> "*Test results often need explaining and interpreting, which is lacking when just seeing the raw data.*"

Respondent 18602

Trust

5. Trust

Trust is an important factor in the uptake of digital technologies for health due to services providing access to patients' health information, which is often considered as sensitive[18,28]. The issue of trust is embodied within areas of security, privacy and confidentiality as discussed below.

Trust in the NHS to keep data safe was a concern for some respondents.

> "*I certainly do not trust large organisations to keep my data safe* […]"

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Respondent 5443

They were worried about the NHS having lost patient data in the past and the risk of that happening again. There have been various reports of security breaches in the NHS across the media[33–35], which may in turn impact on the views of the public around the storing of personal information online, when using tools such as the Electronic Health Record[36].

> "*NHS has lost patients data in the past - many times. Therefore I have little or no faith that they won't lose it again.*"
>
> Respondent 9985

There is also a perception that it is 'very easy' to illegally obtain online information; for this reason, respondents do not trust that their online information will be kept safe.

> "[…] *because I was an early Internet user I do not trust online records or files are kept safe. It is very easy for information to be stolen online. Also my hospital* […] *lost Computer files/results/test requests as well as paper versions*"
>
> Respondent 9367

6. Security

Security can be a major concern in the use of digital technologies[18,37]. The literature suggests that security concerns often relate to the possibility that people may access information inappropriately or that information is sold onto third party companies[38].

Respondents highlighted that the personal information included in their online record was often of a delicate nature, and they were worried about who might have access to it.

> "*Sometimes strange people may have easy access of personal information concerning delicate medical issues.*"
>
> Respondent 13785

Others were also concerned that the information in their online records had been accessed by people inappropriately, including nuisance callers from automated services. This led them to question the security of their personal information online.

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> "*Some of my personal details have been accessed by 'someone' inappropriately. I received a nuisance call from an automated service claiming to be from my doctors' surgery. This happened after I joined Patient Access. I would question the security of online information because of this.*"
>
> Respondent 21069

Similar to this, some worry about the hacking of online records and this information then being 'abused' by third parties.

> "*Just the worry of someone hacking into it and then abusing the information.*"
>
> Respondent 15904

Concerns around security have led some patients to opt out of access to the health records online, as they did not believe they could be kept secure[39]. For example:

> "*I opted out of accessing health records online because I do not believe that records can be kept secure.*"
>
> Respondent 15239

7. Privacy

The privacy of information online is another key issue[40–42]. Respondents believed that online information should be kept private and not accessed by anyone who they perceived should not have access to it. The issue of privacy concerns fears about the selling of medical information to third parties and the possibility of information being 'hacked'.

> "[…] *You system is NOT secure against the on-selling of personal medical data as the NHS system of anonymity is laughably insecure.*"
>
> Respondent 8473

> "*The records and information could be sold. . .this should never happen and would be an invasion of my privacy* […]"
>
> Respondent 4812

> "*privacy and possibility of being hacked & unofficial accessing of my information*"
>
> Respondent 21874

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Some respondents were very specific about their concerns with particular providers and their possible involvement in selling patient data. An example of these worries is presented below:

> "[…] *I gather that my on-line services are produced by a company EMIS that has possibly been involved in selling patient date which worries me.*"
>
> Respondent 13135

They stressed their beliefs that patients should have the choice to decide what should and what should not be available on the online system, particularly in their medical records. The choice should be the patient's alone and the GP surgery.

> "[…] *We should have the choice of whether we want all of our record available online not have to have all information there because someone else decided.*"
>
> Respondent 6180

Similar to visiting or ringing a GP surgery, online booking systems can ask for a reason why a patient requires an appointment. Respondents perceived this as personal, failing to understand why they are required to provide a reason on the system before booking their appointment. It appears that their concern is mostly about the uncertainty of who has access to this information.

> "*I don't like having to put on here why I need an appointment. That is personal between me and my gp. I don't know who sees this information.*"
>
> Respondent 15518

8. Confidentiality

Related to security and privacy is confidentiality, another important theme for respondents and a recurrent theme in the academic literature[26,43,44].

> "*My only worries is confidential aspect of it*"
>
> Respondent 14733

> "*I worry about the confidentiality, despite being reassured that my surgery will keep my records safe. Too many clever hackers around.*"
>
> Respondent 4860

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Specifically, respondents were concerned about the disclosure of their information or having access to other people's information on their record; they considered this to be a significant breach of patient confidentiality. Gaining access to a patient's information may lead to respondents having concerns about their own information being accessed by other patients who use online services.

As an example of a direct confidentiality breach, below are offered two experiences that highlight the importance of preventing this issue to retain patient trust in the NHS's ability to keep online data safe.

> "*When I use my personal password and ID access numbers I open my husband's file. This is a serious breach of patient confidentiality* […]"
>
> Respondent 7526

> "*I had another person information posted and I had access to the Name, address, phone number and medical records of a complete stranger. I am concerned this could happen to me. The information I had access to was a very serious breach of patient confidentiality and the surgery took 6 months to remove the other persons information. This leaves me with very serious concerns about my own privacy and the importance the surgery put on their patients records.*"
>
> Respondent 14287

9. Accuracy and reliability

Accuracy and reliability often refer to patient information. Respondents were concerned that information had not been recorded correctly within their records, was not up-to-date, missing or that transactions had not been completed (e.g. appointments not recorded, or prescriptions not sent to the right place).

The inaccuracy of information was seen as a disadvantage for many. For example, it was suggested that important information, such as phone numbers, was not being updated by the practice, decreasing thus the level of confidence in the online system.

> "*My mobile phone number was recorded incorrect and I tried to correct it. After entering the correct number it was still showing incorrectly on the page* […] *It appears no one is updating important information, this gives users little confidence.*"

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Respondent 9307

The lack of detail in the online record was a disadvantage for some respondents and meant that the record was not considered helpful to the patient. It is also apparent that, for some respondents, information was either incorrect or missing from the online system. When this happens, it impacts upon the quality of information and may put patient safety at risk. This has been observed for apps, which sometimes sacrifice quality and safety for functionality[30].

> "*Summary health records without much detail are not very helpful and, in my case, are not accurate.*"
>
> Respondent 9355

> "[…] *the data is not accurate, immunisations that I received at a Travel Clinic are missing, allergies are wrong and some repeat prescriptions are missing.*"
>
> Respondent 19653

Others remarked that the lack of accuracy and reliability of the system meant that the GP surgery was 'as useless as before'.

> "*Not kept up to date or accurate, isn't followed by GP surgery and appointments randomly 'disappear' after booked. GP is useless as before.*"
>
> Respondent 19357

Respondents also alluded to the unreliability of the system and that it did not work as intended. This included: online bookings not being registered, medical records failing to be transferred from other practices and repeat prescriptions not being received by the pharmacy, which led to frustration for respondents who viewed the service as 'pointless'.

> "[…] *my medical records from my previous GP* […] *do not appear to have been fully transferred over* […]"
>
> Respondent 12330

> "*I have been waiting two weeks for an appointment that I booked on line only to discover the day before that it had not registered so no appointment* […]"
>
> Respondent 6724

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> "*The system does not work - it would be wonderful if it did. Although the system shows requests for repeat prescriptions as having being approved the prescription is not always received by the pharmacy - very very frustrating – makes the whole think pointess*"
>
> Respondent 7512

Technology

10. Perceived irrelevance

If patients do no perceive online services to be beneficial to them, they may not adopt them for health-related purposes[19,22]. Some respondents in the survey considered GP online services as 'useless', 'pointless' or 'a waste of time'; this has been widely highlighted in the academic literature as a barrier for adoption[19,30]. Reasons for this include the inability to use some services online, information not having enough detail and the lack of functionality of the system for some users.

> "*Can't book an appointment with my named doctor. Can't see any information about my medical records. Can't order a repeat prescription as the information isn't there. Basically the whole thing is useless*"
>
> Respondent 21259

If the information is not tailored to the patient, they may perceive it as irrelevant. The below extract illustrates this perception:

> "[…] *I cannot see accessing info about health online as being useful. It's always so generic to the point of uselessness, and therefore you still need to book an appointment and see a doctor anyway*"
>
> Respondent 10812

Many noted that attempting to complete transactions (i.e., repeat prescriptions) on the online system does not work effectively and, therefore, they do not see the benefit of ordering them online.

> "*order a repeat prescription and wait 3 days before it get accepted if it does get accepted as they never give a reason. then got to pharmacy and sit and wait for it to be made up. what a waste of a service. and the only medical records I can access is my medication. nothing about my blood tests or what the DOCS have written about me. this service is a waste of time*"

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Respondent 4216

After registering for GP online services, some respondents found that appointments were not available and therefore did not see 'the point' in the service.

> "*I have spent 25 minutes trying to get through to my doctors surgery.* […] *When I got the first in the queue the call was terminated so I had to call up again. A message advised me to log onto patient access to book an appointment so I have duly registered for that service only to get a message advising that I am unable to book an appointment online.*
> *What is the point of offering a service if I am unable to use it?*"
>
> Respondent 14726

This highlights that a patient unable to use the system as they would prefer may perceive it as irrelevant and may stop using it.

Some others acknowledged that GP online services were a 'nice idea' but, in reality, did not offer anything useful. They highlighted that some surgeries were not supporting all of the functions available on the system, which may contribute to the perceived irrelevance.

> "*I can't actually do anything useful with them. Nice idea, but hard-pressed surgeries are not supporting all the functions.*"
>
> Respondent 15476

11. Difficult to use

Technological interventions that are not easy to use are likely to be abandoned[22,40,45,46]. User friendliness is important for patients to engage with digital technologies for health, particularly for the elderly[47]. Some respondents considered both the registration and log-in process to be difficult to use, and unnecessarily complex, which represented a disadvantage for them. There is also concern that patients using the online system are not receiving the support they need to deal with difficulties in the use of technology, which can lead to frustration[29].

> "*the system is not user friendly and the support on how to use it is not there*"
>
> Respondent 6562

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Respondents identified the registration and login process as barriers to system usage. These were reported to be overly complex and sometimes repetitive, especially when patients were required to re-register after the online system was updated or when there was a change of provider.

> "*The whole process is unnecessarily complex and overly protective and the account id is far too long (11 numbers) which no normal person will ever be able to remember.*"
>
> Respondent 15494

> "*The registration process is convoluted and duplicates work already done for previous website.*"
>
> Respondent 21584

The terminology used in medical records appears to be a barrier to using the online system, with respondents attributing this to the poor user friendliness of the system.

> "*The medical records section is not very user friendly - it's very sparse in information and full of jargon* […]"
>
> Respondent 4527

> "*Booking appointments. I have yet to figure out how to do anything else? It's not the easiest site to navigate!*"
>
> Respondent 7268

12. Unfit-for-purpose

Digital technology for health should be fit-for-purpose in order for individuals and patient groups to adopt them. If patients do not perceive digital solutions to be fit-for-purpose, there is likely to be some level of disengagement[38,48–50].

Some respondents commented on the fact that they still had to use other means of contacting the surgery to confirm a transaction was successful or to make appointments quicker than those available online. In this respect, the system can be seen as unfit-for-purpose because patients could have contacted the surgery by phone in the first instance and had their queries dealt with more efficiently.

> "[…] *I ALWAYS need to telephone the surgery to confirm that a repeat prescription has 'gone through.*"

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Respondent 10273

"[…] *It's actually easier to call the surgery to get an appointment quicker*."

Respondent 20299

Other respondents listed disadvantages similar to this, suggesting that using the online service to request repeat prescriptions actually took longer than more traditional means. If patients do not consider GP online services to provide an improved service compared with other means of contact, they may be more likely to abandon them and see them as unfit for purpose.

"*Takes longer for the practice to accept the repeat prescription and send it to the pharmacy. It can be up to a week between requesting an item and it being able to collect from the pharmacy.*"

Respondent 19924

Furthermore, some respondents discussed that changes to the online system meant that they now require more appointments with the GP because the new system restricted the ordering of some medications. This was seen as an inconvenience because patients needed to visit their GP more frequently. This also impacts upon the GP surgery when they are attempting to reduce the number of unnecessary appointments and encourage higher levels of self-management for patients. In this respect, the system can be seen as unfit-for-purpose.

"*Using the new system, I can no longer order controlled drugs. Therefore I now need an doctor's appointment once a month, instead of once every three months.*"

Respondent 20154

Finally, some respondents acknowledged that online services are still in its infancy; therefore, they should not be seen as fit for purpose.

"*This is an embryonic service and should not be seen as fit for purpose at this time* […]"

Respondent 8930

13. Unmet expectations

The most commonly expressed disadvantage was unmet expectations. To be successful, online services need to meet the expectations of those using them[29,38]. If

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they do not meet the expectations of users, they are likely to be abandoned[45]. This could be attributed to a lack of communication by the practice about what is actually available to use on the online system, the extent of the service (e.g. how many appointments are available online, linking with other services) and the amount to which the patient will benefit from using the service (e.g. speed and amount of information included).

A respondent (who was also a GP) noted that the choice of appointments available online was very poor and it was easier to ring the practice for an earlier appointment. This was a commonly reported disadvantage which shows that patients are not always clear as to why all appointments are not available online.

This respondent also stressed that the standard of service they received from their GP surgery was not the same as the service they provided as a GP practitioner. This may highlight that there is an absence of a minimum standard across practices.

> "*I am also a GP. I find the choice of appointments very poor, there are never any in the next few days. What sort of medical problem, that is not urgent for today, can wait 2 weeks? I know that slots are 'embargoed'* […] *however these never seem to appear online and are much easier to book on the phone or in person.* […] *It is certainly not anywhere near the standard that we offer in my own practice.*"
>
> Respondent 13919

Another unmet expectation noted by respondents was that their hospital records were not available on their online record. A respondent understood this to mean that the tests performed at the hospital were not recorded at the GP surgery. This, in turn, highlights that some patients expect their information across all care settings to be included in the GP online record.

> "*I get frustrated that the tests I have at the hospital are not recorded at the doctor's surgery. Why is this? It seems to me that my health could be at risk if my GP is not apprised of my worsening health.*"
>
> Respondent 3533

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Other respondents were unsatisfied that their complete records were not available for view in the online system, and that these records only contained information limited to a certain period of time.

> "*My Medical History does not go back enough in years. I am 72 but my records only show the last 10/15 years.*"
>
> Respondent 19421

Some were frustrated that messages on the online system were not responded to by the staff monitoring the system. This has been supported by empirical evidence[51], which found that patients were unsatisfied that nurses did not pay attention to messages sent through a diabetes portal. This led patients to abandon the system as they did not see a point if it was not supported by the clinical staff.

> "*I'm disappointed that there are no records to view so really can only use the repeat descriptions[prescriptions] and appointments, further more on the occasions i have used the message within the app i have yet to receive a reply this reflects badly on whom is monitoring the service and not at all acceptable*"
>
> Respondent 5302

When the system does not work effectively, expectations are not met and patients are disappointed.

> "*It does not work - very dis-satisfied with service as all it does is give me my own information and address, which I know. It is sold as assisting you to ensure you can book appointments and order repeat prescriptions but it does not deliver the service promised.*"
>
> Respondent 12035

Unmet expectations also relate to a lack of access to services, if advertising of online services suggests access to more than actually available. This highlights the discrepancies across GP surgeries in relation to access.

> "[…] *There was a print out in my GP Surgery advertising the online services so I requested access details from the surgery. At no point did the surgery suggest*

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almost none of the services are available at my GP surgery. Very disappointed […]"

Respondent 11636

14. Lack of access

Lack of access was another of the most prevalent themes in the analysis. It refers to a lack of access to the online system or a lack of access to some of the services within the system (e.g. contacting my GP Surgery using the message function, viewing my health records, etc.). It is possible that including these earlier in the survey alerted respondents to services they do not have access to or did not know were available through their GP online system.

Lack of access as a barrier to technology uptake has been described in the academic literature[52–54]. It is possible that there is poor communication between GP surgeries and patients on what areas of the online system patients do have access to. This is confusing when the provision of access to many different areas including online records, test results and repeat prescriptions, among others, and then patients are not able to find them.

Respondents mentioned that the previous online service they had access to 'was better' than their current system, and that they are now unable to access any services online.

"*Everything (is a disadvantage), the previous online services was better this one. Unable to access any of the services online*"

Respondent 3640

Interestingly, other respondents noted that GP online services were not active at their surgery and that the surgery was not aware of access to them.

"[…] *this is not active for my surgery. When I queried this with surgery they were not even aware of it*"

Respondent 3932

It was highlighted that some respondents did not have access to many of the services seemingly available on the system. In some cases, they were required to pay for access to their health record. Other respondents also stated this was the

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case for them, which feeds into issues around ownership and equity, as well as a lack of access.

> "*this GP online services does not provide any of the services you refer to. There is no health records or no blood test results. if I want a copy of my health records I have to go to the surgery and pay for them. and I have to make an appointment at the surgery to get blood test.the only service it provides is for repeat prescriptions.*"
>
> Respondent 21324

Psychosocial

15. Perceived stigma

Evidence suggests that perceived stigma is a barrier to engagement with GP online services. This is particularly true for older people, where stigma is often embodied by information technologies and this may lead to a lack of engagement in their use for health-related purposes[41,55–58]. In 2013, 69% of people over 75 years of age had a long-term condition[5], but this group is also the least likely to use the Internet for health-related purposes[2]. An issue around potential stigma has been identified by respondents in the survey.

Perceived stigma was discussed in relation to age by respondents but was also related to a perceived lack of digital skills. For example, it was stated that the elderly may feel abandoned by an increased use of digital services as many of them will be unable to use or access them.

> "*Government should prepare for an abandoned older generation there will be millions of us unable to use or access services*"
>
> Respondent 9778

Others worried about older relatives and cited that - without family - they would not be able to use online services. There was also a concern online services may become the only way to communicate with the surgery, which may lead to feelings of isolation for the elderly.

> "*I worry that over time, this with will be the only way to communicate with your Surgery, therefore, leaving the old Generation feeling more isolated by modern*

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> *technology. My Mother would be unable to use such a service, if she had no family*"
>
> Respondent 5627

16. Emotional distress

There is academic evidence supporting an increase in anxiety associated with giving patients access to their test results when they do not understand this information[27], or the results were unexpected[59]. When available on an online platform, patients are not able to speak directly to a health professional about any concerns or confusion around test results, which can increase the potential for emotional distress.

Based on survey responses, it seems this theme is also related to health literacy and patient safety. Respondents emphasised that looking at test results online was 'terrifying' and they would prefer not to have access to this particular service.

> "*Test results online are terrifying for Patients like me & I would prefer not to be able to see them*"
>
> Respondent 6788

Another example of this is presented below, in a comment also associated with system unreliability. A respondent was informed that test results were available, but when they did not appear on the system it caused concern for them, as they believed this meant something was wrong.

> "*being advised that blood test results are available to view on line and they are not. it causes concern that the blood test has found something serious*"
>
> Respondent 21003

Access to test results may cause paranoia for patients, which can affect negatively upon their day-to-day lives, as some respondents observed.

> "*People make themselves paranoid worrying about their health instead of getting on with their lives.*"
>
> Respondent 20259

Access to test results may cause worry if patients did not understand them. This poor understanding of the outcome of test results may lead patients to ring the

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surgery unduly, which could in turn increase the workload for the practice and impede access for others.

> "*I would worry unduly if I come across something that I don't understand entirely or what the doctors may perceive to be an insignificant problem. From other patients' perspective, if they all started to get in touch with the GP to find out exactly what the problem is then that would hinder access significantly*"
>
> Respondent 7098

Another respondent highlighted that although they saw advantages to accessing test results, this may not be the case for patients; it could be seen as unhelpful. They believed that concern over results would lead to extra workload for the practice. Furthermore, a patient using the internet to explain their test results may cause harm if they do not interpret them correctly.

> "*I am myself a doctor, so being able to see my blood results is great, as I am able to understand them. If however I was a patient I think it could be unhelpful as people may be concerned about 'abnormal' values, which would cause extra work for the practice as I would want an explanation or could cause patient harm as they might google the abnormality and get worried.*"
>
> Respondent 17588

17. Patient-doctor relationship

Research has found that patients greatly value face-to-face contact with their GP and they are concerned that the use of technology may interfere with this relationship[26]. This has been identified by a number of respondents, who saw value in the relationship with their GP, and believed that technology could disrupt this.

> "*System is too rigid and works against the most important element continuity of relationship between patient and GP*"
>
> Respondent 10491

Respondent also commented on apparent efficiency measures in the NHS, including the recommended 10-minute limit per consultation in GP surgeries. They believed this was already diminishing the important relationship between the patient and doctor and were concerned that online services may further weaken this relationship.

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> "*With the ever decreasing NHS funding crisis and surgery government statistical overheads (10 minute patient turnaround time frames) the face-to-face relationship and intimate knowledge between patients and their GP's is no longer there. Online processing, whilst great in itself, is another step further away from that, all important relationship*"
>
> Respondent 8761

Others were further concerned about online services lessening the level of interaction between the GP and the patient, and that the service would widen the 'gap' between them.

> "[…] *I could see that some people might use them instead of interacting and building a relationship with, their GP*"
>
> Respondent 12624

> "*Increases the 'gap' between GP and patient/practice. Decreases the personal relationship of mutual trust and understanding that can take years to develop.*"
>
> Respondent 12957

Additionally, it was observed that potential for safety issues was associated with changes to the patient-doctor relationship, if medicines are continued without the appropriate discussion.

> "*There is a risk of becoming distant from the GP and simply continuing medication without adequate discussion.*"
>
> Respondent 20876

This theme highlights the value respondents see in the relationship with their GP and emphasises that the use of online services should *complement* this relationship, not replace it.

Respondents also considered the relationship with surgery staff as important and were concerned with a lack of social contact as a consequence of an increased use of online services. This is discussed in more detail below.

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Others

18. Lack of social contact

Lack of social contact is another significant barrier to engagement with digital technologies for health and which has been identified by the survey respondents. Digital technologies are sometimes considered less interactive[27] compared to with speaking to healthcare professionals and other staff.

Respondents believed online services made the GP surgery harder to contact and the online system felt distant and remote.

> "*distant, remote, makes the surgery even harder to contact to speak to in person*"
>
> Respondent 4464

Others were concerned that the introduction of digital technologies may reduce the rapport they have with staff across healthcare environments[60,61].

> "*Possibly you lose the rapport/personal touch you may have with GP staff as there will be less contact/conversation*"
>
> Respondent 11427

This is further highlighted by patients reporting on the loss of engagement with the GP surgery, especially for individuals who are not comfortable using online services.

> "*Loss of engagement and personal care for some who are not as comfortable*"
>
> Respondent 11801

Further to this, concerns about online services and the possibility of online consultations with the GP were highlighted. It was suggested that, regardless of the use of online services, face to face consultation is often required - and without it-patients may as well just google their symptoms.

> "[…] *There are times when face to face consultation is required, otherwise people may as well just Google there symptoms.*"
>
> Respondent 17606

Flexibility when speaking to GP staff was a concern raised by respondents in relation to contact with the surgery. Some were concerned that the use of online services was in some part restrictive, as it did not provide the flexibility to question or

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negotiate issues brought up on the system (e.g. a lack of appointments, or mistakes in repeat prescription).

> "*There can be no negotiation or questioning of e.g., why appointments are not available. It does not give the surgery the flexibility which sometimes is there in speaking directly to the receptionist.*"
>
> Respondent 19832

19. Opportunity

This theme refers to a lack of opportunity to use digital technologies for health, which has been identified within the literature[62–64], and can relate to other themes identified in this analysis including equity and awareness. Interestingly, it can also refer to the idea that digital technologies provide more opportunity to use some services such as GP surgeries or A&E, rather than more appropriate services (e.g., community pharmacy or NHS 111). An increase in this behaviour may not help to reduce demand on frontline services (a key benefit for the wider Digital Transformation Portfolio), but in contrast, increase it.

There were some concerns voiced involving patients using the online booking system to unnecessarily book appointments because there is an easy opportunity to do so. In turn, this may lead to individuals booking appointments with the GP when their health issue may have been more appropriately dealt with by a Pharmacist.

> "*Maybe people would make a GP appointment online because it is easier than asking advice at a chemist first.*"
>
> Respondent 14798

20. Equity

Equity refers to the accessibility individuals have by means of digital technology for health, healthcare and health outcomes. Individuals should have equal access to eHealth solutions to take advantage of the benefits that GP online services can provide[65,66]. Some respondents commented upon occasions where the online system was not accessible for them or may not be accessible for some groups.

The registration process for GP online services has been stressed on numerous occasions as cumbersome, and potentially awkward for users with learning difficulties, which may contribute to patients abandoning the service.

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> "*The account Linkage key (13 mixed case letters and numbers) is another anti-human inconveniences that makes completing the registration really cumbersome, and very awkward for anyone dyslexic or dyspraxic or with any one of a number of disabilities who will be deterred by the whole thing.*"
>
> Respondent 15494

Others were concerned that one might get a 'second class service' because of struggles accessing or reading the information contained in the online system. In this case, they would not have equal access to the service available, including appointments which may all be booked online before they can contact the surgery.

> "*If you have trouble reading or getting access to online services you could get a second class service as all the appointments can go before you get to the surgery*"
>
> Respondent 9916

> "*It takes appointments away from those patients that don't have on line access out of hours and therefore reduces the number of available bookable appointments for those patients*"
>
> Respondent 20549

Unequal access to online services may lead to feelings of stigmatisation for certain groups[41,67], and respondents felt a sense of this in relation to age and the ability to fund online services.

> "[…] *I am being discriminated against because I don't have the funds to have online services 24/7*"
>
> Respondent 7319

In relation to age, a respondent reinforced that access to online services should be a choice, which would prevent older people feeling discriminated against if they are not confident using the system.

> "*Online services should be a choice and not compulsory to prevent the elderly or poor being discriminated against*"
>
> Respondent 14735

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21. Infrastructure

In order for GP online services to work effectively, the correct infrastructure must be in place to support daily operations or they are likely to cause frustration for patients' and carers[60,68–70]. This includes the software and hardware required to use online services and internet access for both the GP surgery and patient.

A respondent commented on how a specific service provider was often difficult to access at particular times, attributing this to the connection speed.

> "*The internet speed is not always as fast as it should be. It takes ages to access 'emisaccess' most times, especially around 6.00 to 6.30pm*"
>
> Respondent 3979

Some respondents believed that GP online services could potentially save time not only for them, but for the practice as well. However, they did not perceive the system to work properly as it 'crashed' frequently.

> "[…] *it could save the time of the GP receptionist, the GP and my time; only if you can get the website to work properly without crashing all the time!*"
>
> Respondent 4919

The use of smartphones and tablets has permitted society in recent years, and in 2017, 76% of individuals owned a smartphone and 58% of households a tablet computer[71]. Although most respondents accessed GP online services through a computer (80.4%), mobile phone and tablet users accounted for a combined 65% of access, and so it would seem impertinent to disregard these groups in the design of GP online systems. However, some alluded to the fact that the system was not 'mobile friendly' (it didn't have this capability), which may impact on the usability of the service for them.

> "*Need to make it mobile friendly*"
>
> Respondent 9931

Others addressed the reliance on an internet connection to use GP online services, and that if the Internet was to 'go down', patients would be unable to use the system.

> "*Cannot do it if your Internet goes down*"
>
> Respondent 12855

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If the Internet connection is lost, patients are likely to revert to paper-based methods (e.g., prescriptions), which was mentioned by some respondents. This highlights the value of infrastructure and the need for a reliable Internet connection for online services are to be used effectively, and for patients to take advantage of digital technology[42].

> "*Quite often the net connection is lost and I return to putting paper prescriptions in.*"
>
> Respondent 16794

22. Safety

Associated with accuracy and reliability is safety. There is potential for risk to patient safety if information is not recorded correctly by the surgery or interpreted incorrectly by the patient. In the survey, respondents identified issues within the online service related to mistakes made by the GP surgery and the potential for self-diagnosis.

To illustrate this, the below response is used to highlight the potential for safety issues surrounding the ordering of medicines on the online system.

> "*Mistakes have happened at my GP surgery regarding repeat prescriptions using EPS*"
>
> Respondent 18328

Furthermore, respondents also observed that patients may not see a doctor because of the information they see on their online record. This could potentially risk patient safety if a visit would have actually been appropriate and highlights the need for comment and communication from the surgery if the patient's attention is required.

> "*I suppose there is a possibility, you could self diagnose instead of seeing the Dr because you do not want to waste their time* […]"
>
> Respondent 15286

> "*Could lead to patients deciding not to see a GP when they really should.*"
>
> Respondent 19520

23. Incomplete record information

The incompleteness of record information was established as a disadvantage of online services by many respondents. This disadvantage refers to a perceived lack

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of data not included within the online record, and highlights a level of expectation from respondents about what is included in their record and what they should have access to.

> "*No health data*"
>
> Respondent 7970

> "*Not all information is included*"
>
> Respondent 8090

> "*Medical history only shows my repeat prescriptions. Not helpful at all.*"
>
> Respondent 11718

> "*Only limited data is provided on the online services*"
>
> Respondent 15215

> "*I do not think there is enough information online about myself and my condition. I find only the basic information was given to me online* […]"
>
> Respondent 16473

> "*The information is not fully up to date as it only reflects some of the date held by the GP and it does not include Hospital data. Therefore there are gaps.*"
>
> Respondent 16325

7. Discussion

7.1 The findings in context

The focus of this research was on patients' perceived disadvantages of GP online services. Through the thematic analysis, a total of 23 themes were identified of which the most predominant were:

- unmet expectations;
- lack of access;
- perceived irrelevance;
- awareness; and
- lack of social contact.

From the 22,134 individuals who took part in the survey, 45.3% were excluded from the analysis because they responded to item 7 by providing no answer or by stating:

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'none', 'no disadvantage', or similar. However, this may not necessarily mean that they are happy with the service provided. It could mean that they do not perceive a disadvantage, they do not have access to the services or they have not used the system enough to provide an opinion.

People aged 65 and over (31.8% in the survey sample) are statistically the highest users of healthcare services, accounting for 50% of all GP appointments[5]; they are also the least likely group to use the Internet[20,21]. The latest available statistic from the ONS shows that adults aged 75 years and over had the highest rate of lapsed Internet users at 7%[2].

Age was an important theme discussed by respondents and was perceived as a disadvantage to engagement with and usage of GP online services. It was also related to other themes, such as perceived stigma and digital skills, among others. People over 65 years of age in particular should be supported by Patient Online and other programmes within the Digital Transformation Portfolio, such as the Widening Digital Participation programme.

Most respondents (87.7%) stated that registering for online services was straightforward (see table 5). Conversely, the analysis found that many of them saw the registration process to be cumbersome. It is important to recognise that signing people up to a service does not mean that they will actively use the technology. This is particularly true if their expectations are not met[29,38,45] or if it is perceived as irrelevant[19,22,30].

Unmet expectations and perceived irrelevance accounted for 42.5% of the recognised disadvantages of online services. Respondents shared how disappointed they were to find an empty record or not being able to complete a task they expected to (e.g., book an appointment, order repeat prescriptions or see test results); this can contribute to a high attrition rate.

Access to their record was considered straightforward for 39.7% of respondents. A number of them shared that upon accessing their record they found it to be incomplete, inaccurate or empty. Access may be easy, but if the information is not relevant, incorrect or missing, this could lead to patients feeling discouraged and may lead to an abandonment of the service.

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From the survey, the most commonly reported activities were ordering repeat prescriptions (83.4%) and booking appointments (74.9%). A substantial number of respondents agreed that ordering repeat prescriptions online was straightforward (82.8%). Nevertheless, respondents were discouraged by several issues concerning the lack of communication between GP practices, pharmacies and patients. This is consistent with responses to item 4 (see table 7), in which 51.9% noted that online services did not improve their communication with their GP surgery or there had been no change. Given the responses, technology may be seen as a barrier to effective communication with GP surgeries as respondents associate online services with a more impersonal service, leading to a lack of social contact with their GP and surgery staff.

In addition, 74.1% of respondents agreed with the statement that booking appointments online was straightforward. This is supported by recent evidence suggesting a growing trend worldwide in the adoption of web-based appointment booking systems[1]. Nonetheless, the qualitative analysis revealed that many respondents felt frustrated with the paucity of available appointments. This finding is supported by responses to item 5 (see table 8) in which 39.7% of respondents stated that they didn't get appointments sooner than they used to before online services were available to them.

The process of booking an appointment may be perceived as easy, yet - based on the reported disadvantages - appointments are not readily available. This emphasises how important is not to confuse the process with the reality of an insufficient offer for a growing demand.

It was stated by 58.8% of respondents that the online booking appointments service provides them with more choice. Nonetheless, many people reported that they gave up on using online services to book GP appointments due to the scarcity of available dates. This prompted them to revert back to traditional methods of contacting the surgery. In most cases, respondents were surprised to find much more choice when contacting the surgery by telephone. As a consequence, they perceived online booking to be irrelevant.

In the survey, convenience and time savings were identified as benefits for online GP systems; 92.2% of respondents agreed with online services being convenient

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and 90.3% agreed that using online services saves time. However, respondents shared their dissatisfaction with not being able to do what they intended by logging in. This, in turn, led to unmet expectations which reflect some disagreement between the expected benefits and the reality of using GP online services. Finally, the high level of agreement with the statements in items 3 - 6 may have been the result of using leading questions (anchoring) and not the reflection of what respondents truly believe.

7.2 Strengths

The main strengths of this research include the substantial sample size, which is unusual for qualitative research of this type. Another advantage was the high level of rigour in the analysis of the data, as well as the use of quality academic evidence to establish the themes explored in the analysis. The use of a mixed methods approach to contextualise the findings from the qualitative section of the survey was an advantage. Finally, this research is particularly relevant to understand patients' views on GP online services to help inform future strategies to increase patient uptake and - most significantly - *engagement* with digital tools designed to truly empower the person.

7.3 Limitations

There were some methodological limitations, specifically related to the design of the survey items. Some level of bias may have been introduced through the wording used in some questions, particularly with the use of the phrase: '*Would you say…'* For example, item 3 read: '*Would you say that registering for online services was straightforward?*' This conditioning is known academically as *anchoring*[72] and has been widely reported in the literature[73–75]. Future surveys should consider beginning items with: '*For you…*' in order to reduce the possibility of bias in the responses. Take for example the revised item: '*For you, was registering for online services easy?*'

Responses to item 7 focused on the perceived disadvantages of using GP online services, which are difficult to fully understand. This is mostly due to the fact that there was no opportunity to ask respondents to elaborate more on the subject or request them to provide an example. For this reason, there is a possibility that the interpretation of the perceived disadvantages may not truly reflect respondents' thinking and the analysis may have been prone to some degree of research bias.

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Another limitation is the second part of item 7: '*Please also include any other comments you wish to make*'. This statement allowed respondents to comment not only on the disadvantages of GP online services (which was the main question), but also to include any further comments and concerns. From the analysis, it became evident that some respondents used this opportunity to comment on a variety of concerns they had about the operations and processes of their GP surgery, and not the online systems and services offered.

Item 4 in the original survey included 2 statements regarding online services improving communication with GP surgeries and online services giving more choices on how patients communicate with the surgery. However, there seems to be no data collected for these statements, which prevents us from contextualising the lack of social contact disadvantage identified by respondents. There were neither items nor statements referring to lack of access to and awareness of other online services.

The design of the survey could have had introduced bias in some responses limiting answers around the subjects discussed in previous questions. For example, respondents may not have been aware of some functionalities being available on the system. This may have prompted them to address this lack of access as a disadvantage, limiting their response to this matter only and not exploring further concerns.

There are methodological issues with the way the online survey was conducted. It used a convenience sample which may have targeted people already engaged with or enthusiastic about using GP online services, thus skewing the responses. Finally, the survey failed to reach people not engaged in the use of GP online services. Targeting this group would have provided relevant data to further our understanding of the reasons why people do not engage in the use of these services.

7.4 Recommendations

It is vital to carry out regular patient-level surveys to gauge patient views around online services. Also, this should be extended to GP practice staff and clinicians to fully understand whether the benefits are being realised. If there are other benefits or concerns established from this kind of survey, these can be considered in the improvement of GP online services.

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There is inconsistency in access to services across the country. In response to this, a standard set of online services should be recommended across GP practices in order to minimise confusion and reduce the risk of some groups perceiving that they are treated as 'second class patients'[76].

8. Conclusions

It is important to note that responses were taken from an online survey conducted in 2016 and some problems with the systems may have already been corrected or perceptions may have changed. Patient-facing technologies need to meet patients' expectations to be considered as relevant.

Patient Online has successfully achieved a mandate to encourage people to register for online services. The online services offered by GP practices have helped and benefit some patients, but there are still areas requiring consideration, particularly around engagement. This report can be used to understand the reasons why the public may not engage with GP online services and recognise the issues highlighted by respondents in order to develop strategies to further increase meaningful uptake.

Clinical Commissioning Groups and GP Practices will benefit from this report as a means to understand patients' perception on online services, what they consider to be of value, and what needs to be improved to satisfy their expectations and make online services relevant to them. In addition, other programmes delivering patient-facing technologies within the Digital Transformation Portfolio can benefit from these insights.

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