



Extended Research Article

Evaluating the national rollout of the NHS App in England using qualitative and quantitative methods

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Scientific summary

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Scientific summary

Background

The NHS App was developed as a 'digital front door' to England's NHS. The initial goals for the app were to improve access to primary care services, improve patient experience, save time in general practitioner (GP) practices and promote self-care. There was no planned national evaluation of this app, which was introduced as a policy priority and constituted a novel complex intervention with potentially wide-ranging impacts on the use of healthcare services. This project provides the only national evaluation of a major component of the central plan to digitally transform the NHS.

The roll-out of the NHS App was in line with a general political discourse and drive towards harnessing digital tools for health care and was tied in with the roll-out of the NHS login. The NHS Long Term Plan set out the ambition for all patients in England to have the right to access digital consultations from their GP, while NHS England's 'digital first' strategy, aimed to direct patients away from in-person engagements, through telephone, online or video consulting before face-to-face consultations.

Throughout roll-out, the app has been dubbed as serving to 'ease pressures on GPs', 'provide more effective, personalised care' and 'freeing up valuable clinician time'. There have been ongoing developments of the NHS App, with additional features and integrations added throughout roll-out, and it continues to be at the forefront of the digital health agenda in government policy. In the spring budget of March 2024, the Chancellor of the Exchequer announced £3.4B of funding for the NHS to invest in digital technology, including the specific aim to make the NHS App a single front door to the NHS for patients. The plans for the NHS App include greater use of messaging with healthcare providers, more preventative 'keep me healthy' content and supporting integration with third-party apps and devices.

This project aimed to identify and understand the use and acceptability of the NHS App, measure the extent to which it improves patient experience and influences health service access, and assess the impact of the app on reducing demand on NHS services. Much of the evaluation covered the period during and immediately following the COVID-19 pandemic.

Methods

To evaluate the app, this study had two workstreams. A qualitative approach explored experiences and views on the acceptability of the NHS App through 62 semistructured and think-aloud interviews, and four focus groups with 88 participants. These participants included patients, carers, members of the public (who used the app to different degrees or not at all) and clinical/non-clinical staff in five general practices (where we also conducted over 60 hours of observations), as well as other industry, policy, commissioning and civil rights stakeholders. Document analysis of approximately 100 documents (blogs, government reports, newspaper articles, digital access documents in GP practices) also contributed to participant recruitment and data interpretation. Data were collected between June 2021 and April 2023. Our theoretical approach was based on the Non-adoption, Abandonment, Scale-up, Spread and Sustainability (NASSS) framework. A quantitative element examined the impact of the NHS App on the usage of primary and secondary care, using routinely collected statistics. Firstly, using monthly NHS App user data at general practice level in England, descriptive statistics and time series analysis explored monthly NHS App use from January 2019 to May 2021. Secondly, data on the sociodemographic characteristics of the GP-registered population and their healthcare needs at the GP level were used as covariates to explore inequalities in app usage. Finally, NHS App usage data were also compared with measures of patient experience of care and care access extracted from the GP Patient Survey (GPPS) database. This was a multimethod study using separate qualitative and quantitative approaches to study the app, with the results presented separately, rather than a mixed-methods study where such approaches would be integrated in the analysis.

Results

Qualitative study

Using the NASSS framework, the qualitative workstream identified the multiple layers of complexity manifesting when introducing a constantly shifting technology into a challenging environment, such as English general practice, during and after a period of considerable societal turbulence in the context of the COVID pandemic. Several interacting influences shaped the trajectory of the NHS App. These included complexity and variability in the value proposition as different features were added, removed or became more or less relevant over time, such as the COVID-19 Pass; variable infrastructure and local arrangements which meant some features were only functional in some areas or general practices; availability, interest and capacity of healthcare staff to support adoption, in the context of what was perceived as top-down implementation, as well as effort required by patients and carers to use the app meaningfully; varied motivation at organisational level to put in place the processes, staff roles and capacity required for the change effort; the influence of the wider context which shifted considerably from a 'remote-by-default' orientation to an emphasis on in-person care, as well as controversies related to specific features (such as centralised patient access to own records); and challenges with digital inclusion especially in relation to maintaining interest in an offer that would appeal to a large proportion of NHS patients and remain relevant for them over time.

Quantitative studies

Analysis of NHS App usage data and other routine statistics for general practice in England showed that there was strong adoption of the NHS App even before the onset of the COVID-19 pandemic, although the introduction of the COVID-19 Pass feature did cause a massive surge in registrations. Before the first national lockdown in the UK was announced, there were almost 1.5 million downloads of the app. Between January 2019 and May 2021, there were 8,524,882 NHS App downloads and 4,449,869 registrations, with a fourfold increase in app downloads when the COVID-19 Pass feature was introduced. Analyses by sociodemographic data found higher usage in less-deprived and less-ethnically diverse practices, with a generally younger population. There were 25% lower registrations in the most deprived practices ($p < 0.001$), and 44% more registrations in the largest-sized practices ($p < 0.001$). Registration rates were 36% higher in practices with the highest proportion of registered White patients ($p < 0.001$), 23% higher in practices with the largest proportion of 15- to 34-year-olds ($p < 0.001$) and 2% lower in practices with highest proportion of people with long-term care needs ($p < 0.001$).

In terms of specific app functions, the COVID-19 pandemic and the introduction of the COVID-19 Pass service had significant impacts on their use. Introduction of the COVID-19 Pass accounted for over a threefold increase in login sessions in May, indicating that users could have been logging into the app to retrieve their vaccination status. This pattern was also observed for the number of users using the app to access their GP health records. Appointment bookings fell substantially after the first lockdown in line with a fall in overall primary care NHS activity, but continued on the same gradient from March to May 2021. Prescriptions ordered via the NHS App also significantly increased after the first lockdown, suggesting that more users were using the app to place prescription orders rather than in person or via the phone. These findings could be related to patients and carers seeking alternative options to in-person care and may have also been influenced by changes in health service delivery due to the risk of COVID-19 transmission and due to the reliance on online prescriptions to support patients who had relocated during the national lockdown.

There were variations in the use of different features overall and across the different covariate categories. Practices with younger patients had higher appointment booking rates, but lower rates of prescription ordered. In practices with the most people with long-term healthcare needs, there were significantly higher rates of medical record views and prescriptions ordered but lower appointment booking rates, registrations and logins. For ordering prescriptions online – one of the most used features – there was a strong ethnicity gradient, with practices with a higher proportion of White patients using this function more than twice as much as practices with a lower proportion of White patients, suggesting particular opportunities for changes in design and practice to reduce inequality.

Our analysis of GP patient experience of care and care access on public engagement with the NHS App features highlighted a varied pattern of uptake and revealed a nuanced relationship between access modalities, patient experiences and the utilisation patterns of NHS App features. We might have expected that better patient experience was associated with higher NHS App use, or possibly lower use. We found a more complex and variable relationship.

Generally, practices with better-reported phone access had higher usage overall for the different app functions but had lower registration rates and a varied pattern of logins. In particular, appointment booking rates were 57.8% higher in the practices that were reported as easiest to access via phone. In terms of web access, practices with websites that were reported as easiest to access and use had a mixed pattern of NHS App feature usage. Although registrations, logins and prescription orders were generally higher among these practices, appointment booking rates were substantially lower compared to the reference group. Also, rates of medical record views were overall higher among practices with websites that were easier to access and use, with modest but non-significant increase in the highest quintile. Similarly, the use of the different NHS App features also varied by patient experience with lower rates overall for appointment bookings and prescription orders among practices with better reports of patient experience. Although registrations, logins and medical record views were generally higher among these practices, usage rates were significantly lower in the highest quintiles, suggesting that practices with the best patient experience had lower rates of use of these different functions.

Research recommendations

We identify three priority areas for further work: longitudinal studies, which include the use of person-level data; studies which focus on inequalities, access and inclusion; and work examining how digital tools like the NHS App can be better integrated into clinical workflows to support healthcare providers.

To better understand the long-term impact of the NHS App and similar digital tools on health outcomes and healthcare utilisation, longitudinal studies are recommended. These studies should aim to track individuals' app usage patterns over time and correlate these with changes in health behaviours, access to care, service utilisation and health outcomes. This would require overcoming current barriers to person-level data linkage but would provide invaluable insights into the effectiveness of digital health interventions.

Our findings suggest that the roll-out of the NHS App has not been equitable across all populations, potentially exacerbating existing health inequalities. Future research should focus on identifying the specific barriers to app adoption and use among marginalised and underserved communities. This includes qualitative research to understand the unique needs and preferences of these populations and developing targeted interventions to increase accessibility and usability of digital health tools and long-term engagement with them.

Research is also needed to explore how digital tools like the NHS App can be better integrated into clinical workflows to support healthcare providers. This includes understanding the barriers and facilitators to the adoption of digital tools by healthcare professionals and investigating how these tools impact clinical practices, patient-provider interactions and overall healthcare delivery efficiency.

Conclusions

Our study contributes to the growing body of evidence on engagement with novel digital health solutions and the complexity inherent in their adoption. It was clear that the NHS App has achieved strong uptake. While initial uptake was good, the COVID-19 pandemic, and especially the introduction of the COVID-19 Pass feature, drove a significant increase in adoption. The extent to which this uptake has translated to sustained and meaningful use is less clear. But the landscape is complex and changing. Overall uptake and use has followed a deprivation gradient and influenced in particular by patient age, ethnicity and healthcare needs. Different functions of the NHS App have been used to different extents, and with different patterns over time, with varying degrees of experience and use by patients and practices. While many patients report the app has been able to address some of their needs, there is now a need to focus more on understanding and meeting practitioner needs with further development of the NHS App. There is an unresolved question about whether the NHS App represents *an* app for the NHS or *the* app for the NHS. A single NHS login, with linked data, presents real opportunities for tailoring patient offers, and for research, but cannot yet be fully realised.

Study registration

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