

# Innovating for Improvement

Addressing urgent care demand: facilitating self-assessment, self-care advice and signposting to healthcare services using an avatar-based virtual nurse

Vocare / Sensely UK / Advanced Computer Software Group Ltd.



## About the project

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### Project title:

Addressing urgent care demand: facilitating self-assessment, self-care advice and signposting to healthcare services using an avatar-based virtual nurse

### Lead organisation:

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### Partner organisation(s):

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## Part 1: Abstract

We all want an NHS that will be there for us and our families when we need it the most. Unfortunately, however, emergency departments (EDs) and GP surgeries are struggling to cope with this ever-increasing demand. In December 2017, NHS 111 reported a 13.5% increase in calls compared to December 2016.

Ask NHS is a free mobile app that addresses this need. It provides improved digital access to healthcare information and empowers patients to make choices that will suit them and their situation.

Through the Ask NHS app, the population of Staffordshire and the West Midlands has been given 24/7 access to the NHS. Users can assess their symptoms by talking to the virtual nurse, look up self-care information, book or cancel a GP appointment, and access local service information.

The scale of Ask NHS has gradually grown throughout the pilot period, with over 60,000 people now using the app with an addressable pilot population of approx. 3.5m (aged - 18+).

Dr Jonathan Darby, a GP involved in the pilot, commented that patient feedback on the app is positive. This feedback suggests that the app is easy to use and that users particularly like the dialogue with the virtual nurse. Many agreed that they would use the app regularly and that they would recommend it to others.

Dr Darby said, "If we were [*sic*] to manage the ever-increasing demand for services and ensure that patients get high-quality care in the right place at the right time, we must invest in new technologies. The development marks a new opportunity for the way we interact with patients."

## Part 2: Progress and outcomes

The Ask NHS mobile app was developed using agile project methodology and working with a collaboration of healthcare industry leaders. The initial specification was that the app should enable patients to assess the urgency of their symptoms and signpost them to the appropriate provider (e.g. GP, ED, NHS 111, pharmacy or self-care) and healthcare information (NHS Choices). This information helps patients to make better informed choices and decreases dependency on GPs, EDs and NHS 111.

The infographic below summarises the Ask NHS product offering which was made available to users over the age of 18:



The pilot started in Dudley Clinical Commissioning Group (CCG) but was soon extended to include local neighbouring CCGs – for two reasons 1) As a project we needed more usage to evaluate the digital offering 2) Vocare were successful with securing the contract to run NHS 111 in Staffordshire. The decision was made to accelerate rollout and the app was made available in the neighbouring Staffordshire region (consisting of 6 CCGs) as well as West Midlands (16 CCGs inc Dudley).

As the project evolved we used a variety of approaches to start evaluating the product offering and gain insights. These have included

- Ask NHS Performance Dashboard - Data Analytics (Establishment of a Minimum Data Set)
- Your care matters: user Follow-up surveys!
  - o Sent out 24 hours after the use of the app.
  - o Simple 5 questions but different for Self-care, GP, 111 and 999 endpoints
  - o Contained friends and family test
  - o Analysis of use of other NHS Services.

- GP Practice Patient Panel Groups

As a project team we regularly monitored the performance of the app and reviewed the data gathered. This has allowed the project team to track sign up rates, usage of Ask NHS, identification of top 10 pathways, etc. Based on current usage – the table below summarises from over 100,000 interactions with the mobile app which feature has been most popular.

Menu Options	Usage %
Appointment Booking	14
Self Care	16
Service Finder	5
Symptom Checker	65

The symptom checker is the most popular item and a good early indicator we may have started changing patient behaviour as users consider utilising the app instead of ringing NHS 111 or visiting their GP. As a next step, it has been challenging to gain symptom checker feedback and conclude at the time of writing of this report whether the mobile app has led to “channel shift” / reduced demand on NHS services. This is because in order to make a definitive conclusion there is a need to track a user through its use of NHS services – for which privacy (consent) and governance rules need to be followed. We have started on tackling this area by placing data-sharing agreements in place between the User / 111 Provider / Commissioners / GPs / Sensely and Advanced Computer Software; and completing follow up surveys with users.

We have started to evaluate clinical safety and usage of the app internally through the support of the provider to answer questions such as “Is Ask NHS reaching the appropriate outcomes and signposting users correctly?”

e.g. snapshot of cases which have requested a clinician callback

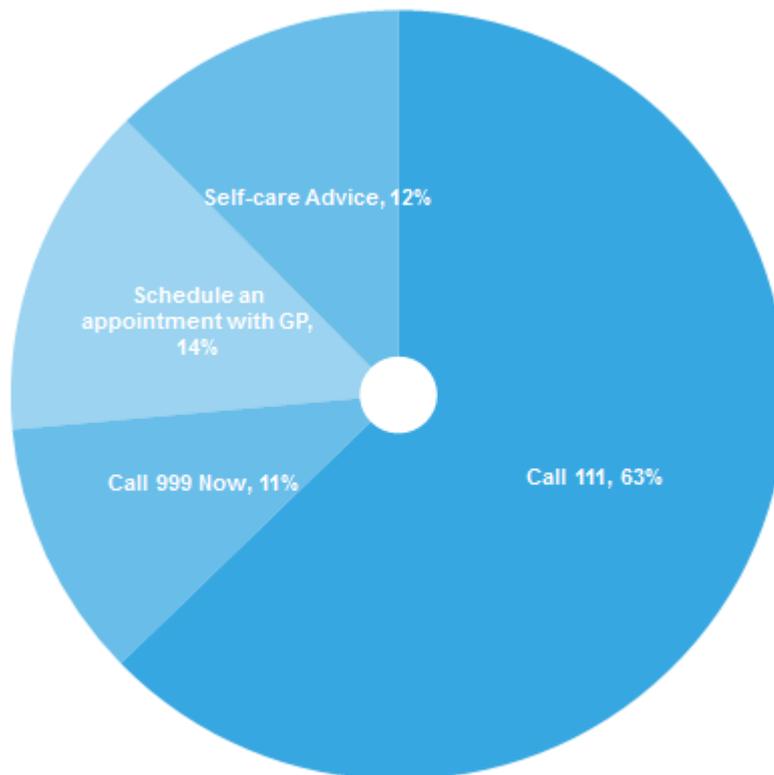


Ask NHS.XLSX

This sort of analysis has been reassuring as very few of the calls led to homecare advice, and the calls which resulted in an ED or 999 outcome had almost all been identified as urgent by the app.

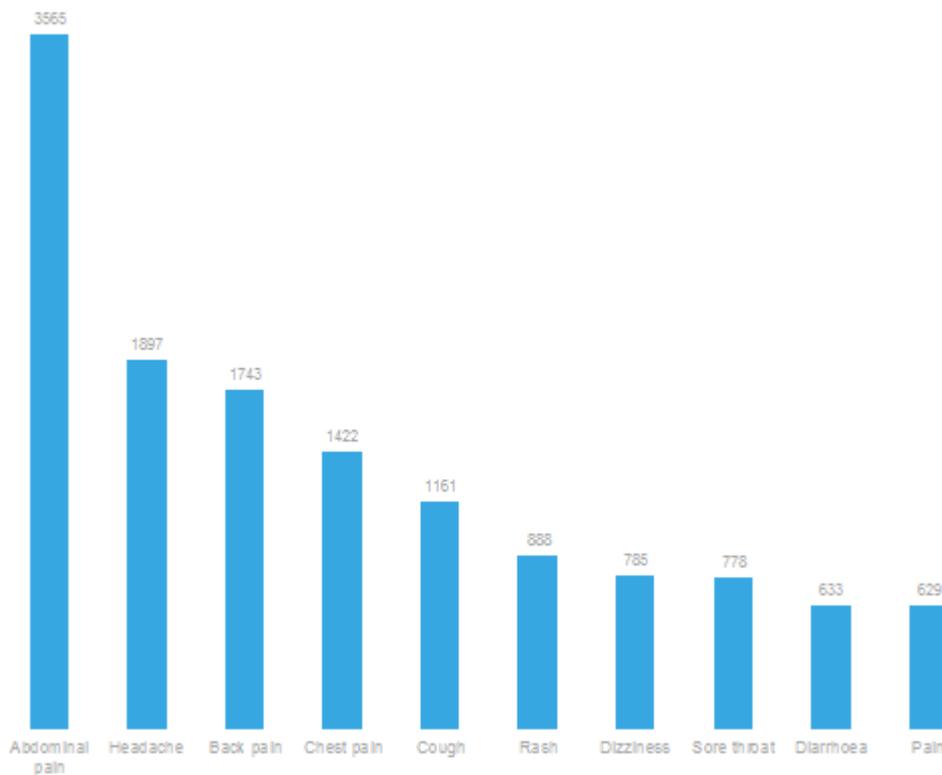
On the next few pages we look to provide an overview of the data gathered to date and stakeholder feedback. *Source: Ask NHS Conversations. Based on 43,367 completed assessments during the period from 20<sup>th</sup> April 2017 to 2<sup>nd</sup> Jan 2018::*

## Outcomes for completed symptom checker assessments



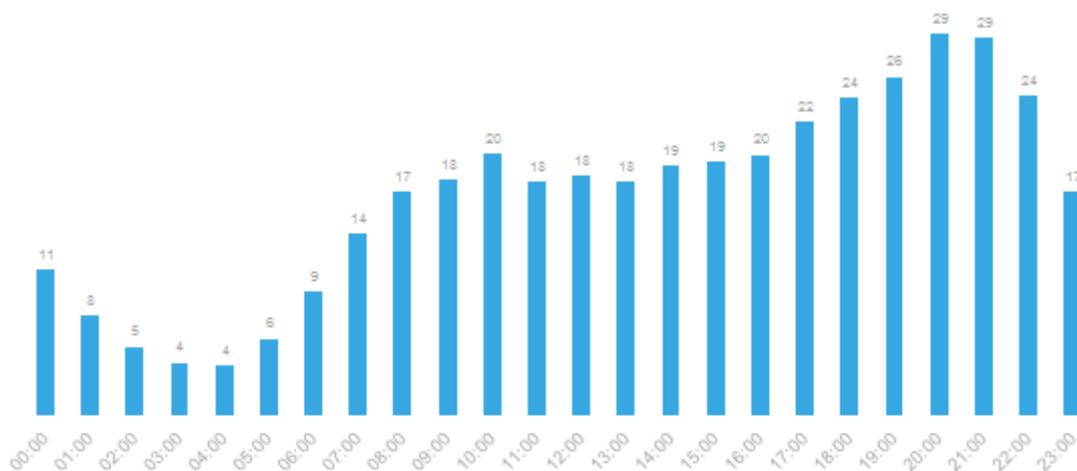
Patient Follow Up surveys were sent to each user and what we have learnt from those recommended to dial 999 (74 users had responded to the survey) – surprisingly 88.7% didn't ring 999 of which 71.4% thought their issue was not serious enough. This insight has meant clinicians are now reviewing the 999 outcomes to see if some of the cases could have been directed to an Urgent Treatment Centre or if an Urgent - 10mins clinician call back could be accommodated into the process to signpost a patient accordingly (e.g. mental health issue). The true impact therefore on the 999 service as a result of Ask NHS is much lower than the 11% shown through the data.

## Top 10 Symptoms



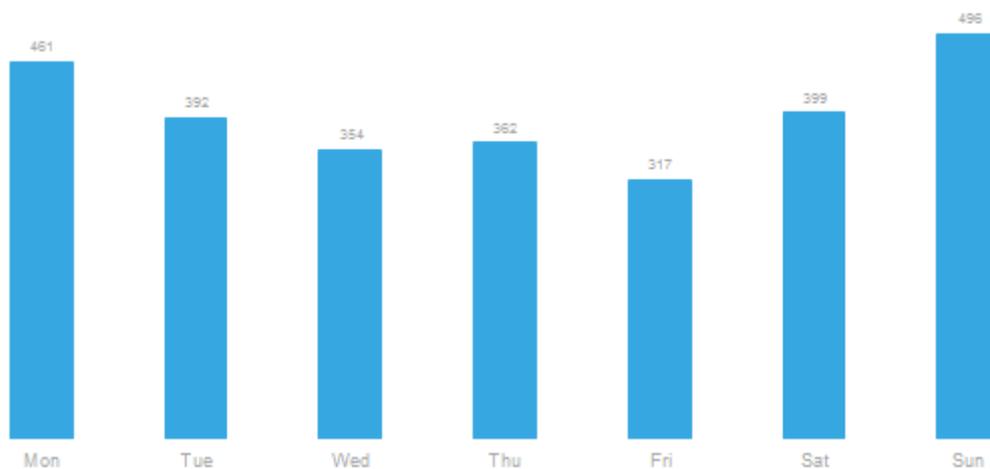
GPs and Clinical Leads who have reviewed the data have agreed this is similar to reasons as why patients are calling the NHS 111 service or accessing primary care.

## Average number of Ask NHS Conversations per hour



The call pattern for Ask NHS mirrors activity seen by 111 with a peak experienced in the morning and for a few hours after practices have closed.

## Average number of Ask NHS Conversations per day



Commissioners have mentioned the peak seen on Sundays and Mondays is similar to what is seen in A&E - this pattern of usage can be likened to how patients are accessing A&E. For Winter 2017, Ask NHS was marketed locally at A&Es across the region and in time we are looking to see if the app has helped with A&E attendances locally. Between the 29/12/2017 and 02/12/2017 – 5,120 conversations were carried out using Ask NHS whereas in a typical week this figure is approx. 3,000.

### **Ask NHS User Journeys – real cases:**

- 67yr old, Female, Used the App for Upper Abdominal Pain

“Brilliant would definitely use again. A nurse from 111 called me back. The nurse advised an urgent GP appointment.” Subsequently caller seen by the GP and medication changed. Hiatus Hernia diagnosed.

- 50 yr old, Female, Used the App for Asthmatic.

“The Ask NHS App and 111 service was wonderful.”

Caller used the App and despite a delay in call back felt that the service she received was very good. The caller had used 111 previously and knew the procedure. The caller was also aware of the walk in centre available and was aware to attend the WIC.

- 66 yr old, Male, Used the App for Back Pain.

Requested a callback. NHS 111 called him back. Excellent Experience Brilliant Service. Own GP has now changed medication and the caller is feeling well. Would use the service again and was aware of the call back procedure if symptoms had become worse. Call back time was 2 hrs however caller said this was acceptable as he was made fully aware that he could call back into 111 at anytime.

### **Clinical Feedback:**

“Ask NHS offers patients and CCGs an opportunity to address patients’ needs for 24/7 access to NHS patient services. This is a positive development for the commissioners in the region to grant patients digital access to local healthcare services.”

- **Dr Gareth Stuttard, Regional Clinical Lead for Integrated Urgent Care, West Midlands**

### **Patient Feedback**

“The app is good if you can’t get hold of your own GP”

“Excellent facility, gives an idea if a symptom is serious or not.”

“Great Experience and helped me when I was confused whether it's a flu or something”

“Excellent fast service. Will definitely use again.”

“Found the process very helpful and reassuring.”

“Not a frequent user but find the app a helpful friend in need”

“Very helpful in deciding both urgency of the problem and the route to take next”

## **Part 3: Cost impact**

Currently the Ask NHS service is commissioned as a pilot in the region. However, discussions are progressing with the CCGs and NHS England as how we can make the innovation a sustainable offering.

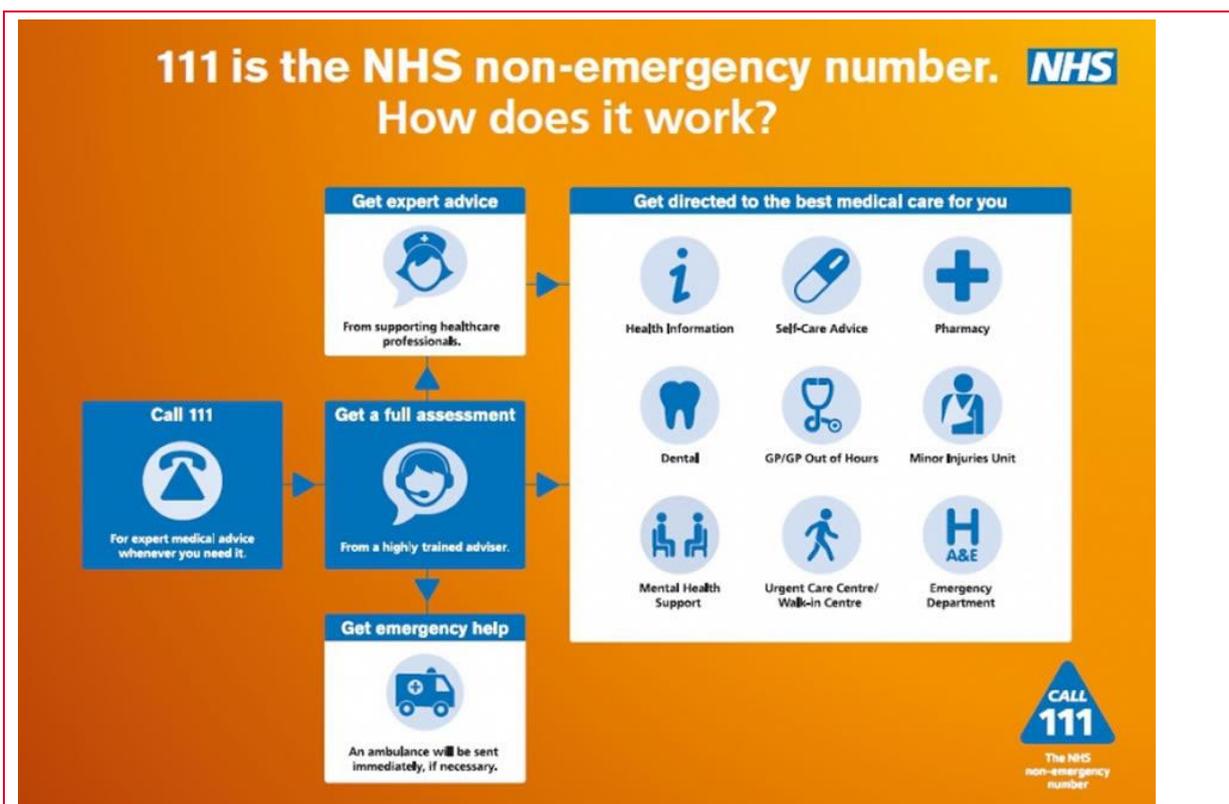
Given this, it is envisaged that Ask NHS would be paid for through a combination of the General Practice Forward View (GPFV) CCG allocation<sup>ii</sup> and monies which currently support integrated urgent care. NHS England has committed to introduce NHS Online and is currently in the process of setting up a Dynamic Purchasing System (DPS) Framework to support this process.

### **Cost Displacement**

At the time of writing, we have been unable to conduct a financial evaluation of our project as there are a number of areas which need joining together and evaluating, for example:

- We have started to conduct follow-up surveys with users to see if the recommended action was adhered to.
- We are meeting and gaining feedback from clinicians to understand the appropriateness of cases requesting a clinician call-back

However to give the reader an understanding of the area we are seeking to make a difference – the Ask NHS app substitutes the 2 blue boxes on the next page - automating these steps integrated with local clinical assessment services.



As mentioned in part 2, symptom checking is the leading application pathway for Ask NHS usage. For completed symptom checking protocols, we have found approximately 41% result in a reduced or eliminated telephony requirement.

Each self-care request enabled by Ask NHS carries a cost burden that is a fraction of that of traditional telephony services.

On average it took a user 4 minutes 22 secs (Source : Ask NHS MDS) to complete a Ask NHS symptom checker assessment compared to 7 minutes 57 secs (Source: NHS 111 MDS) if completed by an NHS 111 call advisor. Assuming 111 call handlers handled on average 4 calls per hour –Ask NHS has the potential to introduce an additional 45% “call handler” capacity.

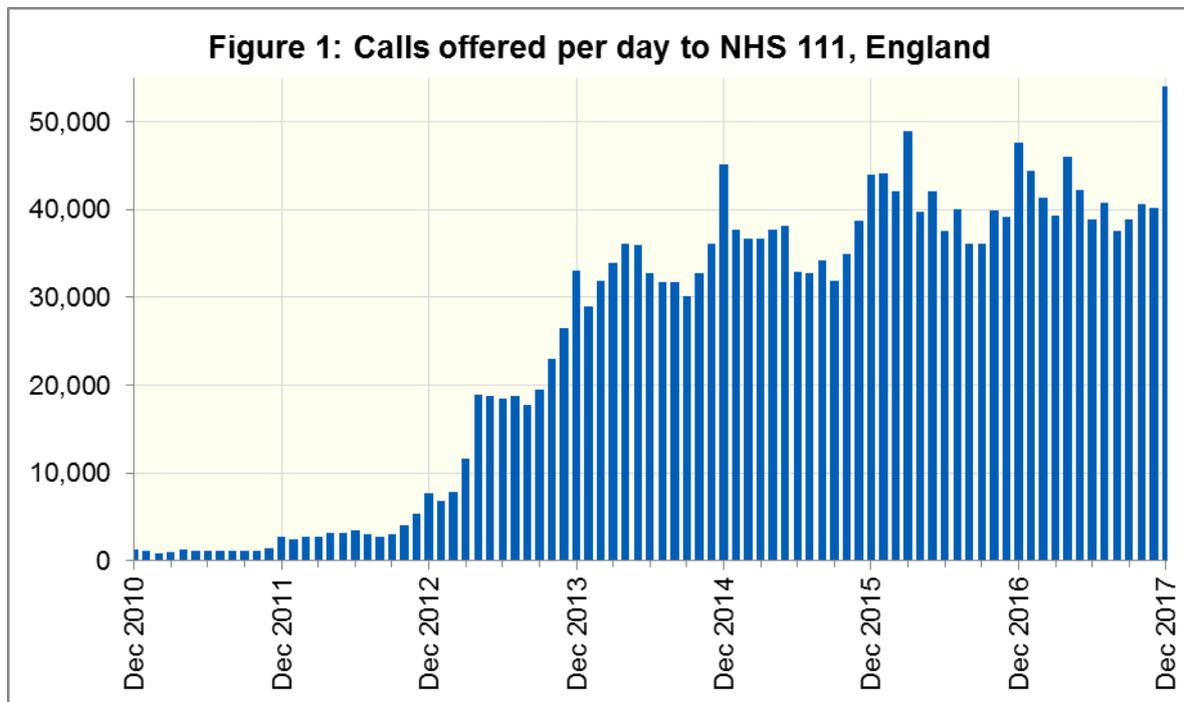
**The cost to the NHS**

Initially we anticipate the CCGs will need to make an investment for the Ask NHS digital mobile app (we have estimated cost at £1.50/user/year unlimited use - based on the pilot vs on average £13 for an NHS 111 call cost) and as the app embeds into existing care pathways and take up rises – we expect cost savings to be realised as more people are self-assessing, pro-actively managing their health and accessing health information online – completing more digital interactions. We know there is a need for digital given demand for NHS 111 are at record levels.

**Highest number of calls experienced by NHS 111 – December 2017**

There were 1,676,254 calls offered to the NHS 111 service in England in December 2017 (54.1 thousand per day), an increase of 13.5% on the 1,476,826 calls offered in December 2016 (47.6 thousand per day). This is the largest number of calls offered in a

month since data collection began in August 2010. This is also the largest number of calls per day during the same timeframe. The growth of servicing the calls and maintaining performance levels is not sustainable by 111 providers.



Overall in 2017, NHS 111 triaged 12.1m call, of which 13% were ambulance. Compared to Ask NHS of 11% (999) this is a difference of 2% which could save up to 0.24m calls away from the ambulance service alone. However please note, it should be taken into account Ask NHS is not currently being recommended as a contingency when 999 is under pressure therefore this should be seen as a best case saving benefit.

## Part 4: Learning from your project

As an industry collaboration we are delighted to have delivered a digital access point into both primary and urgent care which has been adopted by patients. The pilot has demonstrated that transferring some NHS services online was safe and that patients responded positively to it.

We have seen as the pilot has progressed - CCGs now wanting to harness the advantages of digital technology to improve services and outcomes for patients. However, there is still work to be done to ensure that digital technology is not seen as threat but as an additional service for the NHS, offered over and above traditional services.

We have seen the symptom checker has helped better inform and in some cases prevent patients going to GP's to seek informational guidance on treatment and appropriate care action plans. Through feedback gained from our users we have continued to develop our product offering resulting in regular app version upgrades being made available. Ask NHS has been built to be patient-centric, and feedback from users and discussions with CCGs have helped with prioritisation of mobile development requests / issues and continual re-validation of the product roadmap. We ensured patients were engaged through local practice engagements, patient panel groups, encouraging feedback and sending out follow-up clinical surveys (which included the NHS friend and family recommendation test – 58% of users rated Ask NHS 4 or 5).

We are playing a role in defining the NHS Online marketplace and plan to build on the momentum as guidance such as 'Next Steps in the Five Year Forward View' (March 2017) calls for an online access point that will connect patients to their local NHS111 service. The Integrated Urgent Care specification (August 2017) further describes and defines the introduction of NHS111 Online to provide digital access to healthcare; to meet patient's expectations and alleviate the rising cost and demand of the telephony service. It indicates the service should not only connect with IUC, but also provide access to their health record, appointments and can provide supported care management. In other words, the Ask NHS mobile app offering and vision.

*“Throughout 2018 we will be working to design online triage services that enable patients to enter their symptoms and receive tailored advice or a call back from a healthcare professional, according to their needs. We will be testing apps, web tools and interactive avatars in local areas and using detailed evaluation to define the best approach. By December 2018 all areas will have an NHS 111 online digital service available that will connect patients to their Integrated Urgent Care via NHS 111.” – NHS England, Next Steps in the Five Year Forward View.*

In September 2017 the Health Secretary outlined his intentions for the NHS to deliver digital services nationwide by the end of 2018. This included access to NHS111 Online.

The core objectives of the 111 Online programme being:

- Provide a digital access channel for citizens accessing NHS 111 and integrated urgent care services;

- Drive channel shift from a telephone initiated journey with a call advisor, to an online self-service option;
- Maintain safety and embed digitally initiated 111 cases into the operational flow of local urgent care services so that patients do not need to repeat information.

We are happy we have built and implemented a product which aligns with the digital vision of the NHS.

Some of the challenges and learning faced inc:

- NHS national communications and deadlines – with announcements being made at national level for NHS Online – we had a large number of stakeholders to manage – we overcame this challenge by having regular conversations with NHS England and NHS Digital – sharing our learnings and progress.
- In house NHS solutions and GP online – competing against a plethora of “free” and emerging digital health solutions available in the online space. E.g. NHS Pathways launched a symptom checker in a neighbouring region and this did confuse local commissioners however through giving visibility of the added values and capabilities of Ask NHS – expectations were managed. This issue has been discussed with NHS England as this is an issue which needs addressing if suppliers / SMEs are to bring solutions to the table as they cannot compete against “free” if there was to be a competitive marketplace.
- Given the project was being delivered in an area under great strain – Primary Care and Urgent Care with no additional funding and no quantifiable immediate benefit. Gaining and “winning” over people took longer than expected. We did this through patient power, sharing good news stories and demonstrating to practices how this could make their life easier.
- Limited budget meant comms / awareness effort were constrained and where possible Ask NHS was marketed using existing channels, marketed at nil costs and through existing agendas.
- Project resources inc. project lead did change over the pilot period as people left for pastures new and we had to accommodate for organisational re-shuffles inc. a buy out for Vocare where we changed 3 Project Managers over the course of the programme. We did mitigate this risk by ensuring we regularly held project calls, face to faces and project documentation / trackers were kept up to date.
- Allowing for people to give speech (natural) input proved challenging as sometimes we were unable to match the symptom – to mitigate this issue we introduce a “back off” menu where a user could select their symptom from a list of symptoms.
- Managing expectations and integrating with the various IT systems in the NHS proved challenging and meant we experienced delays outside of our control - as existing suppliers looked to combat resource issues. We are working with NHS Digital and Suppliers to see how this could be standardised in the near future so

users are not impacted by the complexity which lies with NHS infrastructure.

- Another challenge the team faced initially was signing up users as the Ask NHS registration process was long winded and users were not clear how Ask NHS differed from the solution which the practice offered. e.g. SystemOne Online, EMIS Patient Access. Working with change champions locally - we worked on messaging and developed marketing collateral, but found that direct involvement with PPG groups and practice staff was most valuable.

On reflection of results to date, we were pleasantly surprised to see there was good take up of the Ask NHS across all ages - with our eldest user being 108. Ask NHS data to date has proved - age is not a barrier in the digital space and users are willing to use a digital app as a substitute for 111 and ringing a GP practice. Through interviews conducted, people in the majority were conscious of their use of the NHS and wanted to use the NHS wisely - the app was seen favourably and as a tool 77% would be willing to try at first.

As a project we have seen and experienced first-hand introducing innovation into the NHS takes a lot of patience. Without evidence from a large group of users decisions cannot be made at all levels - as budgets are constrained and the digital health market is still forming, with everyone looking for a sustainable local solution to their problems. We hope with Ask NHS – we can provide standardisation with local integration.

As the app iterates and develops - we have identified some areas to allow for an evaluation of efficacy:

- Clinical functionality, is there consistency and accuracy in clinical outcomes and referrals i.e. (1) triage accuracy, are patients being sent to correct services (2) triage consistency, will similar patients with the same symptoms have similar dispositions (3) is Ask NHS capturing accurately all the different symptoms patients may have, or do some patients slip through the gap.
- Positive impacts / Benefits, what is the service, as a whole, delivering for the estate, are there any particular elements of the approaches that are more successful than others, and if so why
- Future proofing / Development, what scalability and additional capacity is there?

## Part 5: Sustainability and spread

Ask NHS is to continue in the region beyond the funding period whilst discussions are ongoing with CCGs and NHS England as to how this can be supported and next steps. Through answering questions in relation to financial impact, reliability and giving assurance the Ask NHS is proven, safe and effective allows the hearts and minds of patients, commissioners and clinicians to be won over. The app will remain free for the user (patient) and we continue to work closer with urgent care / primary care providers to see how we can reduce demand on traditional NHS service – freeing up resource for those who need it.

Over the pilot period we have won and were a finalist for a number of awards inc.

- 2017 WMAHSN Industry Collaboration Award
- 2017 eHI Finalist – Best App for Patient and Carers
- 2017 HSJ Finalist – Primary Care Innovation of the Year
- People’s Choice Winner – The Healthcare Start Up Awards
- We were also present and held a “pop up university session” at the Health and Care Expo 2017 in Manchester

Working alongside and building our network has been key to the progress made – to name a few, we have looked to target and established good links inc.:

- Local GPs
- Patient Panel Groups
- NHS Digital - NHS Choices / NHS Pathways DoS / GPConnect
- Primary Care System Suppliers e.g. EMIS / TPP SystemOne
- NHS England – Urgent and Emergency Care Network, Vanguard
- CCGs – specifically commissioners responsible for Primary Care and Urgent Care provision.

Our intervention has made all of us realise we have a solution which could make a difference as to how people access healthcare advice and support the NHS – it is important now that we analyse the data, listen to patient and bring in capabilities - making it as easy as possible for users to access healthcare advice.

We are looking to spread the innovation further with additional marketing and have the ambition to become the single point of access and information for patient health and care needs. Aligning, co-ordinating and delivering the digital initiatives known as NHS Online. In 2018, we look to launch a web-portal to align with Ask NHS with plans to

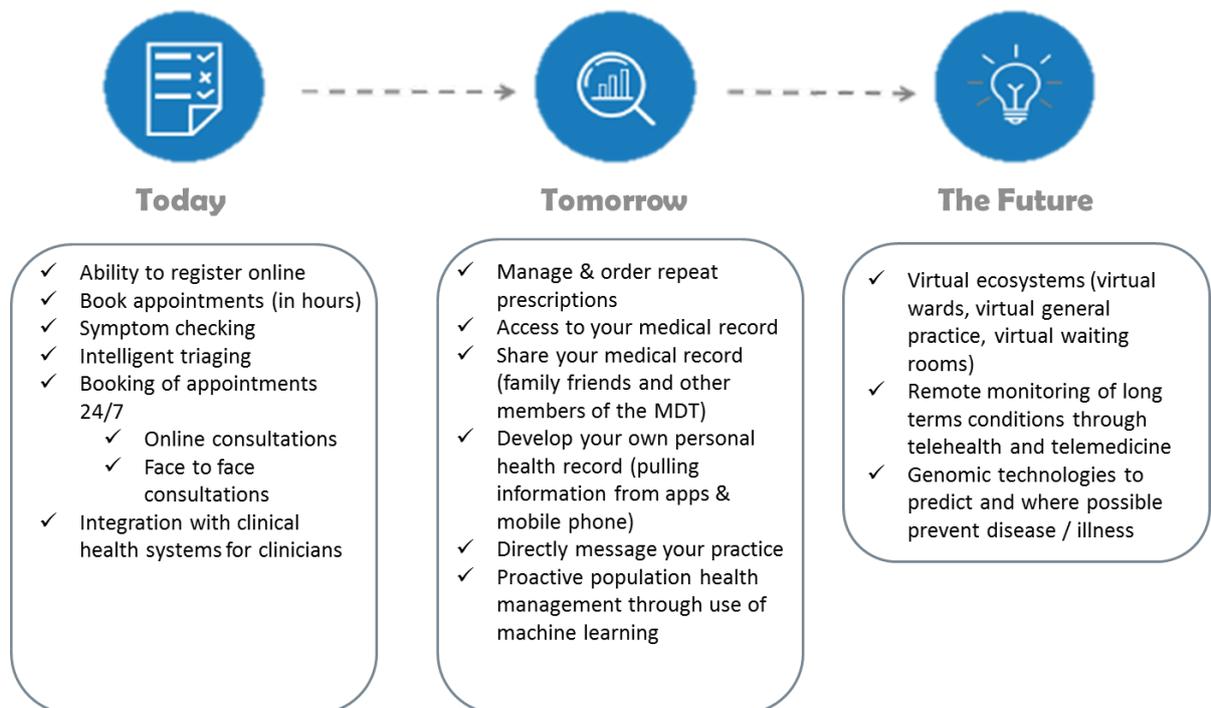
introduce additional channels which are consistent and effective.

We will build on the platform established and look to integrate more – our solution has been designed to be replicable nationally and we know some of the additional resources which will be required will be local clinical champions, establishment of service desk, account managers and deployment support to be able to engage with practices, patients and clinicians locally.

Upcoming milestones include –

- Review of users, potential to roll out to key groups e.g. university students.
- Review of volumes as popularity increases and review of operational impact and channel shift/change
- End of Jan 2018 - confirmation of acceptance on the DPS framework for GP Online Consultations.
- End of March 2018 - Rollout of pre-appointment Triage to several GP practices.
- Launch of www Ask NHS (April 2018)
- Ask NHS made available to those <18 (June 2018)

### **Ask NHS for the future**



## Appendix 1: Resources and appendices

Please attach any leaflets, posters, presentations, media coverage, blogs etc. you feel would be beneficial to share with others.

*Note that, as we would want to upload these onto the Health Foundation website, we ask that you are discerning with additional material provided.*

<https://www.channel4.com/news/nhs-slow-to-embrace-new-technology>

<https://www.oneadvanced.com/news/sensely-ask-nhs-app/>

<https://www.raconteur.net/healthcare/artificial-intelligence-could-bring-speed-and-awareness-to-healthcare>

<http://www.asknhs.co.uk/>



A5\_Final.pdf



Ask\_NHS\_111\_app\_olivia\_poster.pdf

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<sup>i</sup> Self Care: <https://asknhs.typeform.com/report/gOV8Jk/fp66eE7aTEpFujZI>

<sup>ii</sup> <https://www.england.nhs.uk/gp/gp/vf/redesign/gpdp/online-consultations-systems-fund/ccg-allocations/>