Study of the artificial intelligence powered health assistant Ada in a UK General Practice Setting

“When Ada Health came to the Waterloo Health Centre”
The story of when a little digital disruption came to a busy central London NHS GP practice

By Dr George Verghese
Do GP practices need digital disruption?

- 2016 Kings fund report *Understanding general practice pressures* demonstrated a crisis where between 2010 to 2015 there had been a **15% increase in general practice consultations** with only a **4.75% increase in GP workforce**. This is compounded by a reduction in GP funding as a share of the total UK National Health System budget in the same 5 year period from **8.3 to 7.9%**.

- NHS England ‘General Practice forward View’ (April 2016) and Kings fund research outlined two fundamental areas to help with the pressures on general practice
  - Adoption of technology and new ways of working to allow practices to meet demand more effectively
  - Support patients in using services more effectively by allowing them to seek GP advice from other sources and signposting them to appropriate services

- **71%** of UK citizens own a smartphone and 88% of adults use the internet but only **2%** of the population report any digitally enabled transaction with the NHS (Nuffield Trust Feb 2016); this demonstrates there is much scope for innovative technologies to enhance patient & doctor journeys
Ada: AI-powered personal health guide

**Ada App**
*Personalised healthcare guide*

- AI powered symptom assessment
- Guidance to the right NHS treatments
- High quality self-care advice
- Personalised disease monitoring

- 3.7 Million users globally
- 5.5 Million assessments
- 400,000 users in UK
- 1200+ diseases
- 5000+ symptoms
- Built by 50+ doctors over 7 years
- CE Mark
- £35M funding
- Available in 5 languages
What Ada looks like
Study design (1)

- Waterloo Health Centre GP surgery
- 11,000 patients in central London
- ‘Doctor First’ appointment system (vs ‘receptionist first’ system)
- 30 days April - May 2017
- Patients over 18 years of age were invited by SMS to download a custom version of the Ada app, which allowed a symptom assessment and suggested next steps to be shared with their GP at the Surgery
Step 1: Patients using Ada app
Patients will use the Ada app to conduct a self-assessment and share this with the GP prior to the consultation if they wished.

Step 2: Patient can then choose to consult their Doctor. If Ada assessment shared this can be viewed by the doctor.
GPs have access to the Ada assessment via Ada pro software for review prior to consultation.

Step 3: Data collection
End points collected; whether the assessment was useful, whether there was clinician agreement with the suggested Ada possible conditions and how much time the Ada assessment saved or added to the GP consultation as estimated by the doctor.
Study Key outcomes (1)

- Total number of patients downloading the app: 291
- Total number of completed assessments: 294
- Number of Ada assessments that were shared with Surgery doctors: 65
- Patients demographic of those that engaged with Ada:
  - Age range: 19-71 years (average age 34.6 years)
  - Gender: 43% male and 57% female
  - Ethnicity: similar mix to the overall practice population
Study Key outcomes (2)

- Assessments where the doctor felt the Ada assessment was **useful**: 92%
- Assessment with the doctors agreed with over half of the Ada suggested conditions: 80%
- Assessments where the doctor felt that the assessment **saved time** in the clinical consultation: 65%
- The average time saved per consultation by doctors having access to shared Ada assessment: **1.9 minutes**
Study Ada CaseMix

Clinical Condition Mix

- Multi system /non... 7.7%
- Dermatology 23.1%
- Mental Health 3.8%
- Urology 7.7%
- Gastrointestinal 11.5%
- Musculoskeletal 11.5%
- Cardiovascular 3.8%
- Ear Nose and Throat 19.2%
- Gynaecology 7.7%
- Neurology 3.8%
Use cases from patient perspective

● **Second Opinion**: There was one case where a patient used the Ada as a second opinion for their symptoms after a GP consultation, and shared the outcome of this with the GP surgery.

● **Personal Health Administration**: We had instances where the Ada app and the instant messaging function was used not only for health assessment purposes, but also to deal with the patient’s own health administration such as ordering of repeat regular medication and asking for a certificate of absence from work due to illness.

● **Digital access preference**: Although the study GP surgery operates a telephone access system guaranteeing a call back from a doctor for all patients within a hour, there were cases when patients used the Ada system as they preferred this method of healthcare contact.

● **Patients Contributing their own health record**: We had two instances where patients shared their assessment not to gain a doctor consultation, but because they wanted to add more chronic symptoms into their medical record, and in one case just to ‘make the doctor aware’.
Study Limitations

- It was hard to measure how much patient demand the Ada App may have directed to other sources, as the surgery only had access to those Ada assessments that were shared with GPs for data confidentiality reasons.

- Staff turnover meant the pilot was not promoted as effectively as intended - this impacted on patient uptake. So promotion amounted to one single SMS invite.

- Due to local issues at the study surgery, the study could not be extended for a longer period of time, and this certainly would be desirable to gather as much data as possible.
Ada since this study has been tested in another large NHS GP clinic for a 6 month period, with over 500 patients and 20 doctors participating. Patients were asked to complete an Ada assessment whilst they wait to see the GP.

**Patients like using Ada**
- 97% of patients found Ada easy to use
- 86% would use Ada again
- 83% would recommend Ada

**Ada influences treatment decision making**
- 12% of patients in the clinic waiting room stated they would not have attended the clinic if they used Ada beforehand
- They would have self-cared at home or visited the pharmacy instead

**Ada is accessible to all - including children and the elderly**
- Average patient age = 40
- 15% of participating patients are 60+
- 10% of patients are <18

"The real benefit of Ada is in empowering patients and keeping them away from the clinic in the first place"

"I generally agree with Ada’s diagnoses and triage advice"

"Patients are nearly all enjoying using Ada and find it useful"

**GP Feedback**
Next steps for Ada in the NHS

- Following on from the Waterloo Health and Paxton Green pilots Ada has now secured a one-year contract across 6 GP practices in Lambeth (covering 50,000 patients)

- This new project launched in June 2018, and will see Ada being used as a pre-primary care offering in a similar approach to the Waterloo Health pilot

- The key measures of success will be patient uptake and satisfaction, appropriate reduction in demand, and practice staff satisfaction. Ada will work with the Health Innovation Network on the evaluation process

- Separately Ada will also soon start a research project with the A&E department at the Royal Sussex County Hospital - a clinical fellow will help measure the impact that Ada can have on the triage process
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Potential of augmented patient and doctor decision making with the AI powered health App called Ada