REMORA: Remote Monitoring in Rheumatoid Arthritis

A collaboration between:

Remora

Manchester 1824
The University of Manchester
Living with long-term conditions

- More than 15 million people in the UK have a long-term condition (LTC)
- LTCs account for £7 out of every £10 spent by the NHS
- People living with LTCs spend less than 1% of their time in contact with healthcare professionals, meaning:
  - People with LTCs have to manage their own health
  - Doctors have limited sight of how their patients are doing day-to-day, and how this changes over time

Opportunities from consumer technology

- The NHS recognises the opportunities that technology can bring to LTCs:
  - Supporting self-management
  - Informing clinical decision-making through remote monitoring
  - Transforming care delivery
  - Enabling research through data collection and promoting participation

- Over seven in 10 people own a smartphone, with more than 165,000 health apps available

- However, patient-generated data from apps are not yet integrated into the NHS due to multiple challenges:
  - Patient and healthcare professional concerns
  - Technical issues
  - Privacy and security issues

Rheumatoid arthritis as an example

- Rheumatoid arthritis (RA) is a LTC affecting about 400,000 people in the UK which leads to joint pain, fatigue and disability
- Treatment decisions are made at short clinic visits every few months, where remembering past symptoms can be difficult
REMORA was a pilot study to collect daily symptoms using a smartphone app to support self-management, clinical care and research in RA. Uniquely, data from the app was integrated into electronic health records (EHRs) in the NHS to inform consultations.

REMORA findings

REMORA delivered proof-of-concept that remote monitoring in RA using smartphones was beneficial for patients and clinicians:

- A remote monitoring system with EHR integration was developed and tested with 20 patients over three months at Salford Royal.
- Graphical summaries of disease trends were available within the EHR.
- Data was entered on more than 90% of possible days.

Patient benefit

- Overall: “A brilliant thing, I can’t wait until it’s out there properly.”
- Data collection: “captured the moment”, made “fleeting symptoms visible”, picked up “changes that would otherwise be missed.”
- Symptom graphs in clinic made it easier for a “shared conversation”, the data “says it for you”, “provides evidence” and “personalises care.”

Benefits for the clinical team

- Pain flares otherwise forgotten became visible.
- Gradual but definite changes following treatment response became evident, improving clinical decision making.
REMORA2 will scale up to RA services at multiple sites. Objectives include:

- Demonstrate the benefits for self-management, clinical care and research in a wider RA population
- Expand the smartphone app to support long-term engagement and to enable future digital interventions
- Design and build a patient data repository and connecting infrastructure as a blueprint for integration of patient generated data into NHS records
- Alignment with user authentication by NHS Digital
- Evaluate requirements for the commissioning of remote monitoring for LTCs and future sustainability
- Pilot a system to improve scheduling of outpatient appointments on the basis of clinical need as indicated by remote monitoring

The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care

Principal Investigator:
Prof Will Dixon

Email:
will.dixon@manchester.ac.uk

Telephone:
0161 275 5044

Website:
cfe.manchester.ac.uk/research/projects/remora

Address:
Arthritis Research UK Centre for Epidemiology
Stopford Building
The University of Manchester

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