Technology-enabled remote monitoring for chronic obstructive pulmonary disease: a rapid evaluation

Dr Nikki Newhouse
University of Oxford

Overview

- The DECIDE rapid evaluation centre

- Technology-enabled remote monitoring and COPD

  - Rationale for the evaluation

  - What we did

  - What we found

  - Why it matters

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- Commissioned for 3 years (from June 2023) by NIHR HSDR

- Rapid evaluation team (1/5) focused on technology-enabled remote monitoring

- Partnership across Oxford and RAND Europe

- UK-wide remit, health and social care

- Funding = just over £2m, for up to 6 projects

- Projects generally badged as service evaluation

- Rapid evaluation with 'policy customers'

"An 80% right paper before a policy decision is made it is worth ten 95% right papers afterwards, provided the methodological limitations imposed by doing it fast are made clear"

(Whitty, 2015)

What is technology-enabled remote monitoring?

- The use of technology, devices, or apps to support patients to monitor and manage their health or long-term conditions

- Remote exchange of information, primarily between a patient or citizen and a health or care professional, to assist in diagnosing or monitoring health status or promoting good health

- Range of technologies, capturing a range of data (e.g. oxygen saturation, vital signs, spirometry), often with multiple components (e.g. pulmonary rehabilitation, symptom tracking, education)
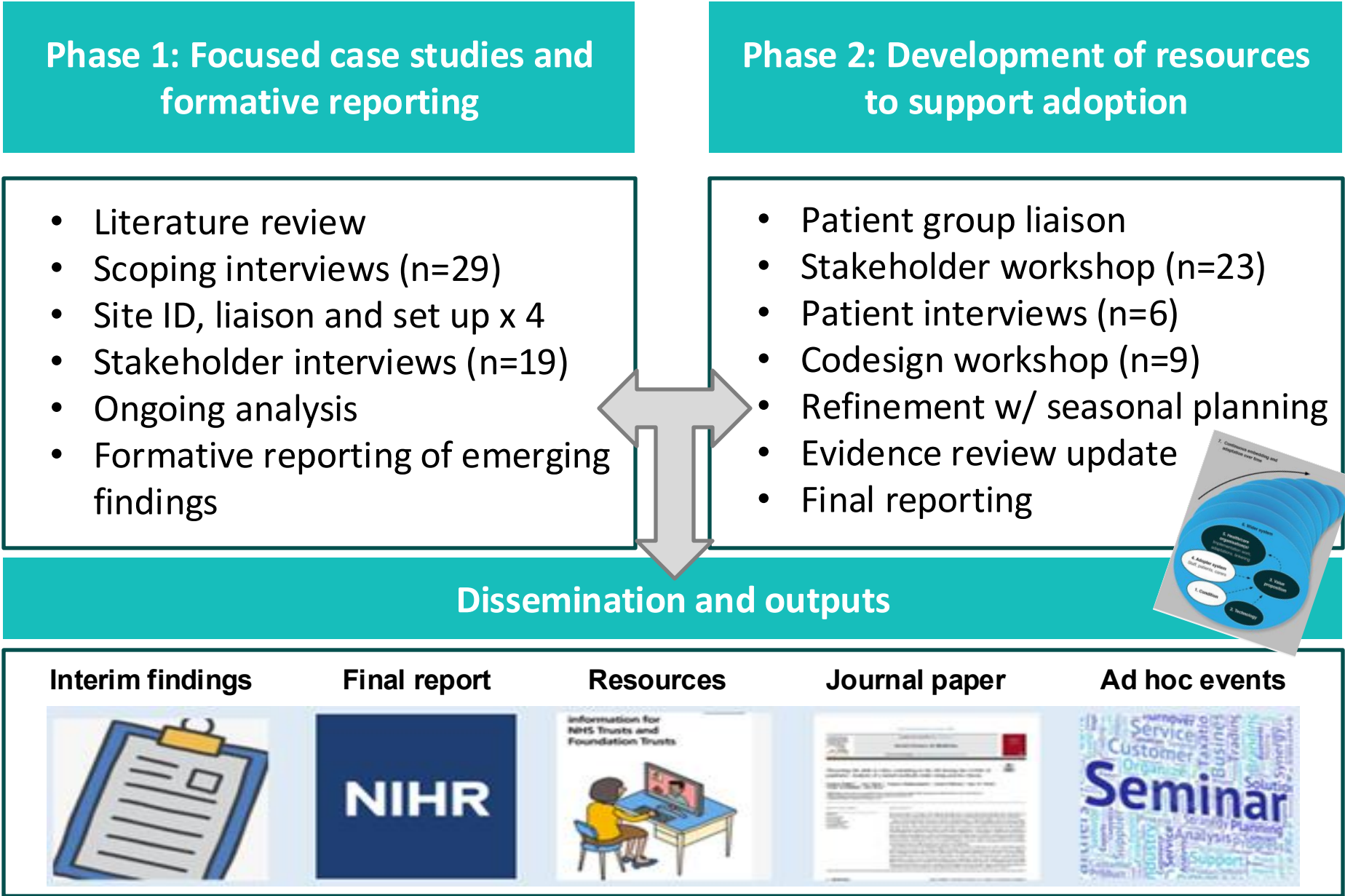
Clinical and policy context for focus on COPD

- COPD is a common, treatable and largely preventable lung condition; also, a leading cause of death.

- Emergency admissions for exacerbations are second largest cause of hospital admissions; around 1 in 4 patients readmitted within 3 months.

- Timely identification of patients at risk of deterioration crucial, plus supporting access to PR.

- Technology-enabled remote monitoring increasingly seen as one means of helping to address these challenges

- Published evidence is nascent and heterogeneous: makers often unclear about the potential benefits and costs of wider scaling and adoption of such interventions

Evaluation aim

"To define good practice in the implementation and use of technology-enabled remote monitoring in the COPD care pathway and draw transferable lessons that can inform potential spread and scale up"
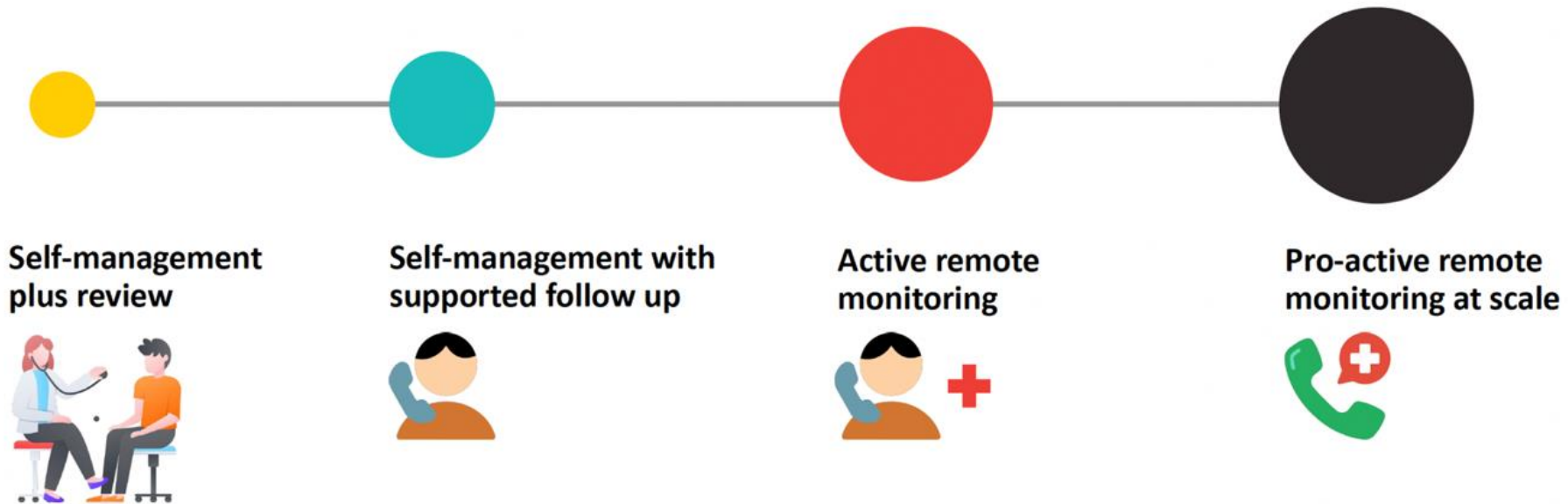
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Evaluation design and phases of work

Phase 1: Focused case studies and formative reporting

- Literature review
- Scoping interviews (n=29)
- Site ID, liaison and set up x 4
- Stakeholder interviews (n=19)
- Ongoing analysis
- Formative reporting of emerging findings

Phase 2: Development of resources to support adoption

- Patient group liaison
- Stakeholder workshop (n=23)
- Patient interviews (n=6)
- Codesign workshop (n=9)
- Refinement w/ seasonal planning
- Evidence review update
- Final reporting

Dissemination and outputs

Interim findings	Final report	Resources	Journal paper	Ad hoc events

April 2024 → September 2024

Evidence review available at https://www.phc.ox.ac.uk/research/decide/COPD-remote-monitoring

TERM for COPD occurs along a continuum

Self-management plus review

Self-management with supported follow up

Active remote monitoring

Pro-active remote monitoring at scale

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- Terminology matters – inconsistent usage of terms relating to both tech and services

- Implementation is site-specific - variation in scope and scale (some shared features, evidence of bespoke tinkering with tech)

- Services can start (and stay) small

- People can start at different points and move up and down the continuum

"Going forward, it will be important to clarify terminology across sites because remote monitoring currently can mean a whole array of different technologies and approaches to care." (CS-3)

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'Optimal' is a misguided aim

- There is no optimal *point* in the care pathway at which it is 'best' to introduce TERM for COPD

- There is no optimal *way* to use TERM for COPD: can operate as preventative measure; some patients may choose to use it periodically as a self-management tool

- Evidence leans towards post-exacerbation and severity, *but* there is (unusual) capacity for tailoring and variation in intensity with this kind of remote monitoring

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TERM for COPD has system-wide impact

- Potentially significant impact on staff workload: duplication of data entry; overlapping processes; interoperability challenges

- Significant and often invisible hidden work

- Questions around risk management and subsequent accountability (e.g. calibrating personal algorithms)

- Potential for mission creep (e.g. accessing GP appointments)

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'Value' is perceived in different ways

- Staff want to provide cost-effective, 'better care' which does not affect workload

- Service users value reassurance and timely access to support and information

- Has implications for evaluation, evidence gathering and commissioning of services

"Well, the service was cut completely. We managed to get a bit obviously to keep it going in the local place for a period of time, but they gave us two weeks' notice to let the staff go and end the whole service for 6000 plus patients." (NT-1)

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So what?

- **The technology is not the service:** the technology needs to address complex and shifting needs of both staff and patients operating within a similarly complex and evolving system

- **Context matters:** capacity, capability, definitions of objectives, success, scope and scale

- **Language matters:** the service needs clear objectives and definition

- **Complexity shapes everything:** staff and patient engagement, tech design, training, commissioning, evaluation, funding

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Thank you for listening

With acknowledgements to co-authors: Agne Ulyte[2], Zuzanna Marciniak-Nuqui[2], Jackie van Dael[1], Sonja Marjanovic[2], Sharon Brennan[3], Sara Shaw[1]

[1] Oxford University, Nuffield Department of Primary Care Health Sciences

[2] RAND Europe

[3] National Voices

www.phc.ox.ac.uk/research/decide

DECIDE Centre LinkedIn Group

nicola.newhouse@phc.ox.ac.uk

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Extra slides

Patient-facing materials

Your service name

Key in the name of your service here

NHS

Guide to using remote monitoring technology* to help you manage your COPD at home

Start >

*Mobile apps, activity trackers, spirometers, pulse oximeters and other digital kits

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What is technology enabled remote monitoring?

Technology enabled remote monitoring (TERM) means using your phones, watches, applications or other kit to help you monitor and manage your health or long-term conditions.

These technologies help you and your healthcare team share information. This can help with diagnosing, monitoring or managing your health.
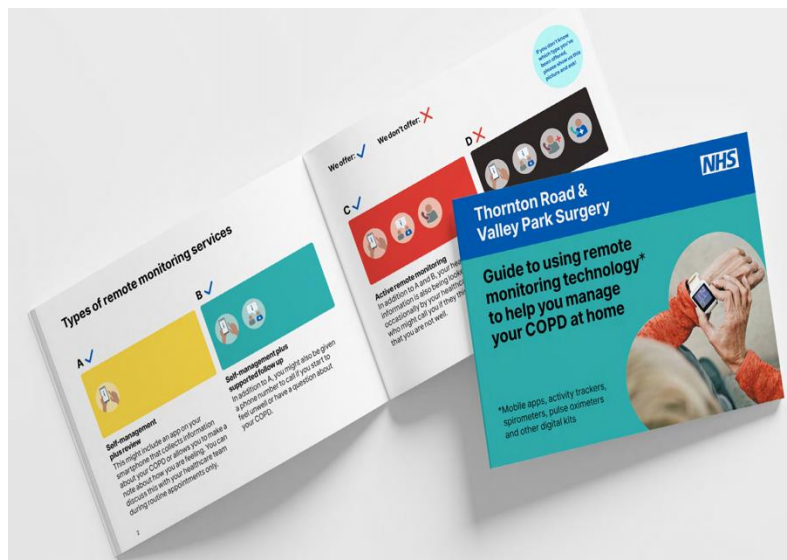
If you're offered these when you have COPD, the aim is to help you stay at home so that you can live more independently while also helping the NHS provide support to more people.

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2. Will it replace my usual care?

Edit this text based on your knowledge of your patients and the technology enabled remote monitoring service you are offering them

It's more reliable for the medical professionals because they can actually see it – it's been input rather than just talking about it.

— COPD patient

Types of remote monitoring services

We offer: ✓   **We don't offer:** ✗

If you don't know which type you've been offered, please show us this picture and ask!

A ✓   **B** ✓   **C** ✓   **D** ✗

A - Self-management plus review

This might include an app on your smartphone that collects information about your COPD or allows you to make a note about how you are feeling. You can discuss this with your healthcare team during routine appointments only.

B - Self-management plus supported follow up

In addition to A, you might also be given a phone number to call if you start to feel unwell or have a question about your COPD.

C - Active remote monitoring

In addition to A and B, your health information is also being looked at occasionally by your healthcare team who might call you if they think it shows that you are not well.

D - Pro-active remote monitoring at scale

In addition to A, B and C, if your health information suggests you don't feel well then an alert will be sent to your healthcare team who will call you immediately.
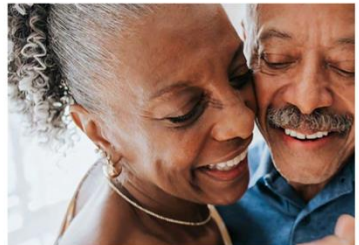

Anne uses a remote monitoring kit every day and is tech-savvy

Anne, 72, lives with her husband Bill, 74. Her COPD has worsened in the past six months.

The monitoring kit shows that her oxygen numbers are dropping and she feels breathless and anxious.

Anne is worried it's getting worse. Despite this, she hasn't read the leaflets that came with her kit and assumes someone will contact her before she becomes very unwell. When Anne came home from the virtual ward, someone called her every day and she is surprised that no one has called yet.

Bill is worried about her and wants Anne to call her healthcare team, but she doesn't want to be a bother and believes that they will call her if it's serious.

HELP! See section 5 if you have a problem and need to talk to us