

# Where to start when evaluating digital health products



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# 8 reasons why evaluating digital health is different

- 1. Rapidly changing products
- 2. Complex interventions with many elements
- Holistic interventions
- 4. Rich sources of data
- 5. So many products, so many choices
- 6. A young...
- 7. ... fast-moving...
- 8. ... and naïve industry



I'm developing a new digital service. Can people use it?

How do I convince consumers to download the app?

Does this behaviour change technique work in a digital environment?

How do I convince the NHS to pay for my product?

How do I prove to investors that the product will work?

Do we need a new app in this space?

What do I need to do to make version 3 better than version 2?

Which app, if any, should I recommend to my patients?

How do I get my next research grant?



User testing a prototype

A/B testing in the market

Researching digital behaviour change interventions

Summative evaluation on clinical outcomes

Evidence in a business case

An app review

Post-market user testing

App assessment

Formative evaluation within a research grant



# Evaluation is a pragmatic compromise

- For whom is the evaluation? Different approaches will be relevant at different times.
- Evaluation is not a one-off: it's part of an iterative process
- Stepped approach: start small, go big





Last updated: 23 Apr 2021

Further developments coming

# Evidence standards framework for digital health technologies

Corporate document

Published: 10 December 2018 www.nice.org.uk/corporate/ecd7

∨ Topics

#### → Coronavirus (COVID-19) | Latest updates and guidance

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#### Collection

## **Evaluating digital health products**

Resources to help anyone developing or running a digital health product to conduct an evaluation.

From: UK Health Security Agency

Published 30 January 2020

Last updated 19 October 2021 — See all updates

#### Contents

- 1. Get started
- 2. Define how your product works
- 3. Design your evaluation
- 4. Choose evaluation methods
- 5. Carry out your evaluation
- 6. Analyse your data

#### Related content

Randomised controlled trial: comparative studies

Factorial randomised controlled trial: comparative studies

Analyse your data: evaluating digital health products

Home > Health and social care > Public health > Health improvement

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### **Evaluating digital health products**

Resources to help anyone developing or running a digital health product to conduct an evaluation.

Published 30 January 2020

Last updated 2 June 2020 — see all updates

From: Public Health England

#### Contents

- Step-by-step guide
- Evaluation during the coronavirus (COVID-19) pandemic
- Methods library

It's important to conduct an evaluation for all digital health products. This can help you to demonstrate what impact your product has and how the costs compare to the benefits. It can provide you with information about how to make your service better, including what works and what doesn't. It can also help you to demonstrate the value of your product to commissioners.

# Agile development process

User-centred design

Discovery: May-Jun 2018 Alpha: Aug 2018-Mar 2019 Beta: Jul 2019-Sep 2021

Live: Oct 2021-

Karpathakis et al. (2021),

doi: 10.2196/28356

#### Related content

Randomised controlled trial: comparative studies

Ethnographic study: qualitative studies

Mixed methods study

<u>Analyse your data: evaluating digital health</u> products

A/B testing: comparative studies

https://www.gov.uk/government/collections/evaluating-digital-health-products



#### **Descriptive studies**

#### Analysis of routinely collected data: descriptive studies

30 January 2020 Guidance

#### Behaviour change techniques review: descriptive studies

6 July 2020 Guidance

#### **Clinical audit: descriptive studies**

20 May 2020 Guidance

#### User feedback study: descriptive studies

30 January 2020 Guidance

#### **Comparative studies**

#### A/B testing: comparative studies

3 September 2020 Guidance

#### Before-and-after study: comparative studies

30 January 2020 Guidance

#### Case-control study: comparative studies

19 May 2021 Guidance

#### Crossover randomised controlled trial: comparative studies

... .... . . . .



#### Guidance

## Interrupted time series study

How to use an interrupted time series to evaluate your digital health product.

From: UK Health Security Agency

Published 22 December 2020



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#### Contents

- What to use it for
- Pros
- Cons
- How to carry out an interrupted time series study
- Example: using incentives to increase blood glucose testing in teenagers with Type 1 diabetes
- More information and resources

#### Related content

Interview study: qualitative studies

Case-control study: comparative studies

Focus group study: qualitative studies

Quasi-experimental study: comparative studies

Mixed methods study