Evidence generation plan for GID-HTE10020 Digital health technologies to help manage symptoms of psychosis and prevent relapse

January 2024

1 Purpose of this document

NICE's assessment of digital health technologies to help manage symptoms of psychosis and prevent relapse recommends that more evidence is generated while the technologies (AVATAR Therapy, SlowMo and CareLoop) are being used for adults in the NHS. The technologies can only be used once they have appropriate regulatory approval and meet NHS England's Digital Technology Assessment Criteria (DTAC).

This plan outlines the evidence gaps and what real-world data needs to be collected for a NICE review of the technologies again in the future. It is not a study protocol but suggests an approach to generating the information needed to address the evidence gaps. For assessing comparative treatment effects, randomised controlled trials are the preferred source of evidence if these are able to address the research gap and can be done well.

The companies are responsible for ensuring that data collection and analysis takes place. Guidance on commissioning and procurement of the technologies will be provided by NHS England, who is developing a digital health technology policy framework to further outline commissioning pathways.

NICE will withdraw the guidance if the companies do not meet the conditions in section 4 on monitoring.

After the end of the evidence generation period (3 years, or less if evidence is available), the companies should submit the evidence to NICE in a form that can be used for decision making. NICE will review all the evidence and assess whether the technologies can be routinely adopted in the NHS.

2 Evidence gaps

This section describes the evidence gaps, why they need to be addressed and their relative importance for future committee decision making.

The committee will not be able to make a positive recommendation without the essential evidence gaps (see section 2.1) being addressed. The company can strengthen the evidence base by also addressing as many other evidence gaps (see section 2.2) as possible. This will help the committee to make a recommendation by ensuring it has a better understanding of the patient or healthcare system benefits of the technology.

2.1 Essential evidence for future committee decision making

Clinical effectiveness in the longer term

Evidence is needed on the clinical effectiveness of the technologies when used with or without standard care psychological therapies, including in the longer term. This will help the committee to understand whether the technologies are clinically and cost effective. Evidence is needed on:

- change in symptoms targeted by the technology (for AVATAR Therapy and SlowMo) or monitored by the technology (for CareLoop)
- rate of relapse or worsening of symptoms and time to relapse
- functional outcomes including social functioning and personal recovery.

Healthcare resource use

Using the technologies could free up resources that could increase access to treatment or reduce waiting times. More information is needed on resource use to assess whether the technologies are cost effective, including:

- implementation and training costs associated with the use of the technology in the clinical pathway
- healthcare professional grade and time needed to support or deliver treatment
- resource consequences associated with relapse such as hospitalisation.

Intervention-related adverse events

For all the technologies, there were a few serious adverse events that were possibly related to the technology. Collecting more data would help the committee decide whether the technologies can continue to be used safely in the NHS in the longer term.

2.2 Evidence that further supports committee decision making

Engagement with the technologies

More evidence is needed to:

- assess uptake of the technologies and completion rate
- assess patient and staff experiences of using the technologies
- understand how use varies in particular groups
- assess how frequency of use (continued or repeat use) affects clinical benefit.

Information on patient characteristics is also needed to evaluate differences in access to the technologies and the potential impact on health inequalities.

3 Approach to evidence generation

3.1 Evidence gaps and ongoing studies

Table 1 summarises the evidence gaps and ongoing studies that might address them. Information about evidence status is derived from the external assessment group's report; evidence not meeting the scope and inclusion criteria is not included.

The table shows the evidence available to the committee when the guidance was published. Some studies listed as ongoing may now be published.

Table 1 Evidence gaps and ongoing studies

Evidence gap	AVATAR Therapy for managing symptoms	SlowMo for managing symptoms	CareLoop for preventing relapse
Change in targeted psychosis symptoms	Evidence available	Evidence available	Limited evidence
Long-term change in targeted psychosis symptoms	Limited evidence Ongoing studies	Limited evidence	No evidence
Rate of relapse or worsening of symptoms	No evidence	No evidence	Limited evidence Ongoing study
Resource use	Limited evidence	Limited evidence Ongoing studies	Limited evidence
Intervention-related adverse events	Evidence available Ongoing studies	Evidence available	Limited evidence
Frequency of use and completion	Limited evidence	Evidence available Ongoing study	Limited evidence

3.2 Data sources

There are several data collections that have different strengths and weaknesses that could potentially support evidence generation. NICE's real-world evidence framework provides detailed guidance on assessing the suitability of a real-world data source to answer a specific research question.

The Mental Health Services Dataset (MHSDS) is a mandated national data collection that could collect the necessary data. But it may not routinely collect all the outcome measures that were identified in the early value assessment for this evidence generation plan. Also, data may not have been submitted for all people using mental health services and there are potential issues with data quality. NHS England has suggested that modifying the MHSDS could take up to 2 years, so it is unlikely that modification could happen in time to support data collection for this evidence generation plan.

Some mental health trusts with technology systems, such as the Clinical Record Interactive Search (CRIS) system, allow de-identified data from electronic health records to be provided for research. This could support creating a dataset based on information from the different trusts' clinical records, which may include data on

clinical outcomes of people with psychosis disorders. This could be used to increase and improve the data collected from the study proposed in this plan.

The quality and coverage of real-world data collections are of key importance when used in generating evidence. Active monitoring and follow up through a central coordinating point is an effective and viable approach to ensure good-quality data with broad coverage.

3.3 Evidence collection plan

Prospective controlled cohort studies are suggested as an approach to addressing the evidence gaps. These could incorporate a qualitative survey.

In such studies, 2 or more groups of people are followed over time and their outcomes compared. The studies should enrol a representative population to include adults with symptoms of psychosis, or who are at risk of relapse, who would likely be offered a digital technology in usual practice. Companies will need to clearly define their intended population.

The companies should prespecify the claimed benefits and position of their technologies in the clinical pathway for psychosis to justify their selected comparison population. The intended use of the technology should be clearly described. For example, continued or repeat use, as a component of standard care psychological intervention, or as a standalone intervention. Comparators for technologies for managing symptoms of psychosis (AVATAR Therapy and SlowMo) include cognitive behavioural therapy for psychosis (CBTp), other psychological interventions such as group therapy or supportive counselling, or waiting list. For the technology that aims to prevent relapse (CareLoop), comparators include healthcare professional review and follow up. The comparator or review protocol should be clearly described.

For comparing the technology with active treatment, start of follow up should be from the point of starting treatment. For comparing active treatment with waiting list, start of follow up should be from the point of referral for treatment. Eligibility criteria (for example, indication for referral and an assessment of the risk and suitability of digitally enabled therapy for the person), and the time point of starting follow up

should be reported. Eligibility criteria should be consistent across comparison groups to avoid selection bias.

Data should be collected for all groups, at appropriate intervals from the start of follow up for a minimum of 6 months, and ideally for 12 months. Comparator data could be from different centres, with comparable populations and care pathways, that do not have access to the technologies. Ideally multiple sites should be enrolled, representing the variety of care across the NHS. The included services for standard care and the treatment options must be described, including their composition and, ideally, performance against national outcomes for the relevant condition should be reported.

Using digital technologies may worsen symptoms of delusion and paranoia in some people. So patient outcomes should be closely monitored and collected, with interim analyses and clear escalation plans specified in protocols.

Because the suggested study design is non-randomised, it is important that appropriate steps are taken to balance confounding factors across the comparison groups at baseline. This includes clearly defined and consistent enrolment criteria across the comparison groups and techniques such as matching or adjustment approaches (for example, propensity score methods) to ensure comparable groups. High-quality data on patient characteristics is needed to correct for differences and to assess who the technologies may not be suitable for. Important confounding factors should be identified, with input from clinical experts during protocol development.

Incomplete records can also lead to bias if unaccounted for. Loss to follow up, with reasons, should be reported over the data collection period. Data collection should follow a predefined protocol and quality assurance processes should be put in place to ensure the integrity and consistency of data collection.

An enrolment period should be included and be sufficient to account for learning effects when implementing the new technologies.

Data may be collected through a combination of primary data collection, routine NHS data sources, and by the technologies themselves.

The study should consider uptake of the technologies among people who were eligible for them. By also considering historical data, the study may identify changes in overall access to treatment when this is a claimed benefit.

Feedback can also be collected through a survey or structured interviews with people using the technologies. Robustness of survey results depends on comprehensive distribution across people who are eligible and on the sample being representative of the population of potential users.

See NICE's real-world evidence framework, which provides guidance on the planning, conduct, and reporting of real-world evidence studies. This document also provides best practice principles for robust design of real-world evidence when assessing comparative treatment effects using a prospective cohort study design.

3.4 Data to be collected

The following data should be collected for the technologies and their comparators to address the evidence gaps:

- Baseline data including:
  - age and gender
  - current and previous treatments including antipsychotic medicine, other medicines, and psychological therapy
  - medical history including duration of psychosis symptoms, current psychiatric comorbidities, alcohol or drug issues
  - the indication for referral
  - symptom severity
  - risk classification or other characteristics that may be related to the likelihood of choosing to access the technology, for example, socioeconomic status, language, ethnicity or region, or important confounders identified with input from clinical experts
  - assessment of whether digital treatment is suitable for the person, and willingness to have it, with reasons for refusal

- Clinical-effectiveness measures taken from baseline at appropriate time intervals for a minimum of 6 months to ideally 12 months:
  - For AVATAR Therapy: assess auditory verbal hallucinations using the Psychotic Symptoms Rating Scales, auditory and hallucinations (PSYRATS-AH).
  - For SlowMo: assess distressing worries or paranoia using the Psychotic Symptoms Rating Scales, delusions (PSYRATS-DEL) and the Green et al. Paranoid Thought Scales (GPTS).
  - For CareLoop: monitor symptoms to prevent relapse using the Positive and Negative Syndrome Scale (PANSS).
  - For all 3 technologies: assess functional outcomes (for example, using the Work and Social Adjustment Scale [WSAS], or the Global Assessment of Function Scale [GAF] Scale).
  - For all 3 technologies: record rate of relapse (that is, need for urgent review, change in antipsychotic medicine, referral to crisis care or hospital for psychiatric treatment) and time to relapse or worsening of symptoms.
- Any adverse effects associated with use of the technology, including worsening delusion and paranoia, and incidence of suicide and self-harm.
- Resource use before, during and after treatment. This should include time to implement and maintain the technologies and use them between appointments, for example to check alerts. It should also include the average number of treatment sessions per person, and the level of support provided (defined by healthcare professional grade and time) and any resource use associated with relapse (such as hospital care).
- Access to treatment, including average waiting time from referral to treatment for psychosis, for people having standard care and for people using the technologies.
- Patient and staff experience of using the technology.
- Use of the technology including:
  - number of people accessing services with the relevant clinical indication
  - number of people offered the technology
  - number and proportion who started using the technology
  - engagement over time including frequency of use (continued or repeat use)

  - rates of stopping treatment
  - reasons why people stop using the technologies (for example, because of improvement in symptoms, lack of improvement or other reasons)
- Information about any updates to the technologies during the observation period.

3.5 Evidence generation period

The evidence generation period should be 3 years, or less if enough evidence is available. This will be enough time to implement the study, collect and analyse the data and write a report.

4 Monitoring

Companies must contact NICE:

- within 6 months of publication of this plan to confirm agreements are in place to generate the evidence
- annually to confirm that the data is being collected and analysed as planned.

Companies should tell NICE as soon as possible of anything that may affect ongoing evidence generation, including:

- any substantial risk that the evidence will not be collected as planned
- new safety concerns
- the technology significantly changing in a way that affects the evidence generation process.

If data collection is expected to end later than planned, companies should contact NICE to arrange an extension to the evidence generation period. NICE reserves the right to withdraw the guidance if data collection is delayed, or if it is unlikely to resolve the evidence gaps.

5 Implementation considerations

The following considerations around implementing the evidence generation process have been identified through working with system partners:

- Companies should provide training for staff to support use of the technologies.
- Practitioners and therapists need time for training and supervision, and to get a thorough understanding of the digital content. Supervision would include monitoring and responding to alerts, and escalating care if needed.
- The technologies may not be suitable for everyone. For example, people without access to, or who cannot use, a smartphone or computer, or if paranoia or delusions are triggered or worsened by using digital technology. Also, digital technologies may be difficult to use if a person's psychosis symptoms worsen.
- Evidence generation should be overseen by a steering group including researchers, commissioners, practitioners, and people with lived experience.
- The evidence generation process is most likely to succeed with dedicated research staff to reduce the burden on NHS staff, and by using suitable real-world data to collect information when possible.
- There is wide variation in standard care for people with psychosis in the NHS. Contributing sites and services should be chosen to maximise the comparability and generalisability of evidence generated, both in terms of the populations covered and the standard care delivered.
- Careful planning of the approach to information governance is vital. Implementers should ensure that appropriate structures and policies are in place to ensure that the data is handled in a confidential and secure manner and to appropriate ethical and quality standards.

ISBN: [to be added at publication]