

Evaluating the implementation of the Transforming Children and Young People's Mental Health Provision Green Paper

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Study information

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Study summary

Background

The Children and Young People's (CYP) Mental Health Green Paper Programme is an ambitious implementation programme creating mental health support teams (MHSTs) to provide extra capacity for early intervention and work with school/college staff to promote emotional wellbeing across their setting; funding training to senior mental health leads in schools/colleges to support them in their role; and (between 2019 and 2022) testing a four-week waiting time for access to specialist mental health services.

Aims and objectives

The overall evaluation question guiding this study is: *How is the Programme being implemented at different sites and what are its impacts, user outcomes and costs for different groups of CYP and their families, and different types of education settings and mental health services?*

The specific objectives are to:

1. Update the Programme's theory of change as a framework for the evaluation, and identify and/or develop measures to assess Programme impacts and outcomes
2. Understand service models and ways of working and assess the extent of any learning across sites and over time
3. Assess the relationship between Programme workforce, user outcomes and sustainability
4. Compare activity, user experiences, user outcomes and costs between sites and for different CYP sub-groups
5. Explore whether and how the Programme, and MHSTs specifically, are contributing to the development of whole school/college approaches
6. Identify scope for improvement of Programme delivery to improve effectiveness and cost-effectiveness
7. Advise how CYP outcome data beyond June 2025 should be collected and analysed at low cost.

Methods

This study is a 36-month, mixed-methods evaluation combining quantitative and qualitative data from the Programme's first seven waves (including 398 MHSTs, working in 6,800 education settings, covering 28% of the total pupil population), with in-depth learning and insights from six purposively selected Programme sites. The study will start in June 2023 with a three-month preparatory phase, followed by the core study commencing in September 2023. Data collection will be completed by 2025 and a final report submitted in May 2026, plus interim reporting. It is being undertaken by a highly experienced, multi-disciplinary team with a strong track record of research on mental health services, education, and their interface; mixed-methods and complex evaluations; co-producing research with CYP and other stakeholders; and conducting formative and summative studies which produce high impact and actionable findings.

Following the preparatory phase, the main evaluation study will comprise eight work packages:

Work packages 1-3: undertaken across all sites in the Programme's Trailblazer wave and subsequent waves 1-6.

Work package 1: Initial scoping work to update the Programme theory of change and finalise methods, to ensure that the proposed design is as relevant as possible to policy makers, implementers and beneficiaries before the study commences.

Work package 2: Key informant and education settings surveys at all sites, to identify and describe service models, map current implementation processes and any changes over time, and explore the interplay between the three key Programme elements.

Work package 3: Analysis of routine data at all sites, using data routinely uploaded by sites to the Mental Health Services Data Set (MHSDS) and from the National Pupil Database (NPD), to explore services delivered, and mental health and educational outcomes at individual and education setting levels.

Work packages 4-7: undertaken in six purposively selected sites chosen to ensure representation of characteristics identified from the early evaluation and WPs 1-3 (above) as important in shaping what is implemented and how.

Work package 4: Interviews with individuals in strategic, implementation and delivery roles, building on WP2 through in-depth exploration of local contexts, teams and delivery models, implementation processes and outcomes, and the relationship between these. This WP will also identify local learning and good practice examples to support ongoing Programme rollout.

Work package 5: Capturing experiences and outcomes of direct support from an MHST, through qualitative and quantitative primary data collection, designed to complement and extend routine data analysis in WP3, and using propensity score matched controls from national survey datasets identified in WP1.

Work package 6: Assessing school-level activities and their effects, involving qualitative and survey research with school/college populations including CYP, parents and carers, and teaching and other key staff. This includes administration of ARTEMIS-A, to assess mental health and wellbeing at the education setting level.

Work package 7: Comparative costing and cost-effectiveness analysis, using data collected in WPs 5 and 6, linked with standard unit costs and a quality-of-life outcome measure, to allow cost-effectiveness of different approaches to implementation to be assessed and compared to a threshold (e.g. the National Institute for Health and Care Excellence's cost-effectiveness threshold).

Work package 8: addresses the likelihood that some of the Programme's longer-term outcomes will emerge after the evaluation has completed.

Work package 8: Specification of a method for longer-term monitoring and data collection, working with Programme stakeholders to develop a framework that balances rigour, acceptability and feasibility.

Impact and Dissemination

We will work with our CYP, parent and carer, and strategic advisory groups, and our partners the National Children's Bureau, to translate the study findings into accessible, usable and high-impact learning for practice. Formative feedback will be provided to those involved in Programme implementation at all levels to support rollout. Dissemination activities will also include: an animated output co-produced with CYP; a consensus event exploring the implications of the findings for decision-makers; infographics, social media, podcasts and blogs; publication in peer reviewed and professional journals; and presentations at conferences, seminars, workshops and meetings.

Funder

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Background and rationale

In 2017, the *Transforming Children and Young People's Mental Health Provision* Green Paper (DH and DfE, 2017) set out proposals for improving mental health prevention and early intervention for CYP, with a particular focus on enhancing support for those with mild to moderate needs. The proposals, and implementation programme launched in 2018, comprise three pillars: i) incentivising education settings to identify a senior mental health lead, with grants available for leads to attend training to support them in the role; ii) creating MHSTs to provide extra capacity for early intervention, and work with school/college staff to promote emotional wellbeing across the education setting; and iii) testing a four-week waiting (4WW) time for access to specialist NHS CYP mental health services. The four week wait pilots concluded in 2022, culminating in the publication of *Mental health clinically led review of standards* (NHS England and NHS Improvement 2022). A new professional role has been created for MHSTs: education mental health practitioner (EMHP); a senior EMHP role and training programme is currently in development.

Education settings are important sites for mental health promotion and early intervention. CYP spend more time in school than any other place outside their home, and parents concerned about their child's mental health turn to teachers for help and advice more often than any other professional group (Newlove-Delgado et al, 2015). Before the Green Paper, many schools offered some form of mental health service on-site, most commonly counselling or educational psychological support, but provision was highly variable (Marshall et al, 2017). While children differ in their help-seeking and preferences for mental health support, more would like to access help within their school or college than are currently able to do so (Children's Commissioner, 2021).

Education settings are not just a setting from which MHSTs will operate: they are co-producers of the Programme's main goals. For example, schools and colleges have a critical role to play in facilitating CYP's access to MHSTs (e.g. through appropriate identification and referral), and in working with teams to (further) develop cultures, practices and environments that promote emotional wellbeing for all young people. Building collaborative relationships (e.g. between MHST and school/college staff within education settings, and across health, education and other partner organisations at the local system level) is a key mechanism underpinning successful implementation, and one to which the evaluation will pay close attention.

The early evaluation of the Programme examined its development, implementation and early progress in the first 25 participating areas (Trailblazer sites) (Ellins et al, 2021, 2023). Education settings welcomed the additional capacity to provide in-house mental health support and the focus on prevention. The evaluation found significant variation between sites in relation to, for example, local models and approaches, composition of MHSTs and how they were delivering their core functions. Particular challenges for the Programme included gaps in support for children who have higher severity than the mild to moderate referral threshold but did not meet the referral criteria for specialist NHS services and retaining EMHPs once trained. Concerns were raised about the poor suitability of the standard interventions that EMHPs were trained to deliver (time-limited, low-intensity cognitive behavioural therapy) for some young people, and the lack of training for EMHPs to tailor support to individual and diverse needs. Groups reported to be less likely to access and/or benefit from MHST support included CYP with special educational needs or neurodiversity, those from ethnic minority backgrounds and some religious backgrounds, and children living in adverse family or social circumstances (e.g. financial hardship, domestic abuse).

The early evaluation identified important areas for further investigation in a longer-term evaluation, including:

- understanding which groups of CYP, and which mental health problems, the standard MHST interventions are more or less suitable and beneficial for, on the grounds that there is already substantial evidence about the overall effectiveness of the standard interventions that MHSTs are delivering;

- exploring the ways in which MHSTs are developing what they offer and how they work so they can support a wider range of CYP (examples in the Trailblazer sites, identified in the early evaluation, included recruiting specialist roles and training staff to work with groups with specific needs). The key question is whether these diverse locally developed approaches improve the accessibility and effectiveness of support for groups and communities whose mental health problems have historically been under-served, and at what cost;
- re-visiting the Programme's theory of change, and assessing which outcomes should be measured and how, on the grounds that Covid-19 has increased mental health problems and demand for services, meaning that some of the Programme's original intentions may no longer be achievable within the original timescales, especially with regard to the impact on referrals to specialist mental health services;
- identifying impacts at the school or college level, alongside assessing experiences and outcomes for CYP and their families who receive direct support, on the grounds that, in some sites, MHSTs are more clinically oriented and local partnerships strongly NHS-led, with less focus on whole school activities and approaches;
- assessing whether and how the Programme is achieving its key goals (better mental health and wellbeing amongst CYP; and CYP and education settings feeling better equipped and supported) in the more demanding context of a growing prevalence of mental health problems in CYP and increasing demand for services and support. This would build on recent evaluations of similar programmes, including the Place2Be provision of school-based counselling, which reported improvements in mental health that were maintained over time, without an increase in referrals to specialist NHS mental health services (Finning et al, 2021; Grant et al, 2021).

If fully rolled out, the Programme will have created around 8,000 new staff and more than doubled the size of the CYP's mental health service workforce (DHSC and DfE, 2017). The early evaluation found that recruitment to the EMHP training programme had gone well, but that EMHPs faced several challenges once in post (e.g. workload pressures, practising beyond scope), many of which have been previously reported for other paraprofessional roles in mental health (Bower et al, 2004; Harper et al, 2020; Westwood et al, 2017). The longer-term evaluation provides an opportunity to explore the ongoing development of the MHST workforce. This includes different staffing models and skill-mix, and how these relate to Programme implementation, user experiences and outcomes; and the impact of strategies – developed within local sites and at the national level – to create opportunities for career development and progression and increase staff retention.

Evidence explaining why this research is needed now

The proportion of young people reporting poor mental health is increasing significantly. In England, national survey data published in 2020 estimated that one in six children had a probable mental health problem, up from one in nine in 2017 (NHS Digital, 2020). This same one in six figure was reported the following year, indicating *sustained* elevated rates of mental ill-health among CYP (NHS Digital, 2021). Covid-19 has also had a substantial impact on young people's mental health. Record numbers of young people were referred to specialist mental health services in 2021, and evidence clearly shows that the pandemic and social distancing restrictions introduced to reduce the spread of the virus have disproportionately affected young people who were already at greater risk of mental ill-health (Mansfield et al, 2021; Newlove-Delgado et al, 2021). Without effective support, mental health difficulties in childhood can have a profound and long-lasting impact on a person's quality of life, relationships, academic success and employment opportunities (Copeland et al, 2015; Lereya et al, 2019; Goodman et al, 2011). Alongside improvements in specialist and crisis services, there is a clear and compelling rationale for mental health promotion and early intervention which the Green Paper Programme is seeking to address.

The Programme's scale, goals and investment is considerable. Subject to continued government funding, the Programme expects to have created more than 600 MHSTs by 2025, supporting around 53% of 5–18-year-olds in England. Fully funding MHSTs to cover 100% of schools and colleges has been widely called for (House of Commons Health and Social Care Committee, 2021). Building on the learning and insights from the early evaluation, high quality and

independent assessment of the outcomes, impact, embedding and sustainability of the changes funded by the Programme, and identification of any unintended effects, is imperative. This will yield evidence to underpin and inform Programme rollout, and will be of interest and value to all those involved in planning and providing support for young people's mental health, and to international audiences. Indeed, growing prevalence of mental health problems in under 18s globally is driving increased attention across many health policy and systems contexts on how to intervene early to prevent the escalation of mental health problems and their potential long-term adverse effects (Colizzi et al, 2020).

Aims and objectives

The evaluation team will harness its in-depth knowledge of CYP's mental health and education, and existing collaborative partnerships to answer the question: *How is the Programme being implemented at different sites and what are its impacts, user outcomes and costs for different groups of CYP and their families, and different types of education settings and mental health services? We aim to explore Programme sustainability (objectives 1-6); equity and access (objectives 2-4); and draw out recommendations for future development (objectives 2-5 and 7).*

The specific objectives of the evaluation are to:

1. Update the Programme's theory of change and use it as a framework for the evaluation, and identify and/or develop measures to assess Programme impacts and outcomes at different levels.
2. Understand service models and ways of working beyond the Trailblazers and assess the extent of any learning across sites and over time, with particular focus on the interplay between the three Programme elements.
3. Assess the relationship between Programme workforce, user outcomes and sustainability, and understand the factors that support effective EMHP recruitment, training, practice, retention and career progression.
4. Compare activity, user experiences, user outcomes and costs between sites and for different CYP sub- groups using routine datasets in all sites and primary data collection in a sub-sample of sites, with a particular focus on understanding which CYP and/or mental health conditions MHSTs are more and less effective in responding to.
5. Explore whether and how the Programme, and MHSTs specifically, are contributing to the development of whole school and college approaches, and explore what works in promoting and supporting good mental wellbeing across an education setting.
6. Identify scope for improvement of Programme delivery to improve effectiveness and cost-effectiveness.
7. Advise how CYP outcome data beyond June 2025 should be collected and analysed at low cost.

Plan of investigation

Study design

This is a mixed methods study starting in June 2023 with a three-month preparatory phase with the core study commencing in September 2023. Data collection will be completed by 2025 and a final report submitted in May 2026, plus interim reporting. The study will assess impacts and user outcomes, and explore what works, for whom and why at the individual, education setting, site and Programme/system levels. It will focus on the 'Trailblazers' (wave 0) plus waves 1-6 (hereafter referred to as 'all sites'). This will include 287 MHSTs, working in 4,789 schools, and covering a total pupil population of 2.44 million (DfE, 2022). MHSTs in these waves will have been operational for at least a year when the evaluation starts, allowing the study to focus on sustainability, impacts and outcomes where the Programme is reasonably well established (complementing the early evaluation's focus on Programme set up and initial implementation). Discrete evaluation of the EMHPs' and senior mental health leads' training is outside the study scope.

The study will follow an iterative design process involving the sequencing of data collection activities, ongoing data analysis and regular involvement of stakeholder groups, including CYP. Emerging findings and insights from early WPs will shape lines of enquiry and design decisions in the research to follow. Activities in the final stages of the study will further extend understanding and assess the generalisability of themes from in-depth case study research to the Programme as a whole.

The study design has been guided by several key considerations:

- **Assessing not only what works, but also how and why:** the early evaluation found significant variation in local implementation and service/delivery models. Research undertaken across all sites will support further mapping (beyond the Trailblazers) of both these different models and approaches, and local contextual variations in order to make comparisons within the Programme (i.e. what works, for whom, and in which circumstances and at what cost). This research will also inform the selection and themes for investigation in six case study sites, which will generate in-depth insights essential not just for assessing whether the Programme is working, but also for teasing out the underlying mechanisms: where there is evidence of positive outcomes and impact, how is this being achieved; where there is not, why is this so?
- **Focus on inequalities:** at each level, analysis will focus particularly on inequalities in experiences and outcomes, including for CYP from groups who have been historically underserved by mental health services. One way this will be achieved is by over-sampling sites and education settings in the sites serving a higher proportion of e.g. low-income households and ethnic minority groups, with analysis by each sub-group. Efforts will also be made in the analysis of routine MHSDS and NPD data to look at patterns of service use, referral and outcomes in population sub-groups identifiable in these datasets.
- **Identifying practical learning and good practice examples to support Programme rollout:** in the early evaluation, the team demonstrated a strong and ongoing commitment to providing formative feedback to support Programme rollout. This evaluation will build on that approach, and on our existing relationships with Programme leads and implementors at national, regional and local levels. We will work with the national team to understand the key decision points for the Programme, so that we can (as far as is possible) time formative feedback to align with and support these. Our collaboration with the National Children's Bureau and engagement of key stakeholder groups (including CYP and parents/carers) will help to maximise the relevance of the study, by shaping its focus and supporting the translation of evaluation findings into practical and actionable learning.
- **Minimising burden on research sites and participants:** primary data collection is proposed only where required to fill gaps or supplement existing data and measures, in order to balance answering the key questions set out in the commissioning brief and site/setting/respondent burden. Findings will be analysed on an ongoing basis, with the need for and value of continuing data collection regularly and carefully assessed, and so that any further data collection is targeted to address remaining gaps in understanding.

Theoretical framework

The study will draw on Normalisation Process Theory (NPT) – a framework for evaluating the implementation of complex interventions and understanding how they become 'normalised' (i.e. embedded and sustained) in everyday practice (Murray et al, 2010). NPT considers implementation to be a dynamic process, involving individual and collective behaviours, which are shaped by (and, in turn, shape) contextual conditions and factors. It identifies four kinds of 'work' that need to be done for normalisation to occur:

1. *coherence*: people make sense of the intervention, e.g. its purpose, what it requires of them, how it is different from current ways of working;
2. *cognitive participation*: people get engaged and invested in the process, e.g. they agree it should be part of their work, they support the intervention;
3. *collective action*: people do the necessary work together to make it happen in practice, e.g.

the work of the intervention is appropriately allocated to people, this work is supported by people's host organisations;

4. *reflexive monitoring*: people assess whether it is worth the effort, e.g. they collect/access data about the effects of the intervention, they use this data for improvement.

NPT will inform the design of research tools (e.g. surveys and topic guides for interviews with MHST and education setting staff, and those leading local implementation) and the framework for qualitative analysis in order to deepen understanding of the factors promoting and inhibiting successful Programme implementation. We will also consider more recent developments in NPT which draw attention to how individuals negotiate and navigate different contexts, and can create new and receptive contexts for change (Myall et al, 2020). This, we expect, will be particularly helpful in understanding the experiences of staff working in MHSTs, who typically operate across at least two diverse contexts (health services and education settings) and often more. We will draw on the experience of members of the study team in using NPT as a framework for evaluating the implementation of large-scale programmes in children's mental health (Burn et al, 2020). We anticipate that the concept of 'boundary spanning' (Tushman and Scanlan, 1981) will be an additional, useful lens through which the experiences of MHST staff (possibly also senior mental health leads and other key roles in the Programme) can be explored and understood.

Methods

The evaluation comprises eight Work Packages (WPs), described below, which integrate to answer all the evaluation questions in the NIHR commissioning brief. WPs 1-3 will be undertaken across all sites in the Programme's Trailblazer wave and waves 1-6; WPs 4-7 will be undertaken in six purposively selected case study sites; the final work package will develop a specification for longer-term monitoring and data collection beyond the timescale of this study.

Preparatory phase

During this phase (June 1st – August 31st 2023), the team will prepare and submit the necessary data applications/data sharing requests, prepare an application for research ethical review of WPs 1-3, develop the survey questionnaires (as the first scheduled data collection activity), and liaise with the national Programme team to agree a format and date for a 'kick off' workshop to discuss the evaluation and review the Programme theory of change (see WP1, below). Three, potentially four, separate data applications/data sharing agreements will be required: i) an application to NHS Digital's DARS (Data Access Request Service) for Mental Health Service Data Set (MHSDS) data; ii) a data sharing agreement with DfE for a list of, and contact details for, the participating schools/colleges and a separate application to the DfE's Data Sharing Approval Panel (DSAP) for National Pupil Database (NPD) data; iii) a data sharing agreement with NHS England for details of the Programme sites, contact details of site leads, monitoring data, financial information and other essential Programme documentation; and possibly iv) an application to the ONS Secure Research Service for ECHILD+ data (if this linkage becomes available within the lifetime of the study).

Work packages

Work package 1: Initial scoping work to update the Programme theory of change and finalise methods (led by Mays and Ellins)

Summary: this work package is designed to check that the proposed design is appropriate and remains relevant to policy makers, implementers and beneficiaries before embarking on obtaining the necessary research ethics and NHS research governance approvals.

Aims

1. To confirm that the evaluation is focusing, as far as practicable, on the outcomes most relevant to the Programme and to other key groups, including CYP.
2. To finalise routine data sources and primary data collection tools and outcome measures.
3. To resolve the geography and organisations in each site.
4. To update the Programme theory of change developed in the early evaluation, if necessary.
5. To finalise membership of the study's advisory groups and establish clear arrangements for liaising with and securing essential information from the Programme's national team.
6. To finalise an evaluation protocol.

Methods and analysis

WP1 will begin with interviews and/or a workshop with senior Programme staff and other stakeholders to review the funded proposal in terms of the appropriateness and feasibility of the outcomes and outcome measures, as well as revisiting (and, if necessary, updating) the Programme theory of change based on the findings of the early evaluation and subsequent events. We will also hold similar workshops with a group of CYP, and of parents/carers, organised by Fenton (subject to contract award, we envisage finalising the membership and arrangements for the CYP and parent/carer advisory groups before the study commences).

This will be followed by work to assess whether change in the outcomes identified in the workshops can be appropriately and feasibly measured during the study period. This will be based on reviewing recent studies and the properties of the measures currently available, plus comparator national survey datasets. This will be led by Ford, Anderson and Burn, and will feed directly into WP5. In parallel, Lugo Palacios will build on preliminary work to identify suitable comparison datasets to be used in WP3, negotiate access to the NHS mental health services dataset (MHSDS) and the National Pupil Database (NPD), assess the quality of these data, and work with the custodians of these two datasets and those leading ECHILD+ to understand whether it will be possible to link these at individual level during the life of the study.

Evaluation of the Programme is complicated by the fact that education and NHS boundaries do not coincide neatly at site level. We will clarify and resolve the boundaries of, and education settings in, each site so that the size and composition of the population served in each site can be determined. We will also develop a profile of each site to supplement MHSDS and NPD, as we did in the early evaluation, including population socio-demographic characteristics, mental health prevalence, spending on mental health services, etc. We expect this information to be held locally and nationally, requiring a mix of desk research and contacting stakeholders. This information will be important for understanding the variation in Programme implementation and outcomes at the education setting level, in relation to factors such as NHS and education resources.

During WP1, the Programme's routine management information and other data collected by the national team (e.g. data from the Experience Surveys of education settings conducted by the DfE) will be reviewed, in particular as a source of contextual information on individual Programme sites and their funding. This information is particularly relevant to the selection of case study sites for detailed investigation in WPs 4-7 and the interpretation of findings from these sites. Details of the sites in waves 1-6, and the local project lead in each, will be secured from NHSE/DfE Programme staff. We will also seek information about the 4WW pilots led by NHSE (e.g. what did the Programme fund in the 12 pilot sites, what did the work involve and what has been learned), as

these were excluded from the scope of the early evaluation and there is very little in the public domain about this element of the Programme.

It will be particularly important to establish good relations with site leads since it is very likely that they will be providing many of the names and contact details for the surveys in WP2 (as was the case with the early evaluation since the national team lacked much of this information). We worked hard in the early evaluation to build relationships with local leads. Despite having to relate to a much larger group in this study, we will still try to communicate regularly with them so they feel involved and informed about the evaluation. An evaluation strategic advisory group and a Policy Stakeholder Group will be recruited and will meet for the first time (the latter following the model successfully developed for the early evaluation). Further details of these groups and their roles/remit can be founded in the 'Project management and governance' section below.

Based on the above work, a study protocol will be finalised as the basis for research ethics and NHS research governance applications.

Work package 2: Education settings' and key informants' surveys at all sites (led by Mays)

Summary: this work package is designed to broaden understanding of how the Programme is being implemented and is progressing in sites beyond the Trailblazers studied in the early evaluation.

Aims

1. To identify and understand the service models and ways of implementing the Programme in the Trailblazers (studied in the early evaluation) and six subsequent Programme waves from the perspective of site leads, managers and practitioners in MHSTs, key stakeholders involved in the delivery of MHSTs, and staff in education settings involved in collaborating with MHSTs.
2. To use understanding of different service models to help in the selection process of case study sites for WPs 4-7.
3. To assess any changes over time in the way the Programme is being implemented and embedded and differences between sites through a second survey.
4. To use the second survey to assess the extent to which the issues emerging from the case study sites apply to the remainder of sites.
5. To explore the extent and nature of learning within and between sites over time, with particular focus on the two extant Programme elements of: incentivising education settings to identify a senior mental health lead; and MHSTs providing extra capacity for early intervention; and

Methods and analysis

The design of these two sets of surveys will be modelled with suitable modification on the approach taken in the early evaluation (Ellins et al, 2022). The surveys will be administered online using Qualtrics software at all sites that were funded in the first seven waves of the programme and will be undertaken twice: once in early 2024 and once in autumn 2025 to allow changes to be explored over time. As far as possible given job turnover, the same people will be surveyed at each survey timepoint. An important early task will be to clarify how survey samples and respondent contact details will be compiled. In the early evaluation, the names and email addresses for survey recipients in the Programme's Trailblazer wave (around 1,250 people) had to be gathered by the evaluation team directly from sites, and this process took several weeks. The evaluation team will work closely with both the Department for Education (DfE) and NHS England (NHSE) to collate contact details for respective surveys.

The surveys will be designed, piloted and revised in collaboration with relevant individuals (e.g., senior mental health leads or education setting staff for the education settings' survey, and MHST managers/leads and EMHPs for the key informants' surveys, or members of the wider evaluation team). Where appropriate we will retain key questions from the surveys used in the early

evaluation, to allow direct comparison over time. Additionally, the data from education settings' surveys will be compared to data from the DfE's annual 'MHST experience survey' to explore how the Programme has evolved since the Trailblazer wave.

Education settings' survey

The **education settings' surveys** will be sent to schools and colleges which regularly work with a MHST as part of the Green Paper Programme. DfE plans to send out their annual 'MHST experience survey' to schools and colleges at a similar time to the evaluation's first education settings' survey. To avoid duplication of effort and to reduce participant burden, the first education settings' survey will be a joint survey with the DfE. The evaluation team and DfE will develop their own surveys independently and then work collaboratively to join the surveys in an intuitive way, prioritising survey flow, length, and the avoidance for duplicated/similar questions.

DfE will collate a list of contact details of a named person, usually the senior mental health lead, via the MHSTs in early 2024. A warmup/introductory email will be sent in April 2024. The survey will then be sent to the named person in all education settings via Qualtrics in May 2024. Respondents will have a window of two months to respond. Informed consent will be obtained via a tick box following the survey information sheet. Once the survey is closed at the end of June 2024, DfE will share the full de-identified data set with the evaluation team, including the questions from DfE's survey. To ensure independence from the evaluation, the DfE will delete responses to the questions from the evaluation team's survey from their database after sending the full data set.

The second survey, in 2025, will be designed and administered independently (i.e., not jointly with DfE) and sent directly from the evaluation team to a contact list of named individuals. For the second survey, an updated contact list will be obtained from DfE in the same way as the contact list for the first (joint) survey.

The surveys will be designed to take 15 minutes on average to complete. There were 25 sites in the initial Trailblazer wave of the Programme with 1,050 education settings. With the Trailblazers plus the six subsequent waves (allowing for the fact that some of the subsequent sites are extensions of existing sites) we estimate around 400 MHSTs with over 6,000 education settings across the seven waves will be contacted to complete the surveys.

The surveys will include questions about pre-existing resources available for mental health and wellbeing; investment/disinvestment since working with an MHST; MHST modes of working; scope and equity (e.g., underserved groups); perceptions of Programme impact; experiences of working with and being supported by MHSTs including the three core functions; the extent to which MHSTs are becoming embedded in education settings; and views on what, if any, impact having an MHST has had on accessing/referring to external services, including specialist NHS mental health services.

Key informants' survey

The **key informants' surveys** will go to the project lead, managers in organisation(s) holding the MHST contract, MHST manager(s), qualified EMHPs (including assistants), senior clinicians and practitioners, MHST administrator(s), wider service or clinical leads, and key stakeholders from provider or partner organisations in each site. NHSE will provide a contact list for site leads in all MHSTs in waves Trailblazer to six. The evaluation team will contact these site leads (via email) to ask them to contact their team and any relevant individuals (as above) to tell them about the national evaluation and ask them to provide their own contact details via an online form. This form will be submitted directly to the evaluation team which will enable us to compile a contact list of relevant key informants in the surveys. In both iterations of the survey, all respondents will be asked the same core set of questions, with additional questions for site leads, mainly to gather factual information about the site (e.g., MHST resourcing per site and per education setting). The surveys will be designed to take 15-20 minutes on average to complete. Upon completion of each survey, respondents will be entered into a prize draw (top prize of £100 shopping voucher, or one of four £20 shopping vouchers).

The surveys will include questions about the local MHST model (e.g., modes of working, lead organisation(s), funding, resources, staffing and partnership working with external services); delivery of three core functions; training and supervision; the extent to which MHSTs are becoming embedded in education settings and the wider local mental health services system; and barriers and facilitators to effective delivery.

Both the education settings' and the key informants' surveys will explore the extent of variation between sites. The sample size in the education settings' survey will allow for analysis of MHST provision and perceived effectiveness by setting type and MHST wave, something that was not possible in the early evaluation. The findings will thus help characterise the differences between the sites and their settings and may contribute to the process of selecting sites for in-depth case study research in WPs 4-7.

Work package 3: Analysis of routine data at all sites (led by Lugo Palacios)

Summary: this work package will use Programme data routinely uploaded by sites to MHSDS to understand Programme activity and mental health outcomes, and aggregate and individual-level data from the NPD to understand educational outcomes. The ECHILD+ linkage (if successful within the lifetime of the study) offers the potential to explore these together. WP3 will have a particular focus on understanding variation and inequalities in Programme processes and outcomes between individual CYP, education settings and sites.

Aims

1. To develop routine data applications and data access, for education, mental health, and linked data sets where available, working to the highest standards of data governance, and in collaboration with the CYP advisory group.
2. Preliminary analyses, including exploration of the completeness of data uploaded routinely as part of the Programme, and other sources. A detailed analysis protocol will be developed and pre-registered, including the definition of intervention settings and sites, and exploration of the most appropriate counterfactual.
3. Analysis of Programme activity, and mental health and education outcomes, with a focus on understanding the equalities impact; integration of findings with other work packages, including the economic evaluation (WP7).
4. Providing insight for appropriate routinely captured measures for longer-term monitoring and data collection (WP8).

Methods and analysis

Identification of CYP who have been in contact with MHSTs

Having identified the populations – overall and for individual education setting – in each site (in WP1), we will also need to identify CYP who have been in direct contact with MHSTs. MHSDS holds data from the health records of CYP and adults who are in contact with NHS mental health service including MHSTs. Socio-demographic, organisation and activity data are all held, with some routinely collected mental health outcome data as well. A specific MHST code has been included in the MHSDS since October 2021 allowing these CYP to be identified. Initial work will explore the quality of data submitted and any implications for analysis.

Outcomes and individual-level characteristics

Using MHSDS we will describe the demographic, activity and outcome data collected from CYP over time as part of their contacts with MHSTs. We will also explore referral patterns to specialist NHS mental health services pre- and post- CYP contact with an MHST, and criminal justice system contacts, where recorded. We will look at the proportions of referrals accepted as a proxy measure of appropriateness. We will explore the number of MHST contacts for each CYP as a measure of engagement with the intervention. In addition to exploring variation between CYP (particularly considering individual demographic characteristics), we will also explore changes in

outcomes and activity over time, within and across sites. Variation according to Programme characteristics, e.g. extent of MHST coverage in an area, will also be assessed. Using NPD, we will explore changes in educational outcomes including exclusions, attendance, behaviour and attainment in education settings where the Programme has been implemented, compared with similar settings or geographical areas where it has not been implemented, and explore heterogeneity in these effects within and across sites.

Data access and analysis

The evaluation team will apply to NHS England for access to MHSDS for all CYP in England aged under 25 at the start of the evaluation with the expectation of an 18-month application period; analysis of MHSDS will be carried out in the last 12 months of the evaluation. We will apply for access to NPD, and potentially also the ECHILD+ database via the Office for National Statistics Secure Research Service. Access to person-level data will allow more appropriate multivariable models to be developed for these impact analyses. Publicly available school-level data will be used to explore the characteristics of the education settings with which the MHSTs are working. An analysis protocol will be developed and pre-registered following preliminary descriptive analyses, and exploration of data completeness. The overarching principle for the analysis will be to identify the outcomes and processes (and their variation) that can be measured using these routine data (particularly measures of mental health and educational outcomes, and measures of Programme activities) in CYP, education settings and sites that have received the intervention. The analysis considering variation in outcomes across CYP, settings and sites will mainly be descriptive, reporting unadjusted estimates. Coding, data cleaning and assessment of data quality will form a substantial part of this initial work.

After this step, in order to explore the impact of the Programme, we will explore whether national survey data can provide appropriate counterfactual estimates (particularly for mental health outcomes), or whether other counterfactuals can be used (for example, matching intervention education settings with other schools which have not had MHSTs working in them, or matching CYP in contact with MHSTs with other CYP in MHSDS who have been in contact with mental health services through other routes). The specific quasi-experimental approach and development of counterfactual will vary by outcome (and the level at which the Programme is being evaluated) and will be pre-specified once the initial data quality has been assessed.

We will be particularly mindful of the need to consider regression to the mean (for example, individual CYP may well be referred to the MHST at a point of crisis and this needs to be incorporated into the analysis framework to ensure that the impact of the intervention is truly being evaluated, rather than simply improvement over time which would be expected), and thus we will match on pre-intervention trends. O'Neill (lead for WP7) is an expert in causal inference and quasi-experimental designs and will advise on this analysis framework. We will use appropriate univariable and multivariable models, depending on the outcome, for example modelling referral rates and counts within a Poisson framework, considering the assumptions for each model, and whether alternative parameterisation would be more appropriate. We will account for the clustering and hierarchical nature of the intervention (and therefore the data) using multi-level models. We will explore model assumptions and data quality issues using sensitivity analyses and will consider weighting approaches for missing data if appropriate. The impact of Covid-19 on health service utilisation and educational outcomes is particularly important, and we will consider how to incorporate this appropriately, for example using time period stratification if sample size allows.

Case study site selection and set up (for WPs 4-7)

Six case study sites will be purposively sampled based on criteria which will be developed based on the preliminary findings from WPs 1-3, and in consultation with key stakeholders. We will aim to ensure that these case examples cover the range of settings and implementation/service models as well as ensuring representation of underserved groups of the CYP population. For example, our case studies will be drawn from different regions of England, as well as including both urban and rural communities with greater or lesser experience of the Programme, and sites/MHSTs led by different sectors or different partnership configurations. Equally, we will ensure that case study

sites are selected from each quintile of the Index of Multiple Deprivation (IMD) (with two from the lowest quintile), and reflect both below and above average eligibility for free school meals and percentage of minority ethnic groups. We will also consider including sites with distinctively innovative and/or good practice, and/or reporting highly developed partnership working arrangements across health and education, using the findings from WPs 1, 2 and consultation with key regional stakeholders (a 'positive deviance' approach to sampling).

Education settings will be recruited using criteria that include both setting-related and contextual characteristics. We would expect the final selection of education settings to include a mix of school/college phases (e.g. primaries, secondaries, FE colleges), different types of education setting (to include special schools and alternative provision), different levels of pre- Programme mental health provision, and variation in terms of ethnic composition, rural/urban location and neighbourhood-level measures of deprivation (through linking IMD scores to education setting postcodes). The final sample will be dependent on which education settings agree to participate in the study, but the team will make every effort to recruit as diverse a sample as possible.

University of Birmingham researchers will lead on setting up and managing relationships with case study sites and education settings, and there will be a named person in the Birmingham team who will be each site's first point of contact. A familiarisation visit will be organised with each site (which may be in person or remote), during which researchers will meet with key people; build a deeper understanding of the local context, delivery model and work to date; gather relevant documentation to review; and discuss the process for initiating and timing of data collection activities. We will also meet with staff in schools/colleges either during their recruitment or once they have agreed to take part. Our experience of conducting CYP focus groups in the early evaluation was that schools valued the opportunity to meet the researcher involved, and that this helped to build relationships that supported effectively delivery of the research. Birmingham researchers will work closely with the wider team – especially University of Cambridge colleagues leading WP5 – to schedule, sequence and coordinate data collection activities, with particular attention on how to avoid placing undue burden on sites and participants.

Case study methodology

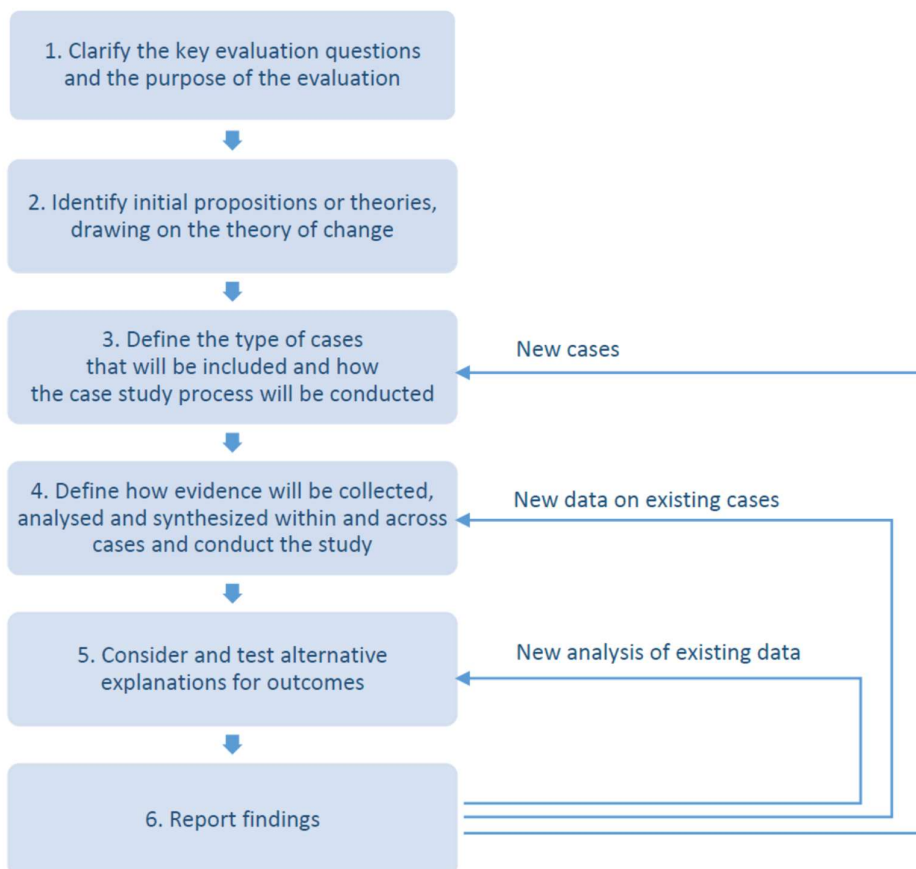
The case study work will follow the comparative case study method set out by Goodrick (2014), which will support comparisons between sites focused on how contextual features influence programme implementation and success. Goodrick's method involves six steps (see Figure 1 below):

1. **Clarify the key evaluation questions and purpose of the evaluation to determine whether the use of comparative case studies is an appropriate design:** this step has already been completed.
2. **Identify initial propositions or theories to focus the comparative case studies, drawing on the programme's theory of change:** this has already started, informed by the findings from the early evaluation. It will be further developed through the initial scoping work in WP1, when we will review the Programme theory of change and agree how it will guide/underpin the evaluation, in consultation with the national Programme team and our study advisory groups.
3. **Define the type of cases that will be included and how the case study process will be conducted:** this will form part of the early work of the evaluation. We will select six Programme sites from across the first seven waves of the Green Paper Programme. Before April 2022, Programme sites were defined in terms of the geographical boundary of the CCG (of CCGs) leading local implementation. We understand that sites are now, after the abolition of CCGs, defined in terms of the clusters of schools and colleges that are served by particular MHSTs. Details of participating education settings can be provided by DfE, but we will need to map these to the Programme waves in order to delineate the boundaries, and thus populations, of the approximately 400 sites to be included in the evaluation, from which the six case studies can be selected.
4. **Identify how evidence will be collected, analysed and synthesized within and across cases, and implement the study:** data will be gathered using a number of different

methods and from a variety of perspectives, to produce in-depth and contextualised insights. We will be particularly mindful of Crowe et al's (2011) guidance that, in comparative case study designs, data collection needs to be flexible enough to allow for detailed descriptions of each individual case to be developed, while also sufficiently comparable across the different settings and participant groups to support effective cross-case comparison. This guidance fits well with Goodrick's method, which emphasises the importance of integrating qualitative and quantitative data for within- and between-case comparison, in order to develop a deeper understanding of the phenomenon under investigation and to test causal propositions. She also draws attention to the need for a framework to guide the identification of the dimensions to be compared; in our experience, such a framework is also essential to enable researchers to move between cases and levels of analysis in order to identify and explain connections between different elements (e.g. local contexts, service models, implementation processes and outcomes) and for appropriate generalisations to be made. We will use the Programme theory of change, and Normalisation Process Theory (Murray et al 2010), to provide such a framework to underpin the analysis and interpretation process.

5. **Consider and test alternative explanations for the outcomes:** this is particularly important in this research given the complexity of the cases themselves and the wider environment in which the Programme is being delivered. This methodological approach will allow for alternative hypothesis testing in order for us to understand and attribute, where possible, causation.
6. **Report findings:** Goodrick draws attention to the need to carefully consider the balance between description, interpretation and explanation, and to the value of diagrammatic and other non-narrative approaches to enhance readers' understanding of the rich (but often complex) insights that comparative case study research yields.

Figure 1. Comparative case study design to be used in the study



Source: Goodrick, 2014

Work package 4: Interviews with individuals in strategic, implementation and delivery roles (led by Ellins)

Summary: this work package will provide an in-depth understanding of Programme implementation and sustainability in the case study sites, and explore the factors influencing local models, delivery and progress. It is designed to complement and build on the surveys undertaken in WP2; provide contextual information to inform data collection and analysis in WPs 5, 6 and 7; identify good practice examples to support Programme learning and roll out; and generate insights with which to assess the continuing validity of the Programme theory of change.

Aims

1. To understand local Programme delivery and MHST service models, including who is involved, how they are delivered (and if/how this has evolved over time), what has worked more and less well, and what has been learned. This will build on learning from the early evaluation, but extending the focus to include a focus on Programme sustainability, adaptation and growth.
2. To understand if and how MHSTs are embedded into education settings and with existing CYP mental health and wellbeing teams/services, and what has helped teams to establish themselves and build productive relationships.
3. To assess service delivery and effectiveness from the perspective of MHST staff and local partners, and the factors promoting and impeding success.
4. To explore team composition, skill-mix, training, supervisory arrangements, and other key workforce issues, and how these influence what is delivered, how and how successfully.
5. To explore how the Programme, and MHSTs specifically, are tailoring approaches to individual and diverse needs.

Methods and analysis

In each case study site, we will undertake up to 15 in-depth interviews. Interviews will be conducted online for speed and convenience for interviewees. We will keep in close contact with the sites to identify any opportunities to observe local meetings (e.g. of the Programme governance board or MHST) either online or while we are on site for other work packages. While the composition of interview samples will be determined on a site-by-site basis, we will recruit a mix of roles including local project leads, MHST service managers and team members (including EMHPs and senior EMHPs), and leads from local Programme and delivery partners (including organisations holding MHST contracts).

A set of tailored topic guides will be developed for different groups, building on the insights from the early evaluation, informed by the preliminary findings from WPs 1 and 2 and in consultation with our stakeholder advisory groups. For example, interviews with MHST staff members will seek their views across a range of topics likely to include: experiences of delivery (including digital/remote working and support); CYP and parent/carer engagement/disengagement with support, and factors contributing to this; working with and in education settings; extent of coordination and complementarity between MHSTs and other local mental health services; training and support for staff in new practitioner roles; collection, reporting and use of routine outcome measures; and how MHST interventions can be adapted for diverse groups and needs, including learning from efforts to improve service accessibility and effectiveness for under-served groups.

All qualitative research activities across WPs 4-6 will be audio or video recorded, transcribed and anonymised to ensure confidentiality. Data will be analysed thematically and comparatively using a team-based approach, guided by the principles of the framework method (Ritchie and Spencer, 1994), and managed with NVivo software. We will draw out both context-specific and general themes to support within and cross-case comparison. In relation to WP4, comparative analysis will examine similarities, differences and patterns across the six areas, focusing in particular on the identification of explanatory factors – i.e. factors that account for observed differences between sites/teams in terms of experiences, effectiveness and sustainability of Programme implementation.

Work package 5: Capturing experiences and outcomes of direct support from an MHST (led by Ford)

Summary: this work package will comprise primary qualitative and quantitative data collection to capture the experiences and outcomes of direct support from an MHST, complementing and extending the routine data analysis in WP3. We will compare primary quantitative data with propensity matched controls from the datasets identified in WP1. Given the sensitive nature of clinical interactions, experienced qualitative researchers will undertake in-depth qualitative interviews with CYP and parents/carers.

Aims

1. To explore whether CYP who access MHST support report improved outcomes on quantitative measures and whether their mental health trajectories differ from the mental health trajectories of a comparable group of children from datasets representative of the CYP population such as the Millennium Cohort Study or the National Mental Health Surveys.
2. To test the sensitivity to change of Artemis-A to inform the interpretation of Artemis-A as a whole school measure.
3. Explore CYP's experiences of accessing support, and what they found helpful or unhelpful about the service provided by the MHST.
4. Explore the views of parents who have received parenting interventions or direct support to help their children, and those who have been supported indirectly in that their children have received direct support from an MHST.

Methods and analysis

Aim 1

We will work with an MHST in each case study site to supplement the MHSDS (Mental Health Services Data Set) outcome data with primary quantitative data collection at 3-time points for each child/young person: immediately before individuals receive their intervention, at the end of treatment, and 9 months post-baseline (9 months after the pre-intervention data collection). MHST staff will inform young people and parents/carers about the study. Those who agree to be contacted and have their details shared with researchers (providing verbal consent) will then be contacted by researchers, who will provide further information about the study and obtain formal consent/assent for participation. We will avoid informants needing to provide the same data twice and the precise measures used will reflect consultations with stakeholders and those used in the available counterfactual datasets from WP1. If the MHST uses the same questionnaires as part of the participant's care (routine outcome data), we will offer the option to share the questionnaire responses with the MHST to avoid the participant having to complete the same questionnaires twice. Data sharing will take place only if the participant consents to this. Completion of the questionnaires online in the presence of MHST staff will also be possible.

Measures will include the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001), the Revised Child Anxiety and Depression (RCADS; Chorpita et al, 2000), the Goal Based Outcomes (GBO; Law and Jacob, 2015), the Child and Adolescent Service Use Schedule (CA-SUS; Byford et al., 2007), the EQ-5D Health-Related Quality of Life Questionnaire (Rabin & de Charro, 2001), as well as socio-demographic questions. Outcome measures will be completed by children and young people. Parents/carers will complete the parent versions either as second informants or on behalf of the child/young person if a corresponding version does not exist or has not been validated for the child's age. Data on individuals receiving support will be matched with appropriate controls in national datasets, using propensity score matching and coarsened exact matching to identify a control group of CYP from counterfactual datasets. Candidate datasets include the My Resilience in Adolescence (MYRIAD; Kuyken et al., 2017) and Millennium Cohort Studies (Centre for Longitudinal Studies, 2001-present), as well as large population surveys such as the Mental Health of Children and Young People (Sadler et al, 2018) and Understanding Society (Essex University, 2009-present). The exact choice of methods and matching variables will depend on the datasets selected but are likely to include age, gender, ethnicity, socioeconomic status (such as free school meals or parents' highest qualification), special educational needs and baseline mental

health scores on the outcome measures. Once controls and cases are selected, latent growth curve modelling will be used to compare the mental health trajectories of CYP who accessed MHSTs (cases) with those from the counterfactual datasets (Finning et al, 2021a).

Aim 2

Artemis-A is an online application developed by researchers at the University of Cambridge, including members of the evaluation team (Anderson, Burn and Ford). It uses Computerised Adaptive Testing (CAT) to rapidly and efficiently estimate a young person's mental health in relation to their peers (Stochl et al., 2021). Calibration and validation of Artemis-A for the secondary school students were completed in December 2022 (NIHR203834 i4i). Artemis-A uses a databank of 175 items from validated mental health measures. To select the most informative questions for each assessed individual, CAT uses a combination of the person's responses to previous items and the characteristics of many other people's responses to these questions collected from previous studies into an 'item bank'. CAT continues to select questions for the individual until a predefined threshold in the algorithm is reached in terms of how precisely the student's final score is estimated. Completing Artemis-A takes less than 7 minutes.

To assess the sensitivity to change, which refers to Artemis-A's ability to detect meaningful changes over time, we will collect data from students who get mental health support from MHSTs at their school- secondary school year groups and sixth form (aged 11 and older)- at two time points: before and after they receive mental health support from MHSTs. This will allow us to evaluate whether Artemis-A is sensitive to changes in young people's mental health.

Aim 3 and 4

In-depth qualitative interviews or focus group discussions will be conducted with CYP and parents/carers to explore their views and experiences of MHST intervention support and delivery and suggestions for improvement. CYP and parents/carers who have experienced support from an MHST will be recruited. MHST staff will discuss the study with CYP and parents/carers. Those who agree to be contacted and have their details shared with researchers (providing verbal consent) will then be contacted by researchers, who will provide further information about the study and obtain formal consent/assent for participation. Participants who have participated in the quantitative study (Work Package 5, Aim 1) will also be invited to participate in the qualitative study. The target sample size is 4-5 CYP and 4-5 parents/carers per site (i.e. 48-60 interviews in total), but interviews/focus groups will cease once data information power is achieved or continue until it has. A purposive sampling frame will guide recruitment to ensure a diversity of backgrounds and views are represented. We will invite participants to either a focus group discussion or an interview, arranging it according to their preference. Potential participants will be provided with information about the study and will be asked for written consent before they participate.

Interviews or focus group discussions will be conducted either face-to-face, online or over the phone, depending on the participant's preference. Given the sensitive nature of clinical interactions, interviews and focus groups with CYP and parents/carers will be conducted by experienced qualitative researchers. Interviews and focus groups with CYP will follow a topic guide aiming at exploring their experiences of receiving MHST support, including their experiences of accessing MHST support, the impact and satisfaction of the MHST support received and suggestions for improvement. The team has experience in using creative methods (e.g. crafts, WordClouds), and these will be considered for the interviews with CYP as they can help with participant comfort when discussing sensitive topics. The exact methods and procedure will be decided through consultation with the CYP and parents/carers advisory groups. Interviews or focus group discussions with parents/carers will follow a topic guide aiming at exploring their views and experiences of the interventions/support they received, the support provided for their children, views about difficulties and benefits, and suggestions for improvement. Interviews with CYP and parent/carer interviews will be carried out separately, but we will offer flexibility if they prefer to be seen together. Parents will receive a £25 voucher and children a £15 voucher as a thank you for taking part.

Work package 6: Assessing school-level activities and their effects (led by Ellins)

Summary: this work package will provide in-depth analysis of school-level activities and their effects in the case study sites. It will involve primary qualitative and quantitative data collection with CYP, parents/carers and staff in education settings. This work package differs from WP5 in both focus and intent as it explicitly includes CYP, parents and carers who may not have been recipients of direct support from an MHST.

Aims

1. To assess CYP wellbeing and identify the extent of mental health difficulties across education setting populations using a web application (ARTEMIS-A).
2. To understand what MHSTs are providing to and in education settings, if and how this integrates with existing mental health provision and approaches within the setting, and perceptions of impact.
3. To understand the outcomes of school-wide activities in raising awareness of and promoting mental health and wellbeing, and increasing mental health literacy. This will include exploring CYP awareness of and engagement with MHSTs, and any wider mental health and wellbeing support linked to the education setting.
4. To understand parents' and carers' understanding of, and engagement with, school-wide activities linked to mental health and wellbeing, and to explore the impact of these on parents/carers awareness of and engagement with MHSTs and any wider support linked to the education setting.

Methods and analysis

Aim 1

We will administer ARTEMIS-A (see 'Aim 2' in Work Package 5 above for a detailed description of the tool) to a sample of secondary schools and FE colleges in each case study area at termly intervals over a 12month period, depending on when education settings are recruited to the study. We will aim, in each case study area, to recruit at least two education settings for this research. Priority will be given to the education settings that are recruited for WP6 in-depth qualitative research (Aims 2-4 below). If it is not possible to recruit a sufficient number of settings in this way, we will recruit additional settings from the wider pool of secondary schools/FE colleges in which the MHST is operating. Information materials will be sent to all pupils in the setting and their parents/carers, and consent will be obtained on an opt-out basis. ARTEMIS-A will be administered through anonymous online surveys, with links to the questionnaire provided to pupils by school staff.

There are limitations in using routinely available data to gain a true picture of CYP's mental health, and data are not available at the education setting level. Use of ARTEMIS-A will provide a clear understanding of the prevalence of mental health difficulties across whole school populations. The questionnaire will gather information from respondents on their school year, sex, ethnicity, and whether they have a special educational need or disability to identify any demographic patterning of mental health difficulties. Examination of the range, mean and standard deviation of scores across participating schools and how they fluctuate over time will allow the study team to assess the impact of different aspects of the Programme at a whole school level as they are implemented and would provide useful normative data for comparison with schools subsequently commencing the Programme.

ARTEMIS-A will provide information about mental health prevalence and need in each case study setting, which will support the analysis and synthesis of findings across WPs 5 and 6. It will also enable us to explore whether levels of wellbeing/mental distress within schools and colleges are associated, for example, with differences in whole school approaches, in the balance of time that MHSTs spend supporting these approaches, and in the experiences of senior mental health leads in education settings.

Our sample may include education settings that are not participating in other aspects of data collection. We will compile contextual information about the approach to and services for mental health and wellbeing in these settings using any information already provided by these settings through the WP2 survey, if necessary supplemented by an interview with key staff (e.g. senior mental health lead, pastoral lead). This information will be important for interpreting any observed differences in ARTEMIS-A scores, and assessing the extent to which those differences can be reasonably ascribed to the Programme.

We will also provide each school and college with summaries of the findings for their setting at the end of the data collection period. The value of offering schools a tailored and usable product to help their mental health work should not be under-estimated. Indeed, this offer may help with the recruitment of schools to the study and maintain their engagement over time. Moreover, from an ethical point of view, there is strong backing for an approach to research which would give something back to the participating schools in return for their cooperation.

Aim 2

In each case study site we will recruit three education settings to participate in in-depth qualitative research. In each site, we will undertake up to 15 in-depth interviews with education staff in these settings who have responsibility for delivering elements of or are linked to the Programme either through leadership, supporting MHST delivery, engagement in activities related to the whole school/college approach, or other key mental health and wellbeing roles within the setting. These interviews will allow us to understand education settings' contexts, their culture and understandings of mental health and wellbeing, how they are seeking to implement a whole school or college approach, and where/how the Programme and their MHST fits into this. We will explore staff views on the MHST in their setting, how it complements or has led the setting to change existing provision, and how the team are embedding into the school/college environment. We will seek to understand whether having an MHST in their setting has changed their experiences of accessing external support in the local community (including specialist NHS services), and if the MHST has had a wider impact on mental health culture, promotion or support within the setting. We will be particularly keen to seek staff views about how far the MHST is reaching all CYP and how they are working together with MHST staff to improve access for under-served groups. This will enable us to understand the key issues locally in relation to CYP mental health and wellbeing and how school/college and MHST resources are being deployed to address these.

These interviews will also be used to understand the senior mental health lead role and the impact of any training or support given for this role. We will be able to compare different approaches to the role in different education settings to explore if/how the role is working, for whom, in what circumstances and why. A key finding of the early evaluation was that this role was important for success in MHST engagement and delivery and so building on this, to more fully explore learning about how to be effective in the role and what works and does not, will be important. These insights will also support analysis of how the three pillars of the Programme interact with one another to support intended outcomes and the development and implementation of the whole school/college approach.

In each school there will be an optional learning walk where a key member of staff will be invited to show the researcher around the school. A proforma will be used to make field notes in relation to observations of evidence of the whole school approach.

Aims 3 and 4

In addition we will seek the views of CYP and parents/carers about their understanding of mental health and wellbeing, and sources of support, and their views and experiences of school/college-wide mental health promotion and culture. This will include asking about their awareness of, and any engagement with, the MHST in their setting, and any outcomes of this. We will not be exploring the outcomes and experiences of receiving direct support from an MHST (this will be undertaken in WP5), instead we will be trying to understand how the whole school/college approach is operating and being experienced by CYP and parents/carers. While the purpose is

not to evaluate the success of specific whole school/college approaches, we do expect this WP to identify good practice and learning about what works and does not work in promoting CYP's emotional resilience and coping skills, and in engaging parents/carers to support this.

In each site, we will carry out up to six focus groups: three with CYP and three with parents and carers. Focus groups with parents and carers were added after the Stage 1 application, in response to feedback from the University of Birmingham Institute for Mental Health Youth Advisory Group, which we have been working with throughout the early evaluation and who have helped to shape the design of this study. The group suggested that contrasting parent/carer views with those of CYP and education staff might yield new insights. We will recruit 6-8 participants for each group, and these will be held in person or online (to be decided with the education settings involved), and participants will receive a voucher as a thank you for taking part. All research tools will be co-produced with our CYP and parent/carer advisory groups. We plan to co-facilitate the CYP focus groups with youth co-researchers (drawn from our CYP advisory group, see 'Study advisory groups' below for more details).

Work package 7: Comparative costing and cost-effectiveness analysis (led by O'Neill)

Summary: this work package will conduct a comparative costing of the Programme including primary data collection via surveys of CYP (in WP 5) focusing on their education, health and mental health service use with linkage of these data to standard unit costs. We will consider impacts on health related quality of life (measured using EQ-5D) to allow the cost-effectiveness of different implementation types (different service models identified in WP2) to be assessed.

Aims

1. Calculate the total costs associated with each identified Programme implementation type.
2. Calculate the outcomes associated with each identified Programme implementation type.
3. Conduct a cost-effectiveness or cost-consequence analysis comparing each Programme implementation type to a particular implementation (e.g. the lowest cost implementation).

Methods and analysis

The analysis will consider the impacts and outcomes identified from the Programme's logic model as part of WP1 and will draw on primary data collection via surveys of CYP and their families (in WPs 5).

Service use

A modified version of the Child and Adolescent Service Use Schedule (CA-SUS) will be developed to record service use for all individuals. Data will be collected from CYP and parents of CYP before the intervention, immediately after the intervention and 9 months later. The CA-SUS has previously been successfully applied in various youth populations (Ford et al 2019). Data will be collected on service use (high cost/volume of use), hospital contacts, community and school-based services, medication, teaching support and accommodation. Differences in the use of services between Programme implementation types will be assessed. For each service use, the mean, standard deviations or interquartile range will be reported, along with the percentage of individuals using the service.

Costs

Nationally applicable unit costs (e.g. NHS Reference Costs; PSSRU Unit Costs of Health and Social Care; British National Formulary, Prescription Cost Analysis (PCA)) will be applied to each item of service use reported in the CA-SUS, and the total cost of service use over the elicitation period will be calculated for each individual. Productivity losses will be valued using workers' median gross earnings as listed in the Office for National Statistics (ONS) Annual Survey of Hours and Earnings.

The cost of implementing/running the Programme will be based on MHST and school/college completion of a costs proforma at each case study site, and national funding allocation information provided by NHS England. It will be supplemented by qualitative data about costs and resources gathered through WP4 interviews with key stakeholders and WP6 interviews with school/college staff. The costs proforma for MHSTs will ask them to provide information about any additional resources required in practice to deliver their service that are not directly covered by the programme funding allocation they receive. The costs proforma for schools/colleges will ask them to identify any costs/resource use required to facilitate and deliver the programme in their setting, and any cost savings to the setting enabled by the programme.

Outcomes

We will consider educational outcomes regarding absences, exclusions, behaviour and attainment (WP3), well being outcomes (WP5) and other outcome measures will be informed by PPI work (below) and WP1.

We will explore the feasibility of developing a Markov model to project long term outcomes. Markov models allow the synthesis of evidence from a range of sources, in order to make longer-term projections. We will draw on routinely collected data and published research evidence to inform transition probabilities between different health (e.g. poor mental health state) and non-health 'states' (employed, unemployed, in education, incarcerated, etc.) and associated outcomes and, if the data allow, costs associated with time spent in those states. We will subject the models to appropriate sensitivity analyses to reflect the uncertainty associated with the structure and parameters of the model we develop.

Cost Effectiveness / Cost consequence Analysis

Differences in mean costs between the different types of Programme implementation will be calculated, with and without adjustment for case-mix. We will assess the costs and consequences (effects) of each programme implementation. Incremental cost-effectiveness ratios (ICERs) will be calculated by dividing the incremental costs by the incremental outcomes (e.g. QALYs based on the EQ-5D) relative to one of the Programme implementations. These ICERs can then be compared to a threshold (e.g. the National Institute for Health and Care Excellence threshold) to determine cost-effectiveness of the different approaches to implementation. Longer-term cost-effectiveness will be explored by appropriately extrapolating costs and outcomes, potentially using decision analytic modelling techniques and transition probabilities obtained from the literature. Deterministic and probabilistic sensitivity analyses will be carried out to understand the robustness of the ICER to alternative parameter values/assumptions. We will use routinely collected data (WP3) to explore the cost and outcome impacts of extending each Programme type to the broader population where possible.

Work package 8: Specification of a method for longer-term monitoring and data collection (led by Lugo Palacios)

We will provide a specification for the monitoring of the longer-term impacts of the Programme from June 2025, co-produced with stakeholders. The precise approach will be informed by the findings of the evaluation, especially WP3 and, to a lesser extent, WP5. The monitoring will crucially depend on whether the linkage between MHSDS and NPD is successful and can be maintained for the longer term. We assume that ongoing monitoring will rely very heavily on analysis of routinely collected quantitative data and will be undertaken by analysts in DfE and DHSC. The detail of the approach will be developed collaboratively with stakeholders so that it provides meaningful local and national insight and does not place undue burden on the system. Although we envisage that routine data will be the core of any monitoring system, we will explore the feasibility and appropriateness of including a self-assessment survey instrument that education settings could use themselves over time with their students. We are aware that psychological measures do not necessarily capture Programme success from a CYP's

perspective and that such an instrument would need to explore the contribution of the Programme to helping young people attain their personal goals.

Data synthesis and interpretation

The team will bring together the findings from all WPs to develop a comprehensive understanding of the impacts, outcomes and costs of implementing the Programme. Table 1 shows how the main data collection methods map onto the different levels at which the Programme operates and its outcomes/impacts will be assessed. This will provide a preliminary framework for multi-level synthesis and analysis.

Table 1. Preliminary framework to support multi-level synthesis and analysis

Level	Individual children and young people, and their families	Education settings	Sites: areas selected in waves 0-6 including their participant education settings	Overall programme: health and education systems
Breadth (All sites)	Analysis of MHSDS and NPD data (WP3)	Education setting surveys (WP2) Routine data analysis at education setting level (WP3)	Key informant surveys (WP2) Analysis of referrals to specialist mental health services (WP3)	Refining the theory of change and selecting outcomes and measures (WP1) Estimation of overall programme costs (WP7) Design of long-term monitoring and data collection system (WP8)
Depth (Six case study sites)	Primary pre/post-intervention outcome data from CYP who have received direct MHST support, compared with matched CYP outcomes from national surveys (WP5) Interviews with CYP and families about their experiences of MHST support (WP5) Interviews with MHST staff (WP4)	Focus groups with CYP and parents/carers (WP6) Brief measure of CYP wellbeing (WP6) Interviews with staff in education settings (WP6)	Interviews with individuals in strategic, implementation and delivery roles (WP4) Detailed comparative costing (WP7)	NA

Beyond simply corroborating and contrasting findings from the different data sources, data synthesis will generate new insights into the relationships between the different levels and elements of the Programme, and build a multi-perspective account of what the Programme has achieved and how. Within this process, particular attention will be paid to (further) identifying and understanding the contextual factors that have most strongly influenced how fully and effectively the Programme has been implemented, drawing on Normalisation Process Theory.

Data synthesis and interpretation is a process of collective sense-making, not just a technical activity. At least one full day team workshop will be held to support this process, following the approach used in the early evaluation. Wider perspectives will be sought through our CYP, parent/carer and strategic advisory groups, as well as from our collaborator, the National Children's Bureau (NCB), to build a richer and more nuanced understanding of the findings, help the team to draw out the study's practical implications, and identify key messages for dissemination.

Study timetable

The timeline (see p. 24) assumes that the study will start in June 2023, with a final report submitted no later than 31st May 2026. Subject to contract award, we expect that some preliminary activities can start before June 2023. Notwithstanding, we have made realistic assessments of the time required for subsequent start-up activities, based on our experience of the early evaluation. For example, in the early evaluation it took several weeks to gather contact details for survey recipients in the Programme's Trailblazer wave (around 1,250 people). For this evaluation, the team will need to gather contact details for sites in an additional six waves; based on our previous experience, we have allocated six months for this.

Our extensive experience of research in this field, including the early evaluation, highlights the importance of flexibility in scheduling data collection, to avoid placing undue burden on research sites and/or clashes with busy periods for particular groups (e.g. school/college exam periods). For this reason, we have allocated relatively long time periods for data collection activities in case study sites, so that we can agree the precise timing of these activities with the sites themselves. A further benefit of having longer time periods is that we can iterate and adapt as we go to – i.e. we may implement some data collection activities in one or two sites first, and then go to remaining sites, applying the learning from our initial experiences.

A critical factor in delivery to timescale will be the time it takes to secure necessary research approvals. To reduce the risk of data collection being delayed, we will submit an application for ethical review of WPs 2 and 3 at the earliest possible opportunity, to be followed by a substantial amendment later in 2023 for WPs 4-7 (as the design of these WPs will be informed by insights from preliminary work and data collection).

Equality, diversity and inclusion

This study has been designed to be maximally inclusive. We will prioritise accessibility and inclusivity in how we design the study, recruit participants and adapt to their needs, as far as possible. We learned from the early evaluation that familiarising ourselves with the sites and being clear and – wherever possible – flexible about timings minimises participant burden and helps maintain good working relationships. We will endeavour to do recruitment and on-site fieldwork that works as unobtrusively and responsibly as possible. In order to try and recruit a diverse range of CYP participants, we will present in assemblies during the familiarisation visits so that CYP and staff can see the team and build rapport. We hope that being visible in this way will encourage students who otherwise may not have had the confidence to ask questions or participate to be able to do so. On these visits we will provide information about the study for CYP to take home. This will also help us to engage in a process of iterative consent, which is good practice when working with CYP. CYP and parent/carer recruitment and consent materials will be co-designed with our CYP and parent/carer advisory groups so that they are informative, engaging and user-friendly. In the early evaluation, the Youth Advisory Group co-designed and filmed a CYP recruitment video, using simple and appropriate language, and we plan to do the same for this study. Participant samples will be regularly reviewed, and later recruitment activities will particularly target any groups that are under-represented.

When conducting the interviews and/or focus groups (WP5 and WP6), we will work with education settings and MHSTs to determine if more creative or participatory methods would be appropriate. Everybody's voice is important so, for CYP who do not feel able or comfortable to participate in a group setting, we will make a 1:1 interview available, with the option to be accompanied by a trusted adult if they wish. For the interviews with parents/carers in WP5 and for focus groups in WP6, similarly, parents may prefer to participate online rather than in-person, and may only be able to do so after work hours. We learned from the early evaluation that in person contact had associated travel cost implications or was difficult for those with additional caring responsibilities.

Examining diversity is a key focus across the WPs and an explicit research aim. For example, in WP3, we will analyse if/how MHST engagement and outcomes are related to CYP demographic characteristics, paying particular attention to any potential equalities impact implications. In WPs 4-6, both our case site selection and sampling will aim to ensure we have a reasonable geographic spread and that we are recruiting inclusively across the protected characteristics and socio-economic groups. Special schools and alternative provision will be included in our selection of education settings, and we will explore whether, how and how effectively MHST support is being adapted for diverse groups and needs (e.g. CYP from ethnic minority groups, with neuro-diversity and/or who are LGBTQ+). Several WPs (WPs 2, 3, 4, 5 and 6) include an explicit aim to assess whether or not MHSTs are improving access to mental health support for under-served CYP.

Dissemination, outputs and anticipated impact

We envisage that there will be a large audience for the findings of this evaluation including policy makers and Programme leads, the managers and staff in areas involved in local implementation, NHS CYP mental health services, local authorities, education settings and teacher associations, commissioners of CYP mental health and wellbeing services, voluntary sector organisations, universities involved in EMHP training, researchers in this field, CYP, their families and carers, and the wider public. Building on our established relationship with the national Programme team, we will share findings to inform Programme delivery at intervals (e.g. at key decision points), and WP8 will support future monitoring and knowledge exchange with sites. We will also share interim findings with all sites. The schools/colleges at which the ARTEMIS-A measure is administered will also receive the results for their setting. The potential for presenting findings at the Programme's regional community of practice events (which would enable us to reach later Programme waves not involved in the evaluation) will also be explored; our established relationships with the Programme's NHSE and DfE regional leads will be an advantage in this respect.

Our advisory groups, and NCB collaborators, will play a key role in translating the research findings into accessible, usable and high-impact learning for practice. We will draw on the NCB's substantial experience of knowledge mobilisation and dissemination, and engage stakeholders through NCB's extensive networks and partnerships (including the Schools Wellbeing Partnership, a national network of more than 50 member organisations from the education, health and wellbeing, and children's sectors), as the evaluation develops. This engagement will not just be a means to disseminate the study findings. It will also help to shape future data collection; inform data analysis, synthesis and interpretation; support the identification and framing of the study's key messages and implications; and ensure that dissemination is driven by an understanding of how best to reach and influence target audiences.

We will produce an interim report (timing to be confirmed), and a final report in May 2026, accompanied by infographics summarising key findings tailored for different audiences. In the early evaluation, the infographics and report summaries were sent directly to all sites participating in the study and wider stakeholders (approximately 1400 people), which was well received; we will do the same for this study.

Dissemination will be supported by the communications teams at LSHTM, and Universities of Birmingham and Cambridge, and will also include:

- An animated output, co-produced with the CYP advisory group.
- A consensus event with national, regional and local stakeholders (both within the Programme and from wider interest groups) to explore the implications of the findings for decision-makers (e.g. for sustainability and future development of MHSTs).
- Infographics, social media, podcasts and blogs for the range of stakeholders.
- Publication of findings in peer reviewed journals and in relevant professional journals (e.g. Headteacher Update, TES, QA Education Magazine, Special Children, The Educator UK and The Bridge (The Association for Child and Adolescent Mental Health magazine)).
- Presentations at conferences, seminars, workshops and meetings. This might include, for example, presenting at special educational needs coordinators, head teacher and school mental health leads and counsellors networks' meetings to publicise the study findings. Conferences could include: the International Association of Youth Mental Health, Mental Health and Wellbeing in Schools, Health Services Research UK, International Health Economics Association and NIHR Statistics Group conference.
- Engagement with charities delivering mental health services in schools, such as Place2Be.

Added value

The study offers added value in the following ways:

- The study can start more rapidly given the prior experience of those involved in the early evaluation, as well as their knowledge of the Programme and existing relationships (with the national Programme team and some sites).
- Gathering more data using ARTEMIS-A will allow us to assess the potential to implement it as a measure of whole school/college mental health, thus augmenting the existing validation study funded by NIHR.
- Building on the work undertaken in the early evaluation, we will co-develop recruitment materials for CYP that are relevant, user-friendly and engaging. This will generate further learning about what works when co-producing research with CYP, and in supporting fully informed CYP participation in research.
- Our strong commitment to supporting the training and development of early career researchers and youth co-researchers will contribute to further building mental health research capacity and capability.
- Work package 1 will extend understanding about whether and how well the outcomes of mental health support that matter most to CYP, parents/carers and education settings are captured in current data sets and measurement tools, and where the main gaps between these are.
- Depending on the outcome of ECHILD+, this would likely be one of the first studies to test the use of linked MHSDS and NPD data for large-scale service/Programme evaluation and, in so doing, would increase understanding about the relationship between CYP mental health and educational outcomes.

Project management and governance

Team management

We will apply the following project management principles and processes: ensuring clarity of team members' roles and delegation of tasks and reporting duties (including named leads for each WP); development and use of project plans; and regular team meetings. A study project manager, based at LSHTM and working closely with Mays and Ellins, will coordinate the team and ensure that delivery is on time and budget. Team members will have clearly defined roles and responsibilities, but will also work flexibly and responsively (e.g. providing support to other work packages at particularly critical or busy periods to minimise delays).

A conscious decision was taken to have co-PIs with complementary skills and different levels of experience. The goal is for Ellins to draw on Mays' over 40 years' experience of policy research and, in so doing, further build her skills for research leadership. The co-PIs will meet weekly online throughout the study to ensure consistency of approach. This will be an opportunity to decide how to respond to any emerging problems or opportunities. There will be fortnightly wider team teleconferences in order to update progress and promptly address any arising issues. Meetings of the full research team will be held every 3-4 months (more frequently during the scoping stage) to review and discuss progress, share emerging findings and learning, and plan future work. Towards the end of the study, one or two working meetings of the full research team will be organised, principally devoted to bringing together the findings of all the work packages to provide an integrated analysis of the Programme.

Study advisory groups

A Strategic Advisory Group will be convened and will meet at intervals during the study to provide a mix of subject area and scientific advice to the research team. This advisory group is likely to meet no more than six- monthly during the study with advice sought ad hoc from individual members between times. The full membership of this group will be identified during the scoping phase but a number of members have already been identified, including: Cathy Creswell (Professor of Developmental Clinical Psychology, University of Oxford, with extensive expertise in psychological interventions for children and families, including cognitive behavioural

therapy techniques); Chris Bonell (Professor of Public Health Sociology, LSHTM and expert in health research, trials and mental health programme evaluation in education settings); and Mina Fazel (Professor of Adolescent Psychiatry, University of Oxford with a special interest in improving access to school- based mental health support for CYP).

In addition, authentic collaboration with CYP and parents/carers will underpin and guide our approach. The University of Birmingham Institute for Mental Health Youth Advisory Group (YAG; <https://www.birmingham.ac.uk/research/mental-health/youth-advisory-group.aspx>) has been involved throughout the early evaluation: from its inception (sharing what they would like the evaluation to focus on) and, as the work developed, training as co-researchers and assisting in co-producing the focus groups with CYP. Building on and continuing this involvement, we will recruit a new CYP advisory group (using the YAG, which has broadened its scope by partnering with mental health research charity McPin (<https://mcpin.org/>) to involve younger school age members), as well as a parent/carer advisory group. These advisory groups will contribute throughout. They will: advise on the design and delivery of data collection, including the selection and/or development of tools to assess CYP and parent/carer experiences and outcomes; co-design and co-facilitate the CYP focus groups and support data analysis and writing (YAG members); and provide advice on the best ways to frame and disseminate the research findings to, and co-create appropriate recruitment and dissemination materials for, CYP and families.

Policy stakeholder engagement

The involvement of the Programme's main policy stakeholders – DHSC, DfE, NHSE and Health Education England – will be secured through a Policy Stakeholder Group. This Group is likely to include analysts and policy advisers from the four agencies, as in the case of the early evaluation. This group's role will be advisory, with formal sign-off of all outputs by the HS&DR Programme Director.

Ethics and regulatory approvals

The study will be undertaken to the highest standard of ethics and research governance, in compliance with data protection regulations and policies relating to the conduct of research of LSHTM and the universities of Birmingham and Cambridge. Approvals will be obtained from the NHS Research Ethics Service and, where required, from LSHTM, University of Birmingham and University of Cambridge research ethics committees.

Applications for ethical approval will be prepared at the earliest possible opportunity. Recruitment and consent processes for all primary data collection (WPs 2 and 4-6) will ensure participation is informed and voluntary, and anonymity in reporting will be guaranteed. For WP5, MHST staff will discuss the study with CYP and parents/carers receiving support from that MHST. Researchers will provide MHST staff with information about WP5 (participant information sheets, explanatory video, website) to support their explanations. CYP and parents/carers who agree to be contacted and have their details shared with researchers (providing verbal consent) will then be contacted by researchers, who will provide further information about the study and obtain formal consent/assent for participation. Participants will complete an online consent form (for CYP under 16, this will involve formal consent from a parent/carer and CYP assent). MHST staff will be given a clinician referral form to keep track of potential participants who have accepted (verbal consent) to have their contact details shared. If the MHST uses the same questionnaires as part of the participant's care (routine outcome data), we will offer the option for the MHST to collect this data for them and share it with the MHST lead to avoid the participant having to complete the same questionnaires twice. Data sharing will take place only if the participant consents to this. This is indicated in the participant information sheets and the consent forms (as participants will have to consent for this sharing of data). A data sharing agreement will not be necessary for this as this is in line with the individual's care. Data sharing processes will be discussed and agreed with each MHST according to their usual data sharing

processes.

For WP6, the school/college head teacher and MHST service lead will give consent at the education setting level. For WP6, a model of parental opt-out consent and (for under 16s) pupil assent will be used for the quantitative research (completion of ARTEMIS-A), following the approach successfully used by Ford and colleagues in the MYRIAD study (Kuyken et al, 2017). For qualitative research, all participants will be required to give written consent to participate; for under 16s, this will involve formal consent from a parent/carers and pupil assent.

We will work closely with our advisory groups to make sure information about the studies and consent is communicated in an accessible manner. All potential participants will receive information about the study (purpose, design, timescales, what involvement would entail, how data will be managed, etc.) before deciding whether to take part. The early evaluation used an innovative video 'information sheet' to support CYP's informed participation, and informed consent from their parents/carers. This was developed with and filmed by CYP and sought to address shortcomings in conventional approaches to securing young people's participation in research, including barriers that particularly affect seldom heard groups (Parsons et al, 2016). We plan to develop a similar resource for this study.

The study will include primary research with CYP who are vulnerable by virtue of their age and mental health. The latter may also apply to parents or carers. We will have strong operational procedures to ensure participant safety should risk of harm to self or others become evident, or if safeguarding concerns emerge. Service organisation will vary between sites, so we will also prepare site-specific operating procedures in partnership with the involved teams. Ford is a highly experienced clinician with strong track record in clinical research, while Ellins, Mays, Fenton, Burn, Anderson and Soan have similarly extensive experience of working with vulnerable populations in a research context. Junior research staff, including youth co-researchers, will have basic child protection, safeguarding and risk management training and have easy access to appropriate support. The core research team will all complete Good Clinical Practice Training, and we have budgeted for up to ten researchers who will be working directly with CYP and our youth co-researchers to undertake the NSPCC's 'Child Protection in Schools' training (some team members have already undertaken the training).

We will work within best practice guidance and statutory regulations for all data access, storage and processing. Each participant will be assigned a unique identifier, and their personal data will be stored separately to all research data. Data will be held on a secure database on password-protected computers on university networks, and access will be restricted to the research team.

Team and expertise

The early evaluation of the Trailblazers was led by Ellins (Birmingham), with Mays (LSHTM) in close support. This evaluation continues this relationship in modified form, with Mays and Ellins as co-principal investigators, adding the CYP mental health and education expertise of Ford and team from the Department of Psychiatry at the University of Cambridge. The team therefore offers the benefits of continuity with the early evaluation (e.g. understanding of the Programme, established relationships with DHSC, DfE and NHSE in the case of Ellins, Mays, Fenton and McKenna) with new members who bring specialist expertise in key areas essential for successful study delivery (e.g. assessing the effectiveness of CYP mental health interventions, including in education settings). The core team, listed below (principal investigators and co-investigators), combines multidisciplinary skills and expertise relevant to all aspects of the proposed study. The core team will also include research staff and project managers/administrators, who will be recruited once contracts are secured.

Nicholas Mays will be co-principal investigator with Ellins, with overall responsibility for the study, quantitative analysis, coordination of work packages and liaising with the study strategic advisory and policy stakeholder groups. He will also co-lead WP1 with Ellins and lead WP2.

Mays will manage the Research Fellow and Project Manager based at LSHTM. Mays has very extensive experience of evaluating pilot and innovative programmes in health and social care, since 2010 as director of the NIHR PRP Policy Innovation and Evaluation Research Unit (PIRU).

Jo Ellins will be co-principal investigator, working with Mays on overall management of the study, qualitative coordination of work packages and WP1, as well as leading WPs 4 and 6. She will be responsible for the management of the Research Fellow and Research Assistant based at the University of Birmingham. Ellins has extensive experience of evaluating service innovations in health and care, including as Deputy Director of the NIHR BRACE Rapid Evaluation Centre, and specific expertise in relation to theory-based evaluation, and qualitative and case study methods.

Tamsin Ford is a child and adolescent psychiatrist with an extensive track record in psychiatric epidemiology and health services research. She has a particular interest in mental health service delivery for CYP as well as the school–mental health interface which are both salient to the current proposal. She will lead WP5, with a particular emphasis on the quantitative work to address Aim 1, and advise on the use of ARTEMIS-A.

Anne-Marie Burn is a Chartered Psychologist and Senior Research Associate in the Department of Psychiatry at the University of Cambridge. Her research focuses on the organisation and delivery of health services, and the evaluation and implementation of interventions for children and young people's mental health. Burn is a mixed methods researcher with specific expertise in qualitative methods and she has extensive experience of conducting mental health research in school settings. She will head up the qualitative work in WP5, and manage the researchers based at the University of Cambridge.

Colette Soan is an experienced teacher and educational psychologist. With Gemma McKenna, she will take the role of Research Fellow based at The University of Birmingham and co-lead data collection and analysis for WPs 4 and 6. She has experience of developing and embedding a whole school approach to mental health promotion and support within a local authority. Soan also worked as a professional and academic tutor for the educational psychology training course at The University of Birmingham for ten years and has a strong interest in qualitative methodology.

David Lugo Palacios is an experienced health economist/econometrician with expertise in addressing the methodological issues that arise with analysing routine health data. He will lead and carry out the analysis for WP3, lead WP8 and contribute to WP1.

Gemma McKenna is an experienced health services researcher with particular expertise in health service evaluation including co-production, qualitative and case study methods, with a particular focus on mental health and young people, including those with Specific Learning Difficulties (SpLDs). With Colette Soan, she will take the role of Research Fellow based at The University of Birmingham and co-lead data collection and analysis for WPs 4 and 6.

Jo Anderson is Chartered Psychologist with a background in clinical neuropsychology and health psychology. She is interested in the development, evaluation and implementation of interventions to improve mental health outcomes and wellbeing. Her current research focuses on early identification of mental health difficulties in school children and harnessing technology and AI to deliver mental health interventions. She will head up the quantitative work in WP5.

Sarah-Jane Fenton will lead on the PPI work with parents and young people, including supervising Niyah Campbell (University of Birmingham Institute for Mental Health Youth Participation Lead) who will co-ordinate the CYP advisory group and youth co-researchers. She will support Ellins with delivery of WPs 4 and 6. Fenton has particular expertise in health policy

and health service evaluation including co-production, qualitative and case study methods, with a particular focus on mental health and young people.

Stephen O'Neill will lead WP7. He is a health economist with expertise in inequality measurement, applied econometrics and policy evaluation. He has ongoing projects exploring the cost-effectiveness of emergency surgery and diabetes treatments.

Ariadna Albajara Saenz is a Research Associate at the Department of Psychiatry at the University of Cambridge. She has a background in clinical neuropsychology. Her current research focuses on the evaluation and implementation of school-based mental health interventions. She has experience using quantitative and qualitative methods. She will support WP5.

Aslihan Baser is a Research Assistant at the Department of Psychiatry at the University of Cambridge. She has a background in clinical psychology, developmental psychology and counselling, and previously worked as a school counsellor. She has a Graduate Basis for Chartered Membership (GBC) of the British Psychological Society. Her current research focuses on the evaluation and implementation of interventions for children and young people's mental health. She is also experienced mixed methods researcher. She will support WP5.

Ellie Moore is a Research Associate at University of Birmingham with experience of working in health service evaluation and children and young people's mental health services within the NHS. She will provide support across the project, with a focus on WPs 4 and 6.

Jessica Mundy is a Research Fellow at the London School of Hygiene and Tropical Medicine. She has a background in psychiatry research and quantitative research skills and has experience analysing survey data. She will lead the development and delivery of the education settings and key informant surveys in WP2 and will support the work in the case study sites.

The National Children's Bureau is a leading, independent children's charity, which brings to the team extensive experience of working across diverse sectors and stakeholder groups to facilitate conversations, and identify and co-produce learning outcomes that are transferable across research, policy and practice. The NCB will support study design and delivery, interpretation and translation of research findings into practical outputs, dissemination activities and knowledge mobilisation/exchange. NCB's contribution will be coordinated by Jenny Cobb (Programme Lead for Mental Health and Wellbeing), and will also include Amanda Allard (Deputy Director for Health).

Success criteria and barriers to proposed work

A clear measure of success would be the team's ability to implement all the elements in the proposal to a high standard in the time available while ensuring a high level of local and national engagement with the findings and their implications for policy and practice. We have found in previous studies that sharing findings throughout with local sites and policy officials has helped all involved to appreciate the value of the research and thus encourage greater cooperation with the requirements of the study. More specifically, in WP2 success would be defined in terms of being able to obtain a response from a range of key informants and a spread of education setting staff in each site. This would not require a high response rate as conventionally measured at the individual level but rather capturing the perspectives of the main different professional staff groups involved at site level. In WP5, success would be achieved if we were able to undertake an outcome comparison with at least one counterfactual dataset which includes outcomes deemed important by CYP, parents and education settings. In addition, success would be assured if we were able to achieve a 70% response rate to baseline and follow up data collection. Table 2 summarises potential delivery risks and how these will be mitigated.

Table 2. Potential risks to study delivery and how these will be mitigated

Location of risk	Nature of risk	Mitigation
General	Lengthy time required to obtain HRA and especially NHS local R&D approvals for sites to take part (since WPs 2 and 4 include NHS staff and WP5 includes CYP and parents/carers recruited to the study by MHST staff, many of whom are NHS employees). The early evaluation required liaison with more than 60 R&D offices just for the Trailblazer wave. The current study will include seven waves of sites	Little that can be done except to encourage local R&D offices to use HRA approval as the basis for their local approvals without requiring extra information or completion of additional processes. Low-risk elements of the study (including WP2) will be submitted for approval separately and as soon as possible after the study has commenced. On the positive side, we already have the documentation from the early evaluation which can be adapted and used as soon as we can identify all the relevant R&D offices. We would aim to try to identify the R&D offices before the official start date of the project.
General	Difficulty of getting basic management information relating to sites from the national Programme team at NHSE/DfE	This was very difficult throughout the early evaluation and took months. We will ask for a list of sites and contact details of the local lead in each site before the official start of the evaluation in the hope that the information is available in a timely way.
General	Inability to align reporting/feedback with the Programme requirements and timescales	We are well used to providing interim and rapid unplanned reports when it becomes apparent that findings are needed to feed into a decision. We provided additional ad hoc reports of this type during the early evaluation.
WP2 (staff surveys)	Poor response rate to education settings and key informant surveys	We will make it as easy as possible for busy staff to complete the surveys by designing them for online completion on laptop, tablet or smartphone. Questionnaires will be maximum 15 minutes to complete. Polite reminders will be sent and our key contacts within sites will be asked to encourage colleagues to complete the surveys.
WP3 (analysis of routine data)	Unpredictable and lengthy time taken to receive data from NHS Digital (MHSDS) and DfE (NPD), and unavailability of linked data in the project timescale given the relatively short window available in the study to complete data applications	We will consider making data applications before the official start date of the project, if this is acceptable to data custodians. We have considerable experience of the legal and technical aspects of applications and intend to work collaboratively with data custodians. If linked datasets are not available, we will simply have to work with the more limited unlinked datasets.
WP6 (assessing school-level activities and effects) (case studies)	Difficulty of ensuring participation at school or college level within a site which has agreed to take part in the evaluation	We had experience of this during the early evaluation and propose a 'due diligence' process when we first make contact with a potential case study site, which includes having a realistic conversation about whether there are schools/colleges that the site believes would be willing to take part in the research. This would be followed with approaches to individual education settings, during which we would explore with them what we can do to make their participation as straightforward as possible. Our team includes several researchers (e.g. Ford, Soan) able to draw on their extensive experience of undertaking research in educational settings. We will offer incentives for CYP and parent/carer participation.
WPs 4-7 (case	COVID-19 restrictions on face-to-face	If social distancing restrictions are imposed, we will carry out interviews online or over the

studies)	interviews and other in person site activities	phone. The team has extensive experience of carrying out sensitive qualitative research online and will assist participants in this process, e.g. poor internet access or limited experience with technology. Most of the interviews and the focus group work in the early evaluation took place remotely due to the pandemic in 2020 and 2021.
WP5 (quantitative assessment of outcomes of MHST direct support)	Difficulties in recruiting young people for the quantitative study on the outcomes of receiving MHST support	We will work closely with each MHST to adapt our recruitment protocol to their context. We will also work with our study advisory groups to prepare accessible information and work flexibly with MHSTs, CYP and families to optimise recruitment and data completeness. We will review recruitment and data collection monthly to trouble shoot difficulties quickly.
WP5 (experiences and outcomes of direct MHST support)	Slow access to counterfactual datasets	Use of more easily accessible data sources (e.g. MYRIAD, British Child and Adolescent Mental Health Services) as well as applying for other more recent and difficult to access datasets.
WP5 (experiences and outcomes of direct MHST support)	Poor response rate from CYP and parents/carers to outcome measure completion	Provide options for on-line, paper and in person completion, and sufficient researcher time to actively follow up those with missing data. The option of completing the questionnaires online in the presence of MHST staff will also be offered. In order to avoid CYP completing the same questionnaires twice (in the context of their treatment and for this research project), we will offer the possibility to share the results of the questionnaires with the MHST. This will not be a requirement for participation, but CYP and parents/carers will provide consent/assent for this when completing the online consent form.
WPs 5 and 6 (qualitative research with CYP and parents/carers)	Difficulties reaching the recruitment target for qualitative interviews/focus groups	This is possible though unlikely to be a major problem. We will engage early with school mental health leads and MHST staff to facilitate recruitment. We will also work with our advisory groups to prepare accessible information for parents and young people. Familiarisation visits with schools/colleges and to MHSTs will help to build relationships and plan data collection activities, working in collaboration with school/college/MHST staff and taking their advice about what will work best in each setting. We will schedule interviews/focus groups at a time and place which suits the participant(s) and offer a shopping voucher as a thank you for taking part. The option of holding focus groups in the evening, to enable working parents to participate, will be offered.
WP6 (parent/carer surveys)	Difficulties in recruiting parents/carers to participate	We will work closely with our parent/carer advisory group to design research tools and recruitment materials, aiming in the survey design to ensure that questions can be completed in a maximum of five minutes.
WP7 (cost effectiveness analysis)	Poor response rates regarding costs or outcomes	Where feasible we will impute missing data based on available responses. Where this is not possible, we will incorporate values from the literature or, where the literature is lacking, informed by expert opinion.

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