EVALUATION REPORT

Redthread Youth Violence Intervention Programme

Pilot trial report

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UNIVERSITY OF BIRMINGHAM | CENTRE FOR CRIME JUSTICE AND POLICING

YOUTH ENDOWMENT FUND

About the Youth Endowment Fund

The Youth Endowment Fund (YEF) is a charity with a mission that matters. We exist to prevent children and young people from becoming involved in violence. We do this by finding out what works and building a movement to put this knowledge into practice.

Children and young people at risk of becoming involved in violence deserve services that give them the best chance of a positive future. To make sure that happens, we'll fund promising projects and then use the very best evaluation to find out what works. Just as we benefit from robust trials in medicine, young people deserve support grounded in the evidence. We'll build that knowledge through our various grant rounds and funding activities.

And just as important, is understanding children's and young people's lives. Through our Youth Advisory Board and national network of peer researchers, we'll ensure they influence our work and that we understand and are addressing their needs. But none of this will make a difference if all we do is produce reports that stay on a shelf.

Together, we need to look at the evidence and agree on what works, then build a movement to make sure that young people get the very best support possible. Our strategy sets out how we'll do it. At its heart, it says that we will fund good work, find what works and work for change. You can read it here.

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About the evaluator

The team for this project was led by Professor Paul Montgomery (PM). He acted as the overall principal investigator/lead for the impact evaluation as well as the overall Project Manager. He can be contacted via p.x.montgomery@bham.ac.uk. PM was supported by Dr Joht Singh Chandan (JSC), who co-led/managed the project and led the impact evaluation.

Research support

- Dr Emily Evans was the single point of contact for the University of Birmingham (UoB), contributed to all phases and supported PM and JSC in project management. She is a research fellow at the UoB.
- Ms Alice Burton is a research assistant at the UoB. She supported both the process and impact evaluation.
- Dr Rasiah Thayakaran assisted in the statistical analysis. He is a Research Fellow in Health Informatics (Statistics) at the Institute of Applied Health Research, UoB.
- Mr Illin Gani helped prepare the quantitative results for reporting.

Senior supporting project team

- Professor Siddhartha Bandyopadhyay is based in the Birmingham Business School and is the director of the Centre of Crime, Justice and Policing. He supported this project with the impact evaluation.
- Professor Eddie Kane leads the Centre for Health and Justice within the Institute for Mental Health at the University of Nottingham. He supported this project as a co-investigator, specifically with the process evaluation.

Academic advisory support

To provide technical support, quality assurance and sustainability for the principal/co-investigators, we also had an academic advisory team specific to this project, including:

- Dr Shola Apena Rogers – School of Psychology, UoB. She supported co-production.
- Dr James Martin is a lecturer in medical statistics and a statistical advisory to trials at the Birmingham Clinical Trials Unit. He provided research methods support.
- Professor Krishnarajah Nirantharakumar is a Professor of Health Data Science and Public Health at the Institute of Applied Health Research at the UoB. He provided epidemiological support for longitudinal datasets.
- Professor Ioannis Karavias is a Professor of Finance at the Brunel University. He provided advice on quantitative methods.

The wider team have other expertise relating to public health, econometrics, social sciences, evaluation methods, statistics and implementation science. These members of staff and senior researchers formed part of a 'critical friends' group to provide independent review and advice as the project progressed.

Executive summary

The project

Redthread's (RT) Youth Violence Intervention Programme (YVIP) works with 11- to 25-year-olds who present to hospital emergency departments (EDs) following a violent incident or an incident that puts them at risk of involvement in violence. It aims to keep them safe from involvement in violence in the future. Eligible children and young people are identified by NHS staff or RT youth workers. An RT youth worker then makes contact with the child or young person to establish whether they are at risk of involvement in violence and assess their needs, risks and support network. This contact will usually occur in the hospital but can also occur outside if the young person has been discharged. If the young person is at lower risk, they will receive short-term one-to-one support from the RT youth worker; this is likely to last around four weeks, but the length of support varies. For children and young people who are more vulnerable, RT offers a longer intervention that lasts up to three months (and longer for those with particularly high needs). Support offered to children and young people may include 1:1 meetings to discuss healthy relationships or managing difficult emotions, support to engage with education, help to secure alternative accommodation, signposting to mental health or substance misuse support, and access to financial support. The content and dosage of support will vary depending on the needs and choice of individuals. Some will receive weekly 1:1 support; others will be offered more sporadic interaction.

ED navigator programmes like YVIP are associated with a large estimated impact on reducing further violence. However, the evidence that underpins this estimate is severely limited, and we lack a robust estimate of impact in a UK context. YEF, therefore, funded a pilot evaluation of YVIP to establish whether it is feasible to robustly evaluate the programme in an impact evaluation in England and Wales. The evaluation also sought to develop a theory of change for YVIP; understand how the intervention is experienced by children, RT staff, NHS referral staff and partner organisations; establish the feasibility of collecting outcome data (such as the Strengths and Difficulties Questionnaire [SDQ]); and suggest a research design and data collection methods for a future impact evaluation.

The evaluation faced significant challenges, which resulted in substantial amendments to the design. The evaluator attempted to pilot a quasi-experimental study that compared data from all referred 10–17-year-olds across five hospitals with children in the same hospitals who did not receive YVIP. However, this required children to agree to join the study, and obtaining this consent proved extremely difficult for the RT youth workers: only one child signed up. Consequently, the evaluator redesigned the study to compare the data of two groups: children who RT had previously supported and a comparison group of children who presented to hospitals before RT worked in those hospitals. Across three hospitals, 1,054 children were identified for the treatment group and 337 for the control. The matching process to ensure that the comparison group was similar enough to the treatment group and to ensure valid findings was severely limited by the unavailability of high-quality hospital-level data. Therefore, the findings relating to quantitative outcomes are severely limited. Without the consent for children's involvement in the study, the evaluator could not test the feasibility of collecting the SDQ from children or conducting qualitative interviews with them. Instead, the evaluators interviewed 22 RT staff members and 13 NHS and community partnership staff members. They also examined RT delivery data across five hospitals using RT case management data. The evaluation ran from January 2022 to December 2023.

Key conclusions
It proved extremely difficult for RT youth workers to recruit children to the study. Only one child signed up to the evaluation (compared to an expected pilot sample of 150).
The lack of primary data collection from children makes it very difficult to draw conclusions related to their experience of the intervention and evaluation. The findings are severely limited.
Interviews with RT youth workers, NHS clinicians and community partners reveal that the cohort of children and activities undertaken differed substantially between major trauma centres (MTCs) and local hospitals. Children in

MTCs tend to have more serious injuries and spend longer in hospital, which provided more opportunities for RT youth workers to build trusted relationships.
Interviews suggested that NHS staff are essential in facilitating effective referrals. Improving the visibility and physical presence of RT youth workers in EDs and informing NHS clinicians of their work are perceived to be important in facilitating delivery.
Improved recruitment, consent and data-sharing agreements need to be established between RT, hospitals and research partners to enable a future impact evaluation.

Interpretation

Only one child was recruited to the study, and this had considerable implications for the design. Recruitment challenges may have been exacerbated by the context and the appropriateness of introducing the study to children during moments of crisis.

There were significant differences in how the programme operated in local hospitals compared to large MTCs. The cohort of children, length of stay in hospital and activities engaged in were perceived to be substantially different. For instance, MTCs receive a higher number of children who have sustained more serious, potentially life-changing injuries. This meant that they were likely to spend longer in hospital, which provided more opportunities for RT youth workers to build trusted relationships with children. Amongst children who received long-term support from RT across five hospitals, the average number of contacts that RT youth workers in MTCs had with young people was 17; this is compared to 10 in local hospitals (although there was a wide range in the number of contacts at each hospital).

Interviews with RT, NHS and community partner staff suggested that the children presenting to EDs did have risks and needs that aligned with YVIP's criteria. The most common reason for referral was assault (followed by child criminal exploitation, child sexual exploitation or gang affiliation and then domestic violence or sexual violence). All RT staff interviewees agreed that NHS staff were critical in the referral process: their willingness and ability to identify suitable referrals is perceived to be paramount to the success of the service. Across five hospital sites, the main referral route was clinicians (mainly based in EDs, paediatrics or trauma departments). Interviewees also highlighted the importance of reviewing the ED database as a safety net to ensure no children who met the criteria were missed. This was perceived to be particularly important after a weekend or evening when there was limited RT staffing on-site.

It was noted by interviewees that NHS staff turnover, rotation of junior doctors and challenging shift patterns could lead to a lack of continuity, awareness and understanding among clinical staff. This may cause particular challenges for newer, less established RT teams, which may find it harder to be 'seen' in EDs. Posters advertising the RT service and contact names and pictures of RT staff, regular training of NHS staff, and induction training for new staff were cited as useful approaches to familiarising NHS staff with RT. RT teams that had a physical presence and an office closer to the relevant departments reported finding it easier to embed their work into the hospital. Most of the interviewed RT youth workers reported feeling able to offer a flexible, responsive service, meeting the needs of individual children. Youth workers adapted the length of delivery to suit the needs of the child, and the length of support ranged from a month to over a year. Although there were differences between MTC and local hospital delivery, short-term crisis support activities (such as advocacy, exploring existing links and signposting to statutory and community agencies) and emotional support activities were reported by RT staff to be consistent features at all sites. The small number of NHS staff interviewed had very positive perceptions of RT staff. Some RT youth workers reflected that they could be better supported with training and that the intensity of the role could lead to burn out and poor retention.

Future attempts to evaluate ED navigator programmes require improved recruitment, consent and data collection arrangements, and they are considerably more likely to be feasible if they avoid primary data collection (and instead use a quasi-experimental design using secondary data analysis). This does, however, limit the extent to which children can be directly involved in the evaluation of such services. YEF is not planning any further evaluation of RT at this stage.

Introduction

Background

The World Health Organization states that, violence is a universal scourge that tears the fabric of communities and threatens the life, health and happiness of us all.[1] An emerging strategy in the UK to mitigate such negative consequences is to adopt a public health approach to reducing violence, which has been led by established Violence Reduction Units (VRUs).[2] One element of taking such an approach consists of secondary prevention, in contrast to primary prevention, which refers to preventing exposure to violence. Secondary prevention occurs when an individual is exposed to violence, but we aim to stop ongoing victimisation or offending patterns to prevent further injury. Diversionary programmes are secondary prevention approaches where children and young people (CYPs) are diverted away from behaviours or risk factors which could lead them into a cycle of ongoing violence following initial exposure to a violent injury.

An area of particular note revolves around youth violence attendances in the hospital emergency department (ED).[3] For example, in 2020/21, there were 4,091 recorded attendances to EDs due to assault by a sharp object, and of these, 17% were aged 18 and under, representing a significant burden of injury.[4] Despite the substantial health burden, historically in the UK, prevention of youth violence has been left to agencies outside the hospital, with community and police interventions.[3] However, with the ongoing concerns around hospitalisations related to youth violence, there is a developing trend of interventions where youth workers are integrated into EDs, where they deliver the intervention at what is known as a 'teachable' or 'reachable' moment,[1] using the incident which has led them to be the hospital as an opportunity to explore how it came about and how it might be prevented in future whilst also providing other practical support to the CYP, including contacting people, providing clothes, food or other supplies, whilst they are in hospital. This initial contact then provides the opportunity to integrate the CYP into a longer-term programme to divert them from further victimisation/offending. Numerous examples of programmes of this type are available, many of which are based in North America.[5–16]

Two recent systematic reviews[3,17] have summarised the existing literature on ED-based interventions aiming to reduce re-victimisation and perpetration in victims of violence. They identified nine different intervention programmes, which, on the whole, appeared to lead to improvements in one or more violence-related outcomes. A meta-analysis of two of the primary evaluations included in one of these reviews estimated that ED-based violence intervention programmes also lead to a large reduction in offending outcomes.[23] Despite the positive findings, none of the included interventions in either study were UK-based, and due to the significant differences in the set up and access to emergency care and differing trends in violence between the US and the UK, the recommendations of both reviews described the need for larger, more suitably powered studies and for them to take place in the UK,[27] a recommendation also made in Health Foundation–funded research.[21]

In response to this and given the growing attention to developing hospital-based violence intervention programmes in the UK, a number of recent evaluations have been commissioned, which aim to determine

[1] RT uses both terms but often prefers reachable, as it presents their service less as a lesson they teach the CYP and more as an opportunity to reach out to the CYP as an equal.

the effectiveness and cost-effectiveness and to better understand how these models function in the UK context. One such evaluation, funded by YEF and Thames Valley VRU,[22] undertook a feasibility study of five Hospital Navigator programmes which used volunteer navigators. The intervention with CYPs consisted of an initial discussion following attendance, followed by signposting to other relevant services that can provide more specific and longer-term support. If CYPs were amenable, follow-up contact would be made, resulting in either the creation of an action plan or the provision of some light-touch mentoring. The study concluded that in isolation, the support available is short and light-touch compared to other interventions which target this population.

Another evaluation, which is still underway, aims to conduct an implementation and process evaluation into nurse-led Violence Prevention Teams (VPTs) in South Wales[25]. This evaluation sits alongside and expects to complement a further ongoing study, also based in South Wales, by providing useful insights into how VPTs sit within the healthcare system in order to inform potential transferability if results support this. The primary outcome of this study[26] is to explore whether the VPT intervention reduces the recurrence of unscheduled ED attendance for those with an initial attendance attributable to violence compared to standard care and to ascertain whether the intervention represents value for money for the NHS. Implementation evidence from London and Glasgow emphasises the importance of a good relationship between patients and the navigator/youth worker and follow-up post-discharge.[27] In Glasgow, the patient/navigator relationship has been facilitated by employing people with lived experience who can engage with CYPs, who can be suspicious of authority, and so unwillingly share information.

There have also been other evaluations of the RT YVIP. One NIHR-commissioned evaluation focused on the YVIP at University College London Hospitals Trust.[30] The YVIP there started in 2020, and as such, this evaluation was adversely affected by the COVID-19 pandemic and, further, was only able to gather qualitative data on the YVIP. The interviews undertaken with hospital and Redthread (RT) staff and other stakeholders reported that YVIP was considered necessary and complementary to clinical and statutory services and well-embedded in the paediatric ED and adolescent services, although less so in the adult ED. It was not possible for this evaluation to speak to CYPs who had worked with the YVIP, nor even with CYPs who acted as youth ambassadors for RT. The report states,

The research team were not able to approach young people who had engaged with Redthread to ask directly about the impact of the service for practical and ethical reasons. In addition, because of the pandemic and the necessary shift to remote data collection, we were not able to carry out observations of clinician–patient interactions. We may have therefore missed out on important insights into how the service was received by young people and its wider impacts. While we attempted to mitigate this limitation by seeking to interview Redthread's youth ambassadors, this latter route also ultimately proved impractical (p. 97).[30]

The evaluation was also not able to identify a feasible approach to measuring the impact of the YVIP. This was due to the relatively small numbers of CYPs engaged in longer-term support during the evaluation period, the lack of consent to enable access to individual person-level data and to link to hospital administrative data, a lack of key information recorded in hospital ED records, an inability to link national hospital inpatient and emergency care records due to the lack of linkable patient identifiers across the datasets, and difficulty in identifying comparable control groups from routine hospital data.

RT itself has commissioned a number of evaluations of its YVIP within different hospital sites. A three-year evaluation undertaken on the programme in St Mary's Hospital in London by NPC associates (non-peer-reviewed published report)[18,19] showed promising findings regarding the rate of reattendance due to repeat

violence within one year (a statistically significant fall compared to a pre-programme control group, from 5.3% to 2.9% of the sample). Professionals referring to the service and a limited number of CYPs using it who provided feedback were supportive of the programme. However, there were limitations in the study design, which affected the ability to draw a causal conclusion. For example, data for the study is derived from the risk assessment tool used by the YVIP youth workers to record their assessment of the risks CYPs face based on what the CYPs say, and so, in addition, it was not possible to gather reattendance data from any comparison or control sites such that other unknown factors could have led to the reduction observed. An evaluation of the YVIP in the Queens Medical Centre in Nottingham undertaken by research staff there[20] showed lower reattendance rates for CYPs who participated in the programme (both short-term crisis support and a full programme of work) compared to those CYPs who were eligible for the programme but did not engage with it. These results were found for reattendance for any reason and specifically for violence or assault.

An evaluation of the YVIPs across five hospitals in Birmingham, Nottingham and Nottinghamshire[31] found that perceptions of the programme from young people, NHS staff and external partners were positive. One of the key factors considered to be a benefit of the programme was the supportive, trusted working relationship that was developed between CYPs and their youth workers. Like the evaluation of the YVIP at St Mary's Hospital London,[18,19] this evaluation made use of the internal monitoring data gathered by RT youth workers, including the risk assessments completed throughout their work with CYP. Analysis of this data found a significant reduction in CYPs' experience of violence, crime and exploitation, participation in violence and criminal behaviour and risk of self-harm, as well as improvements regarding protective factors, including improved family relationships and friendships; engagement in education, training and employment; and improved feelings of safety. However, this analysis compared CYPs engaging with the YVIP at different points in time; the evaluation did not make use of hospital data nor compare these CYPs to those in other sites which did not have YVIP or a similar service. This evaluation also had difficulties with recruiting young people to take part in the evaluation; 16 CYPs completed an online evaluation survey, and RT provided other feedback from CYPs.

Given the above and the lack of guidance and clarity for the delivery and implementation of these services, there is a clear need to undertake more robust evaluations of these widely adopted hospital-based youth violence interruption interventions here in the UK.

Intervention

The RT YVIP is aimed at those aged 11 to 25 years old who have experienced or are being impacted by violence, assault or a risk of violence, whether weapon or non-weapon-related, sexual violence, or sexual or criminal exploitation. The YVIP specifically targets victims of violence and exploitation. However, children referred can also have been involved in incidents as offenders or witnesses, depending on the nature of the incident. The intervention is a secondary diversionary intervention aiming to reduce further involvement in these issues. It is based in a hospital ED setting, aiming to divert individuals away from ongoing violence and other risks leading to injuries and harm. YVIP operates at 13 EDs, where it is embedded as part of standard care.

These 13 sites include both local hospitals and major trauma centres (MTCs). MTCs are found within larger hospitals in major cities and have the necessary infrastructure and staff to deal with major trauma cases, which involve life-altering injuries with risk of death or disability. The YVIP began in MTCs in London and has

since rolled out to MTCs in the Midlands and to a number of local hospitals, mainly in London but also in the Midlands.

When an eligible person is identified by NHS staff, they can be referred to the RT team. They can do this face to face or via secure NHS email, phone or other local systems, e.g. a referral button on a hospital system, and will include the CYP's hospital number to allow RT to check hospital systems to establish eligibility. Due to RT's position in the hospital, the fact that their staff hold honorary NHS contracts and legislation regarding safeguarding issues concerning CYPs, this can be done without consent from the CYP. When consent is sought, it is recorded in hospital systems. It is standard practice at these sites for RT to also ask the clinician to provide a safe number for them to use to contact the CYP, ask whether the CYP has a safe place to which they can be discharged and make the usual referrals to hospital safeguarding as necessary. Most often, the referral is made by a member of staff within the ED, but it could also be made by a clinician elsewhere within the hospital who becomes concerned about a CYP. They can also be identified by RT staff using information on hospital systems to ensure eligible CYPs are not missed. Referrals are managed and recorded by the programme coordinator and team leader of the RT team for each hospital site. RT's own case management data shows that across all 13 hospital sites in 2023–24, the YVIP engaged 641 under-18 year-olds in long-term support.

The intervention is bespoke and led by the CYP's needs, determined through an assessment undertaken by a YVIP worker. Once clinical needs are dealt with, the YVIP worker will work 1:1 with a CYP to build trust and rapport and a practical plan to help the CYP feel safe in preparation for and following their discharge from the hospital. It is a youth-work-based intervention providing support from an agency external to statutory services. The cases are closed once CYPs are considered to be safer and to have engaged with a professional network that can support their longer-term goals away from violence. For CYPs who already have effective support from multiple existing agencies and/or key professionals, the intervention can be short-term, while the CYPs are in hospital and for a short time following discharge, and involves 'scaffolding' the reachable moment back into that CYP's professional network. These CYPs are considered by RT to have been 'supported' by YVIP. The duration of this support often varies depending on the length of the hospital stay, which will vary between local hospitals and MTCs, and how long it takes to contact and liaise with the relevant professionals to ensure appropriate support is in place, but it is likely to be around four weeks. For CYPs who don't have an effective support network, who are facing extremely high levels of complex risk or harm or who require further support, RT offers a longer intervention, usually lasting up to three months, although this can be longer. These CYPs are considered to be 'engaged' by YVIP.[2] A more comprehensive risk and needs assessment is completed by the youth worker in partnership with the CYP, and a joint action plan is agreed upon. Actions can include support with navigating statutory systems, doing casework around healthy relationships or managing difficult emotions, (re-)engaging with education, securing alternative accommodation, accessing mental health or substance misuse support, accessing financial support and welfare benefits, relational referrals to community or statutory partners and diversionary activities, advocating for themselves in multi-agency meetings, or undertaking goal-setting and aspirational exercises. The intensity of contact varies considerably between cases. For some, it may be on a structured basis (for example, weekly), but for most, it will be more ad-hoc, depending on the needs and goals identified.

[2] This distinction between 'engaged' and 'supported' CYP is no longer used within YVIP. When the new case recording system was introduced in April 2023 the distinction was stopped.

When closing a case, YVIP workers complete a comprehensive end assessment with each CYP and follow up six months after case closure with the CYP and other key workers to review progress.

RT provides a dedicated, trained, skilled team at each hospital site. The precise team combination varies per site in terms of qualifications and experience. Some have lived experience, but this is not routinely shared with CYPs and is, instead, a reason for staff to enter this line of work. The research sites currently employ nine female and three male practitioners. The overall team is made up of the following roles:

- Programme manager (oversees teams in each locality, covering multiple sites, safeguarding and partnerships lead).
- Team leader (manages team, is involved in partnership work and multi-agency work, carries a smaller caseload, delivers training to professionals).
- Senior youth intervention practitioner (carries a caseload, delivers training to professionals, leads on projects).
- Youth intervention practitioner (carries a caseload, delivers training to professionals).
- Programme coordinator (data and administration lead).
- Counsellor (Birmingham only) (upskills practitioners, carries a small caseload of high-risk CYPs).
- Young women's worker (YWW; some London sites only) (carries a caseload, provides specialist support for women, delivers training to professionals).
- Independent domestic violence advocate (IDVA)/advisor (seconded from Solace Women's Aid to three London sites) (works in partnership with the team to support CYPs affected by domestic violence).

During the co-design phase of the pilot study, RT and its partner (Dartington Service Design Lab) undertook a separate Theory of Change (ToC) exercise (see below). This work involved key stakeholders and included members of the UoB team. This work is on-going, with RT staff currently deciding how to finalise the ToC, which will be informed by the findings of this pilot study. The draft ToC is reproduced below. The ToC outlined the different components of the programme and the likely short-, medium- and long-term outcomes for CYPs.

Figure 1. Original RT YVIP Theory of Change

Target Population (YVIP Only)	Programme Stages and Activities - what do Redthread do?	Change Mechanisms - what does the young person experience?	Intermediate Outcomes – what needs to happen to enable progress?	End Outcomes – where should young people be at the end of the programme?	Ultimate Outcome – what is the long-term change for young people?
11-24 year olds (up to 25th birthday) Presenting at Major Trauma Centres or local hospitals Those experiencing, or at risk of experiencing violence and/or exploitation With needs not currently sufficiently met by services.	**1. Referral** (a) NHS Staff refers or RT identifies potential YP through hospital systems (b) RT learn about the YP to establish eligibility (c) YP learns about RT	YP experience care and compassion which is about their needs beyond health	YP consents to contact by RT initially and after first contact	**Safe** YP are able to handle their emotions in a positive way YP have a reduced risk of experiencing serious youth violence **Happy** YP are empowered to make informed and appropriate decisions in relation to aspects of their lives that will have positive outcomes i.e. engagement with education, employment, housing etc. YP are able to recognise and manage their emotions in an appropriate way. This means they can utilise healthy coping strategies which are likely to have long term benefits for their mental wellbeing	**Safe:** Young people are less likely to experience or be at risk of serious youth violence Reduced risk to self and others **Happy:** Long-term positive outcomes for mental wellbeing **Healthy:** YP continue to engage with other primary health services within their local community and have a reduced need for more intense secondary interventions
	2. Engagement: (a) YP and RT learn more about each other (b) Safety and discharge planning (c) For YP in the community, safety planning begins (d) RT develop a 'network of support'	YP experience ongoing concern about and compassion for their needs YP begin to trust the youth worker YP identify or learn about their immediate needs	YP consents to data being stored by RT YP understands their diagnosis/health plan YP accepts some basic needs supports from RT YP who do not consent to further engagement receive support on safety and discharge planning		
	3. Joint Assessment of Risks and Needs: (a) YP and RT discuss and prioritise needs and risks. RT involves relevant services too from the 'network'. (b) YP and RT discuss different approaches to their situation	YP identify their strengths, needs and long-term aspirations YP become aware of different ways in which they can address these YP experiences deepening trust	YP give informed consent to longer term joint work and information sharing YP engages in sharing and planning with RT Safeguarding referrals are made as necessary		
	4. Planning, Actioning and Support (a) Priorities are jointly set and a plan created to address needs (b) YP attends meetings with services (c) YP discuss next steps with RT – further planning	YP see models of positive engagement with services YP experience successful engagement with services YP begin to plan for themselves	YP attend meets with services YP continues to engage in planning and actioning with the YW YP priorities are met (e.g. housing, or engagement with education or employment)		
	5. Positive Disengagement (a) RT and YP agree on which services the YP needs ongoing engagement with and actions this (b) RT and YP reflect on distance travelled	YP initiates and experiences positive engagement with services themselves YP experiences success	YP make their own plans with support from RT YP initiates these plans successfully YP has an onward plan for appropriate engagements with services, and dealing with risk	**Healthy** YP can recognise when they are struggling and need some extra support. They feel confident to ask for support and know where to go to access this within the community i.e. connections with primary healthcare services YP are able to manage their emotions in a positive way reducing the chances of engagement in harmful self-directed behaviour, instead being able to make healthy choices for themselves	
	6. Follow-up (a) RT makes contact with YP 6 months on (b) Needs and risk assessment (c) Where necessary, RT works with YP to deal with risk or re-engage with services	Through the 1:1 relationship with a RT youth worker, YP experience support to increase awareness of their emotions and reactions, and develop strategies to manage these			

Key inputs

NHS Staff working in the hospital are trained to support referral to YVIP
Youth workers are recruited with experience of working with young people impacted by violence and trauma
Youth workers are provided with clinical and team supervision to help them manage secondary trauma, and support each young person.
Data is collected to support tracking of young people's engagement and progress so youth workers know if they are on track

Assumptions

Redthread will have access to hospital records to support identification of young people where NHS Staff do not make needed referrals.
Redthread staff will be based in hospitals, have access to desk space and all relevant hospital areas
The majority of eligible young people will be willing to work with Redthread after the first meeting

Additional Information

Target Population

It is not always clear whether a young person is at risk of, or already a victim of, extra-familial and intimate partner violence or exploitation. This is particularly true in local hospitals, where a young person may not present with a violent injury.

Redthread's youth workers uncover 'hidden' risks and vulnerabilities during the first part of the intervention (this is also an ongoing process) and establish whether a young person is part of the target population or not. In this way it is theorised that Redthread reach young people who might not otherwise access services and otherwise go on to present as a victim and/or perpetrator of serious violence in the future.

Programme Design

Unlike some interventions, Redthread does not prescribe an ideal duration or 'dosage' for YVIP, though it is typical for young people to engage in and out of hospital usually up to 12 weeks but this varies and can be longer . Contact between a young person and a youth worker is flexible and arranged to suit both – youth workers will sometimes have to work very fast to provide emergency support for young people at serious risk.

YVIP is not a therapeutic intervention. However, it actively acknowledges the role that trauma and disadvantage play in the lives of the young people they serve. Youth workers use 'quasi-therapeutic' techniques to support young people in addressing these, such as naming emotions, and using mindfulness practices.

Outcomes

Redthread collect and use data on young people's progress through the programme to help them stay on track. Redthread are developing their ability to measure the basket of indicators that represent their end-of-programme outcomes, which will be routinely measured for each young person they serve. Redthread are also engaging in external evaluations which can assess their ultimate outcomes. As a highly flexible intervention, Redthread youth workers may support other outcomes that young people need beyond these included here – appropriate accommodation is seen as so important to ongoing safety that it is included for every young person.

Research questions

The overarching research question is:

Do children and young (CYP) who engage with longer-term support from RT have a reduced incidence of hospital reattendance for violent injury?

The focus on longer-term support (referred to as 'engaged' CYPs by RT) was agreed to in consultation with YEF and RT as a result of the findings from the YEF and Thames Valley VRU study, which showed that shorter-term engagement with CYPs (referred to as 'supported' CYPs by RT) had limited effect, which was difficult to assess.[22] This study was also able to access data on CYPs who received more short-term support from RT, known as 'supported' CYPs.

The primary objective of the study was to provide a robust understanding of whether the RT YVIP intervention could be tested in a full efficacy study. The outcomes of interest in this study were a reduction in violence/abuse-related hospital reattendances in the subsequent one-year period, as well as reattendances for any reason and mortality of CYPs. This pilot study, therefore, comprises both process/implementation and impact components.

The specific objectives of the pilot study were to:

Co-develop a ToC in partnership with RT and YEF to:

- Clarify how the different components of the programme operate, including the presumed channels by which these produce outcomes for children within and across sites.
- Clarify the expected short-, medium- and long-term outcomes.

- Understand how the intervention is experienced by all stakeholder groups (children, RT staff, NHS referral staff and community partner organisations).
- Establish the feasibility of collecting the two core YEF measures (Strengths and Difficulties Questionnaire [SDQ] and Self-Report Delinquency Scale [SRDS]) and understand the optimum point to administer these questionnaires.
- Develop a design that provides robust impact evaluation and explore methods of data collection from RT and the NHS and how easily these can be matched.
- Establish sufficient target population – assess if there is a sufficient enrolment of the target population to run an efficacy study.

A copy of the YEF pilot protocol can be found on the YEF website.

Success criteria

The agreed success criteria are set out below. These will determine whether the pilot proceeds to an efficacy study.

1. Project implementation

a) The UoB and RT are able to make a decision on the use of the SDQ/SRDS – based on the RT-run pilot as part of the study at the hospital sites where the study was 'opened' (August 2022) and the use within the pilot study (if the tools are used).

b) Intervention actions aligning with the ToC were chosen after needs assessment; if there were misalignment, it would be necessary to re-visit the ToC; there was, in general, no need to stop the intervention but rather understand why the two diverged.

c) RT case management data shows that 75% of actions in an agreed action plan with children were implemented in a collaborative process involving staff and children; if this falls below 60% (yellow), we need to discuss why this divergence is occurring, and if it reaches 50% (red) we will refer to YEF.

d) Personnel records show all youth workers received adequate supervision and support; this will be reviewed by the UoB team, and significant divergence will be reviewed with RT and YEF.

2. Recruitment and retention

   a) Recruitment to the intervention and into the control group is at least 60% of planned numbers within the pilot period. Anything below that is cause for concern (yellow), with a need to pause (red) if the response is below 40%.

   b) Children referred to and accepted to the RT programme meet the eligibility criteria (referral form). We would expect the majority of children RT work with to meet these criteria; anything below 90% would prompt a need to discuss with RT.

   c) RT are able to retain children in support within the intervention to work through the action plan. At least 60% of planned numbers within the pilot period should be retained for a sufficient period to complete this work. Anything below that is cause for concern (yellow), with a need to pause (red) if the response is below 40%.

3. Measurement

   a) Hospital attendance records (primary outcome).

   b) Mortality data (secondary outcome).

Data was sought for one year after the initial ED presentation.

These Red, Amber, Green (RAG) ratings relate to the feasibility of the methods of data collection of the pilot. Failure to meet success criteria did not necessarily mean that an efficacy study should be abandoned but would suggest that the proposed design or methods required revision.

Ethical review

Due to the different groups of participants in this study, the ethical approval process involved a number of different bodies. In summary, these were: 1) the UoB ethics committee to consider interviews with RT staff and practitioners from non-NHS partner organisations, 2) the NHS Research Ethics Committee (REC) and Health Research Agency (HRA) to consider the study as a whole, interviews with NHS staff and use of NHS data and 3) individual NHS Trusts regarding access to the individual hospital sites.

The University of Birmingham's ethics committee process

The process evaluation work conducted with RT staff and representatives of non-NHS partner agencies was submitted for approval to the UoB ethics committee. The UoB has an overarching Code of Ethics, and ethical approval is a requirement of the Code of Practice for Research. All research projects go through the ethical review and approval process. The process includes the completion of a self-assessment form. Then, for studies involving human participants, such as the current study, stage two is to secure ethical approval via the central REC. The application received ethical approval, and the ethics committee reference number for this study is ERN_22-0128. RT programme managers approached all potential interviewees to gain consent for their contact details to be passed to the research team. Those who agreed were then sent participant information sheets and informed consent forms, which were sent/given back to UoB researchers before conducting interviews and focus groups.[3]

Each participating RT team was initially briefed by central RT staff and provided with a study briefing (a PowerPoint slide deck), as well as an information summary sheet, by the study team. As with other participant groups, RT programme managers approached potential NHS staff interviewees to gain consent for their contact details to be passed to the research team. Those who agreed were then sent participant information sheets and informed consent forms, which were sent/given back to UoB researchers before conducting interviews and focus groups.

The National Health Service Research Ethics Committee and Health Research Agency

Due to the involvement of NHS patients, staff and data in this study, the study underwent NHS REC and HRA review via the Integrated Research Application System (IRAS), in addition to a sponsorship review at the UoB. Ethical approval was granted for the study as a whole. The four NHS Trusts we aimed to include in the study were identified in the application.

During the course of the evaluation, it was necessary to apply for three amendments to the NHS ethical approval. All three were agreed upon by the UoB research team, RT and YEF. They were submitted to the UoB sponsor for approval prior to submission on IRAS for REC/HRA review and were subsequently approved (IRAS ID_313341). The changes made were as follows:

- Amendment 1 (December 2021):
  - To only seek consent from parents/guardians of children aged under 13 years rather than those 16 years and under, as previously proposed, in line with RT's normal practice.
- Amendment 2 (March 2022):
  - To include the collection of anonymous reattendance and hospital re-admission data from a historical sample of closed children's cases who went through the RT intervention from April 2022.
  - To consent children into the study who are still in-patients in the hospital if they are deemed medically fit and competent, in addition to those already discharged.
- Amendment 3 (September 2023):
  - To cease recruitment of new cases into all of the study sites and focus on collecting historical data only from April 2022 onwards. Only anonymous reattendance and hospital re-admission

[3] Copies of these are provided as appendices.

data were collected, which removed the need to seek consent from children and, where appropriate, their parents/carers.

Individual National Health Service Trust access

Following NHS and HRA ethical approval, the individual NHS Trusts were approached to gain access to the hospital sites through a process known as capacity and capability (or C&C) by which Trusts confirm they are able to support the study, for example, that they have sufficient staffing and resources and so can 'open' the study to allow the research team to conduct the related research activities.

During the study, two of the Trusts approached granted permission. These were Imperial College Healthcare NHS Trust, covering St Mary's MTC and Lewisham, and Greenwich NHS Trust, which covers University Hospital Lewisham and Queen Elizabeth Hospital in Woolwich, both of which are local hospitals with EDs. This enabled the research team to seek data on children who had worked with the YVIP teams, as well as on a control sample of children, and to interview NHS staff. Initially, the research team agreed with RT that the study would focus on four hospital sites. When the study was 'opened' by the Lewisham and Greenwich NHS Trust, it did so for both Queen Elizabeth Hospital, Woolwich, the originally planned site, and University Hospital, Lewisham, which became a fifth site for the study.

It was ultimately not possible to obtain C&C approval for the study from the two NHS Trusts in Birmingham: University Hospitals Birmingham NHS Trust (for the Queen Elizabeth Hospital) and Birmingham Women's and Children's Hospital Trust (for the Birmingham Children's Hospital). As such, the study was not opened here, and so we were unable to interview NHS staff or gain outcome data from these sites. Both the research team and RT spent around 12 months engaging with these NHS Trusts to try and open the study. This included the Birmingham RT team (which covered both hospital sites) agreeing and paying to undergo Good Clinical Practice training to assure the NHS Trusts that when they informed children about the study and consented them into it, they would do so appropriately. The UoB also agreed to pay the NHS Trust informatics teams to extract and share the outcome data, which was not the case for the other NHS Trusts. The Birmingham NHS Trusts had concerns regarding data sharing and data linking between the Trusts and RT and about the capacity of the Trusts to support the study. In the case of University Hospitals Birmingham NHS Trust, this was related to its being a large and busy Trust that engaged with many other studies, which better matched its priorities. In the case of the Birmingham Women's and Children's Hospital Trust, it related to their use of paper records, which are subsequently scanned for archiving, which would make data extraction for this study more resource-intensive and difficult.

Data protection

The legal basis for processing personal data in this study was 'public task'. A data-sharing agreement was signed between RT and the UoB, in which they acted as joint data controllers.

For qualitative data, data was shared on the basis of informed consent; the individual has given clear consent for you to process their personal data for a specific purpose. Informed Consent was obtained – this is where participants received information outlining the nature of the research, what they were being asked to do, their right to refuse to take part without negative consequences and their right to withdraw from the research during the fieldwork and up to two weeks after this point.

Regarding confidentiality, participants were informed prior to and post the interview process that the information they provided would be kept strictly confidential and that no identifying information would be

available to anyone external to the research team. Confidentiality was preserved (for quantitative and qualitative data) through steps such as (1) the assignment of participant numbers/pseudonyms, (2) the deletion of audio files post-transcription, (3) the storage of transcripts/consent forms in a locked cabinet at the University, and (4) the holding of electronic data in password-protected spaces only accessible to researchers.

All study-related information was stored securely in RT premises or the allocated areas in hospitals from which RT staff work, the RT case management system and UoB computers. All participant information was stored in locked file cabinets in areas with limited access. All reports, data collection, process and administrative forms were only identified by a coded identification number to maintain participant confidentiality. All records that contain names or other personal identifiers, such as locator forms and informed consent forms, were stored separately from study records, and identified by code number. All local databases were secured with password-protected access systems. Forms, lists, logbooks, appointment books and any other listings that link participant ID numbers to other identifying information were stored in a separate, locked file in an area with limited access.

All participant results were kept strictly confidential, all research activities were conducted in private rooms and study staff were required to sign agreements to preserve the confidentiality of all participants. The final study dataset was accessed by UoB researchers. They can access the data for a period of 10 years after the conclusion of the study.

Following the conclusion of the pilot, we will share all of the information we have gathered about children (except for anonymised data from the NHS Trusts for the impact study) who have taken part with the Department for Education (DfE). The DfE will replace all identifying information about the children who have taken part in the study (their name, gender, date of birth, home address) with the young person's unique Pupil Matching Reference number in the DfE's National Pupil Database. Once this has been done, it is no longer possible for those with access to the archive to identify any individual young person from the study data. This process is called pseudonymisation.

Once information is transferred to the DfE to be pseudonymised, the UoB hands over control to the YEF for protecting personal information. The DfE will transfer the pseudonymised information to the YEF archive, which is stored in the Office for National Statistics' Secure Research Service. The YEF is the 'controller' of the information in the YEF archive. By maintaining the archive and allowing approved researchers to access the information in the archive, the YEF is performing a task in the public interest, and this gives the YEF a lawful basis on which to use personal information.

Information in the YEF archive can only be used by approved researchers to explore whether RT's programme and other programmes funded by YEF had an impact over a longer period of time. Using the unique Pupil Matching Reference numbers added to the data by the DfE, it will be possible to link the records held in the YEF archive to other public datasets, such as education and criminal justice datasets. This will help approved researchers to find out the long-term impact of the projects funded by YEF because they'll be able to see, for example, whether being part of a project reduces a child's likelihood of being excluded from school or becoming involved in criminal activity. This process will not reveal the personal details of any children in the data archive.

Project and evaluation teams

Members of the study team are listed in the table below. All roles are UoB staff unless otherwise specified.

Table 1. Evaluation team staff

Team member	Role	Responsibilities
Professor Paul Montgomery	Lead principal investigator	Lead for the process/implementation evaluation and ultimate responsibility for project delivery and quality
Dr Joht Singh Chandan	Co-lead investigator	Lead for impact evaluation and support for management of the project
Dr Emily Evans	Project manager and intervention provider point of contact	Day-to-day project management and point of contact for the YEF and RT
Alice Burton	Research support	Support for both the process and impact evaluation
Dr Rasiah Thayakaran	Research advisor	Quantitative researcher supporting statistical elements and propensity score matching (PSM)
Mr Illin Gani	Research support	Help in preparing the quantitative results for reporting
Professor Siddartha Bandyopdhyay	Academic support	Support with the impact evaluation and lead for economic analysis
Professor Eddie Kane (University of Nottingham)	Co-investigator	Support with the process evaluation
Dr Shola Apena Rogers	Academic advisory support	Co-production support
Dr James Martin		Research methods support
Professor Krishnarajah Nirantharakumar		Epidemiological support for longitudinal datasets
Dr Ioannis Karavias		Advice on quantitative methods

The intervention was overseen and delivered by the following people at RT:

Table 2. Redthread staff involved in the pilot study

Team member	Responsibilities
Richard Collinson – former fundraising manager and incoming head of fundraising Rachel Smith – outgoing head of fundraising Jenny Lambert – head of finance	During study inception and initial set up stages and prior to the appointment of the research and evaluations manager in Autumn 2022, the UoB regularly liaised with various senior RT staff, primarily those listed here.
Jo Fitzsimmons – head of services	Point of contact for frontline delivery staff and coordination of research activities at each site
Alice Dore – research and evaluations manager	Day-to-day management of evaluation requirements and oversight of research activities Point of contact for YEF and UOB
Marike Van-Harskamp – head of policy and research	Overall oversight of evaluation for RT appointed in Spring 2023
Programme managers	Oversight of teams in each locality, covering multiple sites, safeguarding and partnerships lead

	Contributed to study design and set up meetings with the UOB and YEF
Team leaders	Management of the team, involvement in partnership work and multi-agency work, carrying a smaller caseload and delivering training to professionals
Senior YVIP workers, youth workers, YWWs	Day-to-day running of intervention
Programme coordinators	Data and administrative leads

During the co-design phase of the study the research team worked with RT and YEF to agree on the design and conduct of the evaluation and held fortnightly meetings with key staff members at RT to discuss progress. RT staff had no role in the analysis or reporting of the study findings. There was no involvement of other stakeholders in the study design, conduct or analyses.

RT is funded by a number of statutory bodies, charitable trusts, foundations and other funders, such as corporations and individuals. The funding for this project was provided in part by YEF. There were no conflicts of interest to declare.

Study design

This pilot study used a quasi-experimental design (QED). It considered children aged 10–17 (due to the focus of the funder YEF) who have worked with RT YVIP teams, compared with eligible children in the same age group who visited the hospital sites prior to the start of the YVIP intervention (a historical control group). This design was made after careful consultation at the co-design meetings and separate follow-up discussions with both RT and YEF. Initially, the research team had planned to conduct a randomised controlled trial (RCT) across the multiple sites where RT operates. However, after extensive discussions, it became clear that this was not possible for a number of operational reasons. Firstly, RT has contracts in place with its funders, in which it has agreed to offer the YVIP to all eligible CYPs. If the service were to be withheld to create a control group, this would threaten these funding arrangements. Secondly, in sites where RT is already operating, it was considered to be unlikely that NHS REC would agree to the withdrawal of the service, which is now part of standard care. Thirdly, in discussion with RT field staff, we came to believe that the chances of contamination between treatment and control groups were very high, and thus, the delivery of a high-quality RCT was unlikely. In sum, we concluded that other robust designs needed consideration. Hence, we considered a QED to be the most robust design that would provide high-quality data on this research question by allowing us to compare a treatment and a control group (taken from historical cases before the YVIP started in that hospital).

We had initially aimed to collect data from all referred children who met the inclusion criteria and consented to enrolment in the study during the recruitment period. This would have allowed us to undertake a prospective cohort study, comparing those children who underwent the treatment of the YVIP at the participating hospitals to controls who did not because they attended those hospital EDs prior to the introduction of YVIP. Recruitment was delayed due to holding discussions regarding study design and outcome measures with RT, gaining NHS ethical approval and setting up hospital data-sharing processes. Once recruitment did begin in the summer of 2023, RT teams found it difficult to recruit children into the study and ultimately recruited just one child into the study. As such, a decision was made in consultation with RT and YEF to amend the study design to use only retrospective data on children who worked with YVIP since the start of the study in April 2022 compared to a planned historical control group. Because all data was gathered without the direct consent of the children involved, all data was provided to the research team

anonymously. This marks a deviation from the protocol. This means that we are comparing current patients who engaged or were supported by the RT YVIP to those who attended hospitals prior to the introduction of YVIP for the period for which data were available (determined by the earliest date the health informatics teams could support in terms of finding controls). It is important to note that there is a substantial limitation in this approach whereby we cannot account for temporal factors. For example, the local context of youth violence will have changed across the time period considered, with rates of youth violence rising and falling.[32] There was a second deviation from the protocol. Due to the limited number of eligible historical controls and lack of covariate information received from hospital informatics teams, we were unable to undertake the planned PSM design. PSM relies on a comprehensive dataset of covariates for both the treatment and control groups to effectively simulate the conditions of a randomised trial. When covariate data is lacking, it becomes impossible to accurately calculate propensity scores, which are essential for identifying and matching individuals based on their likelihood of receiving the treatment under study. This matching process is crucial for minimising biases and ensuring that the comparisons between groups are valid. Moreover, a large control group enhances the quality of these matches, increases statistical power and ensures that the findings are representative and generalisable. Without sufficient covariate data, the fundamental mechanism of PSM fails, undermining the ability to control for confounding variables and thereby jeopardising the validity of the study's conclusions.

Hence, instead of PSM, we analysed a series of regression models, adjusting for the available covariate data to account for confounding. Furthermore, reattendance data was provided for all reasons, without this being broken down by reason for reattendance. As such, the analyses presented here deal with reattendance for all reasons. This is discussed further later in this report (see the data collection section regarding outcome data). As a pilot study, the main concern was to assess the extent to which data would be available for a full efficacy study and the quality of that data. The analysis undertaken for this report can only show correlations between datasets rather than reach causal conclusions. Based on the data received and the analysis possible, it also makes recommendations for future studies.

The move to using only anonymised historical cases in this study also meant we were unable to collect individual-level outcome data in the form of the SDQ and SRDS questionnaires or conduct qualitative interviews with children who had experienced the YVIP. We used the time and resources saved here to conduct further follow-up interviews and focus groups with RT staff, exploring barriers to recruitment and further inquiring into the intended outcomes and impacts of the intervention, allowing us to refine the YVIP ToC.

Participant selection

Qualitative work

During this evaluation, participants were identified from the five hospital sites, i.e. Queen Elizabeth Hospital MTC (Birmingham), Birmingham Children's Hospital MTC, Queen Elizabeth Hospital (Woolwich, London), University Hospital, Lewisham (Lewisham, London) and St Mary's hospital MTC (Paddington, London).

The eligible population for interview consisted of:

1) **RT staff** working directly on the project (programme managers and representatives from each job role within the RT YVIP hospital teams), in addition to a number of central team members.

The interviews were intended to examine how closely the intervention aligns with the ToC and variations in approach across the delivery sites. Staff interviews predominantly concentrated on how they conducted their roles and their expectations of the impact the programme is having. Specific topics included the target audience and referral process (who is being referred, by whom; how referrals are received and the process by which consent is sought); interactions with children (nature of the conversation and onward referral and signposting); training, supervision and support received; and any obstacles which may get in the way of achieving impact through the intervention. Follow-up focus groups and interviews centred on exploring difficulties with recruiting children for the evaluation and further considering the intended/expected outcomes and impact of the intervention.[4]

2) Stakeholders

- **a)** NHS clinicians and other staff who refer CYPs to RT teams.
- **b)** Community partners – non-hospital personnel who commission RT or work with RT in joint casework and representatives of organisations receiving onward referrals.

Stakeholders were approached by RT for consent to take part in interviews. These interviews explored their use and opinions of the RT service, the alternatives to RT locally and ways in which it could be improved. [5]

3) Children

We had originally intended to interview between 10 and 20 children who were eligible for the intervention and consented to take part in the evaluation. Due to challenges in recruiting children for the evaluation, as detailed in the above sections, these did not take place for the same reasons it was not possible to gather SDQs from children.

We asked team leads at RT to approach all potential interviewees (no exclusion criteria) to gain consent for their contact details to be passed to the research team. Interviewees were given participant information sheets prior to signing consent statements before the interview took place. [6]

Quantitative work

For the quantitative outcome analysis, participants were children aged 10-17 years who were eligible for the YVIP intervention at the five sites selected for the pilot study, as listed above. The treatment groups consisted of children who have been engaged (longer-term support) or supported (shorter-term support) by YVIP at any point since the start of the intervention at that site. Eligibility for the control groups were children who had attended the ED prior to the introduction of the YVIP, who would have been eligible for the intervention, as defined by the presence of a code in a patient's electronic health record depicting attendance at the ED for any safeguarding, abuse, violence or traumatic incident (see the hospital data section regarding outcomes). In Lewisham and Woolwich hospitals, the data ranges from October 2017 to June 2023, whereas in St Mary's, the data ranges from March 2009 to March 2023. In each instance, the historical data was collected for approximately three to four years before the implementation of the RT

[4] Topic guides are included as Appendices.

[5] Topic guides are included as Appendices.

[6] Copies are included as Appendices.

YVIP. We did include engaged and supported children who worked with RT prior to the YEF funding for this evaluation. The date range was limited by the availability of data for the health informatics team. Overall, at Lewisham and Greenwich, there were 216, 124 and 246 supported, engaged and control children, respectively. At St Mary's, there were 210, 504 and 91, respectively.

The inclusion of both children who had been supported by (shorter-term) and engaged with (longer-term) YVIP expands the study beyond the initial focus on those receiving longer-term support. This was done to increase the sample size available to the study. However, it is important to note that the majority of children, particularly at St Mary's, were only those who engaged in the longer term. Throughout the analysis of this data, the distinction between the two groups is maintained, and findings are presented for both groups as well as the combined group.

Regarding reattendance and mortality taken from hospital records, the study needed permission from NHS Trusts to be opened (known as C&C). As outlined in the Ethical Review section, two of the Trusts, covering three of the hospitals, granted such permission. In these sites, the hospital informatics teams were able to identify those who engaged with the YVIP service from implementation in those sites.

RT provided the research team with data they had gathered regarding the reattendance of under-18-year-olds within a one-year period at their London hospital sites for initial attendances between February 2021 and November 2022. When considering only the three London hospitals included in this study, this is a dataset of 41 incidents of reattendance.

Data from the RT case management system was provided for children engaged by the YVIP (open and closed cases) at all five sites for a year from the date of the start of the study in April 2022. It is possible that there is some cross-over, as, for example, in the Lewisham and Greenwich data, we included supported patients until March 2023. However, we do extend the historical data collection on supported and engaged patients prior to April 2022, so there will be additional patients in the hospital impact analysis.

Data collection

1) Project implementation

a) Qualitative data

Data was gathered from the following groups:

- **RT staff interviews/focus groups:**
  Our aim was to interview as many members of the five staff teams as possible using a mix of one-to-one and focus group sessions. Due to difficulties organising times and a confidential space in some settings to carry out face-to-face meetings, the majority of these were conducted online using Zoom. Three out of 22 interviews were conducted face-to-face. Interviews and focus groups typically lasted between 30 and 60 minutes and were recorded, transcribed and analysed using framework analysis.[24] They were completed by a mix of researchers from the UoB team.

- **NHS/community partnership interviews:**
  We also intended to interview four to six NHS clinicians/referrers to the programme and four to six representatives from community partners from each site. This group consisted of non-hospital personnel who worked with RT in joint case work and representatives of organisations receiving onward referrals or commissioning RT. All of these 13 interviews were conducted remotely via Zoom.

b) Quantitative data

Data from the RT case management system were provided for children from the five hospital sites to allow a review of the referral reasons and the nature and extent of the work done with children. This data was provided from April 2022 for a 12-month period. A new case management system was introduced to RT teams in April 2023 and altered the way in which data was gathered, making it not comparable with the older system. The old system, from which data is taken, captured only work done with children who had longer-term engagement with RT during their stays in hospitals (referred to by RT as engaged), as opposed to children who were supported for a shorter period of time. It is this group that is of primary interest to this study. Data on children who engaged with RT is presented to provide context and triangulation with the interview data.

2) Project impact

- **RT data on one-year hospital reattendance for London hospitals, 2021–2022**

RT provided the research team with data they had gathered regarding the reattendance of under-18-year-olds within a one-year period at their London hospital sites for initial attendances between February 2021 and November 2022. When considering only the three London hospitals included in this study, this is a dataset of 41 incidents of reattendance.

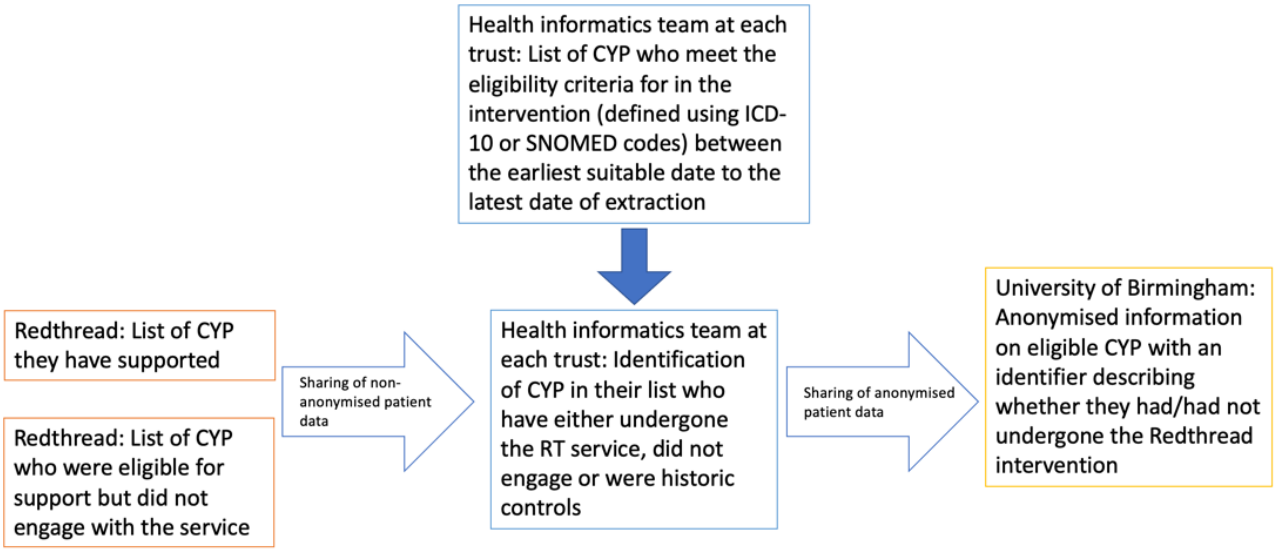
- **Hospital data regarding outcomes**

The primary outcome was defined as hospital reattendance within one year of the initial ED presentation. This outcome was provided in two ways: 1) binary (yes/no) reattendance within one year and 2) number (count) of reattendances within that one-year period. The original intention was to examine the risk of hospital reattendance specifically related to violent injury. However, we were unable to receive granular enough data to make the assessment as to whether the reattendance was due to a violence-related injury. At St Mary's, we did not receive the reason for reattendance, and at Lewisham and Woolwich, where we did receive this data, it was still not possible to identify whether the reason for attendance was related to violence, owing to the lack of granularity in the data. Hence, we have presented findings regarding reattendance for any reason. We have used existing data held within the hospital Trusts' electronic health records and allowed patients to enter and exit the study at different time points within the overall study period.

We also received data on the mortality of children (our planned secondary analysis) which occurred within one year of attendance. However, in the Lewisham and Woolwich dataset, we identified no children who experienced this outcome in the intervention or control group. In the St Mary's data, we identified three children who experienced this outcome. Due to the low number of events, we were unable to undertake any further analyses with this information.

In order to identify whether patients who were eligible actually worked with RT (as this is not coded in the electronic health records), we arranged the following data flow between the UoB, NHS hospital Trusts and RT.

Figure 2. Data flow between organisations



From each NHS Trust, we also requested the following covariates of interest.

- Age at initial ED attendance
- Sex (male or female)
- Ethnicity
- Deprivation, described as indices of multiple deprivation (IMD)

We were able to capture all of these characteristics in the data for Lewisham and Woolwich hospitals, but there was too much missing data in the St Mary's dataset for ethnicity and deprivation, so we were only able to capture age and sex covariates. This meant that planned PSM analyses could not be undertaken. Propensity scores are used to reduce confounding by equating groups based on the covariates; however, the lack of covariates available in the data and the small number of control participants in the datasets meant that PSM was not possible. In the case of St Mary's, the lack of control data occurred because the YVIP had been in place for a number of years, so creating a historical control group required the extraction of data from older systems. This was less of an issue for the two hospitals covered by the Lewisham and Greenwich Trusts, where YVIP had not been running for as long. Instead, we used regression models, as these give estimates for all the covariates in the model. The term 'estimates' here refers to the statistical estimates of the effects or relationships between the variables of interest (in this case, covariates like age, sex, ethnicity and deprivation) and the outcome being studied. In a regression model, each covariate's coefficient provides an estimate of how much the outcome variable is expected to change with a one-unit change in the covariate while holding all other covariates constant.

For instance, in this context, the regression model could help estimate the impact of factors such as age or sex on the likelihood of ED attendance or on health outcomes following such attendance. This is particularly useful when PSM cannot be implemented due to incomplete data or insufficient controls (as in our circumstance), as regression allows us to control for the available covariates and examine their individual contributions to the outcome, even though it might not eliminate confounding as effectively as PSM.

- **YEF core measure questionnaires (SDQ and SRDS)**
  Neither of these measures was used due to an amendment in the study design to no longer recruit active cases and for reasons discussed in further detail in the sections below.

Table 3. Methods overview

Research methods	Data collection methods	Participants/data sources	Data analysis method	Research objectives addressed	Theory of Change relevance
Quantitative	Data derived from the NHS electronic health record (treatment N = 1,054; control N = 337)	Engaged children: those who had a longer-term engagement with RT beyond their attendance. Supported children: those who worked with RT for a shorter term during their hospital attendance. Historical controls: those eligible for RT but no service existed.	Quasi-Poisson regression Logistic regression	Develop a trial design Establish a sufficient target population	Understanding activities and outcomes
	RT data on reattendance to London hospitals (N = 41 attendances with at least one reattendance within one year).	CYPs engaged and supported by YVIP, who reattended hospital within one year.	Descriptive statistics	Understand how the intervention is experienced.	Understanding activities and outcomes.
	RT case management system (N = 205 children engaged by YVIP)/	Engaged children: those who had a longer-term engagement with RT beyond their attendance.	Descriptive statistics	Understand how the intervention is experienced.	Understanding activities and outcomes.
Qualitative	Interviews/focus groups	RT staff: Interviews (N = 22) Two focus groups (N = 8) NHS staff (N = 8) Community partner staff (N = 5)	Framework	ToC development. Understand how the intervention is experienced by all stakeholder groups.	Understanding activities and how these link to mechanisms which produce outcomes.

Analysis

Qualitative analysis

For the qualitative data, all interviews and focus groups were audio-recorded and transcribed where possible. Data were analysed using framework analysis.[24] NVivo aided with data analysis and interpretation.

In the case of four interviews, it was not possible to record audio due to technical difficulties. In those cases, a written record was made, and the notes were analysed in the same way. The collection and analysis of qualitative data were iterative processes, with both occurring in parallel – enabling emerging themes to be investigated in later focus groups and interviews.

The qualitative data primarily allowed for an understanding of how the YVIP operated at the sites and was experienced by relevant groups. This data was triangulated with the descriptive analysis of the RT caseload data from those sites.

Quantitative analysis

The RT case management system data was analysed to provide descriptive statistics of both the characteristics of the children referred to RT and the nature and extent of the work done with them. This data was triangulated with the analysis of the interviews to understand better the operation of the YVIP.

Data on the outcomes of children in the treatment and control groups regarding reattendance was analysed in the following way:

NHS Trust data (reattendance)

Categorical data has been described as numbers and proportions, whilst continuous data has been presented as means with a standard deviation (SD) or median and an interquartile range (IQR).

Main analyses

To estimate the risk of hospital reattendance (accounting for the number of subsequent attendances) within a single year, we used a quasi-Poisson regression model (with no matching), which is used when we have count data (in this case, the number of hospital reattendances), which provides an incidence rate (IR). The quasi-Poisson regression model is able to deal with data which is overdispersed (the variance is greater than the mean), as was the case with this dataset. Initially, we analysed an unadjusted model, i.e. one which did not account for the impact of covariates. An adjusted model was also analysed (presented as Supplementary Tables S1 and S2 in the appendices of the report). Similarly, to estimate the odds of any hospital reattendance within that year (using hospital reattendance as a binary variable), we undertook a logistic model used when the dependent variable is a categorical one, i.e. readmitted or not (unadjusted and adjusted models with no matching), which provides an odds ratio (OR). Significance was set at $p < 0.05$, and findings are presented with 95% confidence intervals (CIs).

The dual use of both regression models on transformed outcomes of the same variable may suggest redundancy; however, each serves a distinct purpose. The logistic regression model provides insights into the likelihood of reattendance, while the quasi-Poisson model helps understand the frequency of reattendances. Employing both models allows us to validate our findings through a sensitivity analysis, ensuring robustness in our results.

As noted above, the analyses were separated by NHS Trust due to heterogeneity in the definition of the population of interest. At each site, we conducted a primary pairwise comparison. We chose not to pool the results across all three hospital sites (Lewisham, Woolwich and St Mary's) due to significant heterogeneity in the population definitions and data completeness across sites. Pooling the results could obscure important site-specific differences and potentially lead to misleading conclusions. The decision not to pool

also relates to the varying levels of data availability and missing data, particularly concerning ethnicity and IMD, which are more problematic at St Mary's than at the other sites.

Primary analysis:

Supported + engaged vs historical controls

In Lewisham and Woolwich, due to data availability, we were able to adjust for age, sex, ethnicity and IMD as independent covariates which could confound the outcome of interest (hospital reattendance). However, at St Mary's, due to high levels of missing data (>50% of ethnicity records and 100% of IMD), it was deemed more appropriate to exclude them from the main analysis, as we were only able to adjust for age and sex.

Subgroup analyses (secondary analyses)

Our first subgroup analysis was to ascertain the impact of either being supported or engaged by the RT intervention compared to controls.

1) Supported vs historical controls
2) Engaged vs historical controls

Following this, we also undertook an unadjusted subgroup analysis to assess the impact of the intervention broken down by sex. For example, we examined the risk (and odds) of reattendance in male patients in the intervention arm compared to male historical controls and similarly for female patients.

Timeline

Figure 3. Timeline

Dates	Activity	Staff responsible/ leading
Jan22–Mar 2023	Project set up – define referral pathways, record management processes Evaluation set up – information sharing agreements, develop evaluation materials, gain ethics approval	RT: project team UoB: PM/JSC
April 2022	Project go live – recruitment of CYP into intervention, begin collecting case monitoring data Begin collecting data	RT: project team and local teams UoB: PM/JSC (lead) and UoB team.
April 2022-Nov 2023	Project operation Gather quantitative data sources (outcome measures, case monitoring data, administrative data, control group) Gather qualitative data (interviews with staff, referrers and CYP)	RT: project team and local teams UoB: PM/JSC (lead) and UoB team. UoB: EK (lead) and UoB team.
December2023	Draft interim report	UoB team
January 2024	YEF make decision whether to progress to efficacy study	YEF
March-April 2024	Submit final report / support YEF publication process	UoB team

Findings

Participants

Project implementation – qualitative data

- Redthread staff interviews

As intended, we conducted interviews with representatives from each staff role within the RT team (except the counsellor at Birmingham), as summarised in the table below.

Table 4. Redthread staff members interviewed or involved in a focus group

St Mary's London (STM)	**Queen Elizabeth-Birmingham (QEB) and Birmingham Children's Hospital (BCH)**	**Queen Elizabeth Hospital Woolwich (QEW)**	**University Hospital Lewisham (UHL)**
• Programme manager • Team leader • YWW • Programme coordinator • YVIP practitioner	• Programme manager • Senior Young Women's – exploitation worker • Programme coordinator • YVIP Practitioner	• Programme manager • Team leader • Programme coordinator • YVIP Practitioner	• Team leader • YVIP Practitioner x3
Central office team interviews			
• Interim CEO • Fundraising manager • Head of services • Head of finance • Research and evaluations manager			
Focus groups (November 2023)			
Discussing YVIP ToC, outcomes and impacts:		Discussing recruitment issues: • YVIP practitioner (Lewisham)	

● Programme coordinator (Birmingham) ● Programme manager (London) ● YVIP practitioner (Nottingham) ● Team leader (Nottingham)	● Programme coordinator (Woolwich) ● Team leader (St Mary's) ● Regional manager (Midlands)

- Stakeholder interviews

In addition to RT team members, we also intended to interview four to six NHS clinicians/referrers to the programme and four to six representatives from community partners from each site. This group consisted of non-hospital personnel who work with RT in joint case work and representatives of organisations receiving onward referrals. Of the 18 NHS workers who consented to their details being passed to us, 15 were from active study sites. Of these, eight individuals responded and were subsequently interviewed. We were provided with the names of only six community partners, in total, across all sites, and four of these responded and were interviewed. A breakdown of those who took part can be seen in the table below.

Table 5. National Health Service and community stakeholders interviewed

	National Health Service	**Community partners**
Job role	● Health delivery manager ● Mental health well-being (Woolwich) ● Safeguarding nurse (St Mary's) ● Sexual health nurse (St Mary's, Paddington) ● Site director for nursing (Woolwich) ● Paediatric consultant (St Mary's) ● ED consultant (St Mary's) ● Major trauma ward manager (St Mary's)	● Senior policy and commissioning ● Manager – mayor's office for police and crime ● Team manager – Empower U ● IDVA practitioner ● Manager – Solace Women's Aid

Project implementation – quantitative data

- RT caseload data:

Data from the RT case management system was provided by RT staff to allow for analysis of the demographics of CYPs as well as the amount and type of work done with CYPs. This data comes from the case management system used by RT at the time, which was replaced in April 2023[7]. This limits the time period of this data to a 12-month period from April 2022. This only captured work done with CYPs who had a longer-term engagement with RT during their stays in hospitals (referred to by RT as engaged), as opposed

[7] This new system altered the way in which data was gathered and so is not considered comparable to the data from the older system.

to CYPs who were supported for a shorter period of time (known as supported). It is this engaged group that is of primary interest to this study. Data on CYPs who engaged with RT is presented to provide context and triangulation for the interview data.

Table 6. Redthread case management dataset breakdown (engaged children and young people), April 2022 – March 2023

Site	Number of children
QEW	32
UHL	36
STM	51
QEB	47
BCH	39

Project impact

- **RT data on one-year hospital reattendance for London hospitals, 2021–2022**

RT provided the research team with data they had gathered regarding the reattendance of under-18-year-olds within a one-year period at their London hospital sites for initial attendances between February 2021 and November 2022. When considering only the three London hospitals included in this study, this is a dataset of 41 incidents of reattendance.

- **Hospital data regarding outcomes**

This data covers children who both engaged with and were supported by YVIP (as provided by RT to the hospital informatics teams) as well as the historical controls. The study period varies between the three hospital sites due to the differing implementation dates of YVIP in each of the two NHS Trusts. In Lewisham and Woolwich hospitals, the data ranges from October 2017 to June 2023, whereas in St Mary's, the data ranges from March 2009 to March 2023.[8] In each instance, the historical data was collected for approximately three to four years before the implementation of the RT YVIP.

In each site, there were differing approaches to identifying CYPs who would have been eligible for YVIP to create the control groups. This was due to the introduction of a new granular NHS electronic health record coding system (SNOMED) in Lewisham and Woolwich. SNOMED is a hierarchical coding system which can capture the specific reason for attendance and can provide a more nuanced approach to identify incidences relating to safeguarding, abuse, violence or trauma. However, using the SNOMED system was not possible at St Mary's over the same timeframe. Hence, eligibility for YVIP was deemed as the presence of an ICD-10 code for assault (X85-Y09). Although these coding systems are similar, they are not precisely the same. Hence, it is important to recognise heterogeneity in the population definition, which affects our ability to combine the findings across sites. However, as the SNOMED system is used in both Lewisham and Woolwich hospital sites, this data was combined while recognising that there is some heterogeneity across the two groups. Due to the following factors: 1) recording practices are similar across both locations, 2) neither hospital is an MTC and 3) they form part of the same hospital trust and will have similar policies in place, we felt that to increase the sample size of the sub-analysis, there would be enough homogeneity to meaningfully combine these datasets. In Lewisham and Woolwich, this referred to CYPs who attended the

[8] These vary from the dates for which caseload data was available.

ED between October 2017 and July 2020. In St Mary's, this referred to CYPs who attended the ED between March 2009 and December 2013. This group has been described below as historical controls. Hence, the Lewisham and Woolwich data has not been combined with St. Mary's for an aggregate analysis.

RT also provided data on CYPs who attended the ED whilst the intervention was operational but did not use the service. After a discussion with the RT team, we identified that this mostly consisted of patients who refused the service. This group has not been used in the analysis, as selection bias would be introduced if we considered their findings.

Across the sample, 59.6% were engaged with YVIP (longer term), and 40.4% were supported (shorter term). In the two local hospitals, more CYPs were supported (63.5%) than engaged (36.5%). This was the other way around at St Mary's MTC, where more than twice as many CYPs were engaged (70.6%) than supported (29.4%). When considering the control group, there were substantially fewer historical controls in the St Mary's data, 91 CYPs compared to 246 at Lewisham and Woolwich.

Table 7. Outcome data sample characteristics by National Health Service Trust[9]

Where numbers were less than five, to maintain anonymity, these results have been suppressed, and only percentages presented

NHS Trust	Sample characteristics	Historical controls	Engaged	Supported	P-value calculated using a chi-squared test comparing the supported to control group
Lewisham and Greenwich (QEW & UHL)	**Number of children**	**246**	**124**	**216**	
		Age			
	Age (median, IQR)	15.0 (2.0)	15.0 (2.0)	15.0 (2.0)	
	Age (mean, SD)	14.8 (1.9)	14.8 (1.7)	14.7 (1.5)	0.884
		Sex			
	Male	141 (57.3%)	52 (41.9%)	132 (61.1%)	0.002
	Female	105 (42.7%)	72 (58.1%)	84 (38.9%)	
Imperial College Healthcare (STM)	**Number of children**	**91**	**504**	**210**	
		Age			
	Age (median, IQR)	16.0 (2.0)	16.0 (2.0)	16.0 (2.0)	
	Age (mean, SD)	15.6 (1.4)	15.7 (1.3)	15.7 (1.3)	0.889
		Sex			
	Male	73 (80.2%)	444 (88.1%)	175 (83.3%)	0.061
	Female	18 (19.8%)	60 (11.9%)	35 (16.7%)	

Evaluation feasibility

There have been significant issues during the pilot study regarding the ability to operationalise the planned study design with RT, within NHS Trusts and at the hospital sites.

[9] It was not possible to include ethnicity and IMD as covariates at St Mary's due to high levels of missing data, so they are excluded from this table for all hospital sites.

Study design

As noted above, a QED was agreed with RT and YEF as the most feasible design, comparing CYPs working with RT with a control group created by the NHS Trust. The initial NHS ethics application was made later than hoped due to some setbacks in the study design process. It was further delayed by waiting for amendments to the protocol to be approved (as detailed above). As noted above, once the national NHS REC and HRA granted ethical approval for the study, NHS Trusts then had to give C&C approval for the study to be 'opened' and for recruitment of children to start. Only three out of five hospital sites approached granted this approval, despite extensive engagement from the study team and RT staff to get these set up in the time frame available.

The informatics teams in the two NHS Trusts which issued C&C approval (covering the three hospitals in London) were able to provide outcome data on CYPs who had worked with RT. However, we did not receive complete ethnicity and deprivation data on the St Mary's children. The informatics teams were able to match details provided by RT to NHS systems for all children and provide the requested outcomes regarding reattendance and mortality. The St Mary's data did not contain a reason for reattendance, most likely due to the age of the data. The Lewisham and Woolwich data did contain a reason for reattendance admission, but as this is collected for operational reasons, it records the nature of the injury or illness but not necessarily whether it was caused by violence. As such, the analysis outlined in this report concerns reattendance which may or may not be linked to incidents of violence. The informatics teams were able to create control groups from historical data using either ICD-10 or SNOMED codes to identify eligible CYPs who attended the hospital prior to the introduction of the YVIP into those sites.

In the sites which did grant C&C approval, it did not prove possible for RT to consent children into the evaluation. In the eight weeks in which recruitment was open in the two hospital sites, only one child was consented into the evaluation. During this period, the research team was in close contact with the RT team and YEF. Together with RT, the study team made changes to the study documentation and processes to try to improve rates of CYP consent. This included developing a shorter, more user-friendly information sheet[10] and creating an online version of the consent form and SDQ questionnaire. However, this did not result in any more children being consented. The main reason reported by RT was that the majority of eligible children who attended the hospital sites as a result of violence or exploitation also experienced trauma-related effects of these events, which made YVIP workers unable to broach the study with them, instead needing to focus on their immediate needs and risks to their safety. In addition, even when it was appropriate to discuss the evaluation, youth workers found it challenging to find an appropriate time (especially early in the child's engagement) to have a full conversation about the evaluation and associated personal data sharing to allow for informed consent because of the more pressing needs children were facing.

Throughout this period, the teams at the two local hospitals were not fully staffed, so they were unable to take on new cases for a period and found it difficult to complete the additional work (information provision, consenting and questionnaire completion) created by the study. This issue of YVIP staff turnover and teams being short-staffed was an ongoing issue during the study period. As such, the decision was taken to use closed cases for the treatment group. This also meant that we were unable to interview CYPs or gather other outcome data from them using the SDQ. We had originally hoped to interview between four and six CYPs

[10] Copy included in an Appendix

from each of the hospital sites about their experience of the YVIP intervention. This would provide crucial insights into the extent to which the service met their needs and the mechanisms by which it attempted to do this.

Self-Report Delinquency Scale

Part of our planned outcome measures in the original protocol, as outlined above, were two widely used behavioural screening questionnaires, which form part of YEF's core measures across many of its evaluations: the SDQ (Goodman, 1997) and SRDS (Smith & McVie, 2003).

It became apparent early in the study design stages that RT did not view the SRDS as a 'good fit' for their trauma-informed model of working with CYPs. The questionnaire asks CYPs to self-report their involvement in a range of anti-social and criminal activities. As such, it was considered by RT as being likely to negatively impact the trusting and working relationship YVIP workers were seeking to build with CYPs. This was compounded by the fact that the questionnaire was planned to be administered at the start of the YVIP (and also at the end) when the relationship was just beginning. Extensive discussions around this point were had, which led to significant time delays in the study set-up. After conducting an internal pilot in which the measure was introduced in a small number of trial settings, RT outlined what they considered to be fundamental concerns to YEF, which led to a decision to withdraw this measure from the protocol.

During this internal pilot, 18 CYPs were invited to complete the questionnaire, and only two agreed. RT reported that they had made every attempt to make it as feasible as possible and to boost uptake, for example, administering it at different time points and settings, but these did not prove successful. The research team also worked with RT to troubleshoot and look for ways to increase uptake.

RT believed that asking children to assess their own delinquency was unethical and detrimental to the support they provided. They felt that asking potentially vulnerable children to incriminate themselves could be damaging for children who are already in a delicate situation. Furthermore, it was suggested that asking children to complete this questionnaire had the potential to damage the required trusted relationship between the youth worker and the young person.

Strengths and Difficulties Questionnaire

The SDQ was considered a less controversial measure and had been used by different RT teams in the past. The intention was for RT staff to ask CYPs to complete it during initial follow-up meetings in the community following discharge from the hospital and again toward the end of their engagement with RT. Due to the issues with consenting children to the evaluation, no SDQ questionnaires were completed.

Evidence of promise

Target group

Staff interview findings suggest that the presenting risks of CYPs referred closely align with the six main eligibility criteria highlighted by RT in previous iterations of the ToC. It is acknowledged that presentation and injuries do vary substantially between MTCs and local hospitals due to their differing intakes; by definition, MTCs receive a higher number of CYPs who have sustained more serious, potentially life-changing injuries compared to those in local hospitals. Serious weapon-related trauma cases and very serious assaults, which may initially be seen in local hospitals*, 'would quickly be transferred to a Kings (MTC), usually by*

ambulance' (Participant 01-04-17 Woolwich). It is suggested that local hospital sites also see more mental health–related presentations, which could be due to a perception that ED departments are more accessible than primary health services, particularly given the high number of CYPs not registered with a general practitioner.

RT caseload data reports the reason for a hospital presentation. The data for this from the five hospital sites is presented in the table below. It shows that across all sites, assault as a whole makes up the majority of hospital presentations. In MTCs (St Mary's and the two hospitals in Birmingham), this is more common, as are assaults involving stabbing, which make up a greater proportion of hospital presentations than in the local hospitals in Woolwich and Lewisham. In local hospitals, assault as a whole makes up around half of all presentations, less than in the MTCs, and potentially less serious types of assault, including body parts used as weapons, made up a greater proportion of presentations, along with mental health presentations, such as overdoses.

Table 8. Reason for a hospital presentation by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Assaults (including blunt objects used, body parts used as weapons, gunshots, sharp objects, sexual assault and stabbing)	16	50	20	55.7	42	82.4	38	80.9	25	64.1
Accidents, mental health concerns, substance use concerns, illness, police-related injuries and other reasons	13	40.6	15	41.8	7	13.7	8	17.0	13	33.3
Not recorded	3	9.4	1	2.8	2	3.9	1	2.1	1	2.6
Total	**32**	**100.0**	**36**	**100.0**	**51**	**100.0**	**47**	**100**	**39**	**100**

When considering the reason why a CYP presenting at hospital is referred to RT's YVIP, shown in Table 9 below, the most common reason across all the hospital sites was assault. However, this was more common in MTCs, with the local hospitals having more of a spread of reasons, including child sexual exploitation and risk of harm (also seen Birmingham Children's Hospital MTC).

Table 9. Reason for a Redthread referral by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Assault/history of assault	13	40.6	20	55.6	43	84.3	36	76.6	23	59.0
Child criminal exploitation/child sexual exploitation/gang affiliation/affected by gang activity	8	25.0	5	13.9	3	5.9	4	8.5	9	23.1
Domestic violence/sexual violence/risk of harm	6	18.8	10	27.8	3	5.9	7	14.9	7	17.9
Other	2	6.3	1	2.8	0	0.0	0	0.0	0	0.0
Not recorded	3	9.4	0	0.0	2	3.9	0	0.0	0	0.0
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**

The YVIP is aimed at males and females from 11 years old until their 25th birthday. The current evaluation is concerned with those up to 17 years old (due to the scope of the funder, YEF). Local hospital staff indicate that they often see a younger cohort of patients and a higher proportion of assaults that originate from school-related disputes. In contrast, *'we [MTC] predominantly deal with young men who have been assaulted. We're skewed slightly older, I think. We get a few, maybe, under-16s, but we mostly deal with, I would say, 16 to 24'* (Participant 01-04-11 St Marys).

The RT caseload dataset shows a somewhat mixed picture. Table 10 below reports the average age across the five hospitals. It shows that at the Queen Elizabeth hospital in Birmingham and St Mary's, MTCs which see adults and children, the average age is older, ranging from 15.9 years at St Mary's to 16.4 years at the Queen Elizabeth hospital Birmingham. This is older than both of the local hospitals and Birmingham Children's Hospital (which treats children up to the age of 16), where the average ages are fairly similar.[11]

Table 10. Age on arrival of children and young people by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
Age (years)	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
<14	7	21.9	13	36.2	1	2.0	0	0.0	7	17.9
14 and 15	14	43.8	15	41.6	13	25.5	4	8.5	26	66.7
16 and 17	11	34.4	8	22.2	35	68.6	43	91.5	6	15.4
Missing	0	0.0	0	0.0	2	3.9	0	0.0	0	0.0
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**
Average age	**14.8**		**14.3**		**15.9**		**16.4**		**14.6**	

It is thought that at local hospitals, RT sees more under 18s because consent is not required to make contact. As the turnaround is much quicker in these settings (often a number of hours compared to *'an average of 11 days at a major trauma centre',* Participant 01-04-02 Birmingham), more over-18s may be discharged before being seen and consenting to being contacted by RT. It was further suggested that clinical staff may be more inclined to put in referrals for under-18s due to the more stringent safeguarding practices in place. Sixteen- and 17-year-olds are usually seen in adult EDs and, as a result, can, on occasion, be overlooked. '*You have to be more careful with young children in making sure that you're safeguarding them. Whereas adults, you have to put more of the emphasis on them to want to help themselves'* (Participant 01-01-40 Lewisham). In contrast, it was suggested that over-18s are often more likely to engage with the service for a longer period of time due to more readiness and motivation to make lifestyle changes.

Practitioner staff imply that in MTCs, '*referral numbers are very heavily dominated – like male-dominated. It's maybe like 70/30 per cent male'* (Participant 01-04-11 St Marys). At least in part, this may be explained by some clinicians referring males whose presenting injuries are more easily identifiable as examples of serious youth violence, i.e. a gunshot or stab wound. It was implied that some clinicians may lack

[11] As noted above, YVIP works with young people older than 18, but the age group for this evaluation was limited to those aged under 18, due to the focus of the funder.

professional curiosity when it comes to issues which are less recognisable, such as male child sex exploitation.

This difference in the sex of CYPs seen at MTCs and local hospitals is borne out in the RT caseload data. Table 11 below shows that local hospitals (in Woolwich and Lewisham) see a more balanced group of CYPs, so they see many more young women than the MTCs (St Mary's, the Queen Elizabeth hospital Birmingham and the Birmingham Children's Hospital), where the CYPs are much more likely to be male. This is particularly pronounced at St Mary's because of the presence of a specialist YWW and an IDVA who pick up some cases, predominantly involving young women and girls, who might otherwise be referred to YVIP.

Table 11. Sex of children and young people by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Female	17	53.1	25	69.4	2	3.9	8	17.0	6	15.4
Male	15	46.9	11	30.6	49	96.1	37	78.7	32	82.1
Other	0	0.0	0	0.0	0	0.0	2	4.3	1	2.6
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**

On the whole, it was suggested by RT staff interviewed that compared to an MTC, a local hospital sees a higher proportion of young women, but generally, the ratio of male and female referrals is comparable to MTCs. Staff interviewed from St Mary's implied that they see a significant number of females presenting as a result of a sexual assault or substance overdose, with an underlying cause of some form of exploitation. However, Birmingham staff suggested that '*only approximately 5% of overall referrals will be for sexual assault or rape'* (Participant 01-04-02 Birmingham). A significant route for a large number of female referrals in St Mary's MTC is through the sexual health clinic. These cases are predominantly picked up by young women's or IDVA worker (seconded from Solace Women's aid). The absence of a dedicated Young Women's service in Birmingham and a number of referrals being missed by clinicians due to more subtle symptoms such as abdominal pain, may go some way to explain the discrepancy in numbers.

Staff state that referral trends are dynamic since they reflect ever changing patterns in serious youth violence seen in the particular hospital catchment areas. Furthermore, in some cases, as highlighted on the ToC, there is a hidden risk/vulnerability rather than explicit disclosure, or the reason for the referral to RT relates to a disclosure of historical abuse and/or exploitation rather than the presentation itself. Programme coordinators monitor trends and report these to Practitioner staff as and when, and also to central office on a monthly and quarterly basis.

RT caseload data also provides data on the ethnicity of CYP referred and their postcode. Postcode data was not shared with the research team to preserve anonymity. However, postcodes were used to link to the IMD[12] which was provided to give a sense of the level of deprivation in the local area of a CYP.

Ethnicity data are presented in Table 12 below and show variation by hospital site, as might be expected given the different areas covered by the five hospitals.

[12] https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

Table 12. Ethnicity of children and young people by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
Broad categories	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Asian or Asian British	1	3.1	1	2.8	0	0.0	7	14.9	1	2.6
Black / Black British	10	31.2	8	22.3	21	41.2	10	21.3	8	20.5
Mixed	2	6.2	5	13.9	7	13.7	5	10.6	7	17.9
White	10	31.3	11	30.5	5	9.8	9	19.1	15	38.5
Other	2	6.3	2	5.6	8	15.7	1	2.1	0	0.0
Not Recorded/Not Given	7	21.9	9	25	10	19.6	15	31.9	8	20.5
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**

The IMD data shows that overwhelmingly CYP are living in deprived postcode areas, with the majority living in deciles 1-5, the 50% most deprived postcode areas, and almost none living in the least deprived deciles.

Table 13. Indices of multiple deprivation decile of children and young people's postcodes by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
1-5	24	75.0	34	94.4	38	74.4	40	85.0	35	89.7
6-10	4	12.5	2	5.6	5	9.9	6	12.7	1	2.6
Blank/Missing	4	12.5	0	0.0	8	15.7	1	2.1	3	7.7
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**

Referral

The YVIP ToC suggested that referrals are generally made by either a hospital staff member or by RT themselves identifying an eligible CYP when reviewing the hospital systems. Staff interviews generally reported this to be the case. All RT interviewees agreed that NHS staff are the principal agents in the referral process and their willingness and ability to identify suitable referrals is paramount to the success of the service. Feedback from NHS clinicians was overwhelmingly positive in regard to ease and response time. In addition to email, phone calls and face to face referrals one safeguarding team also valued access to a team chat which enables them to check the status of referrals, gain general support/advise, or organise joint visits. *'So, technically we would refer in via email, but obviously it usually happens after they have seen them initially, because we try and get them to come down whilst the young person is in clinic'* (Participant 03-10-27 St Marys).

All sites identified the main referral route as clinicians, mainly from ED or paediatrics, or trauma administrators for the TARN (trauma audit or research network) team in the case of MTCs, calling the office or mobile number or sending an email to their secure inbox. In addition, the MTCs have a dashboard of incoming trauma cases open in the RT office which enables Practitioners to be waiting when the ambulance

arrives. It was suggested that wards are less likely to refer *'Yes, I mean, I don't feel that we utilise Redthread enough but I think that's because we feel that they won't be able to come. I think there is a sort of perception, rightly or wrongly, that they're very much in the emergency department'* (Participant 03-10-41, St Mary's).

The importance of regularly reviewing the ED database as a safety net was also highlighted, particularly after a weekend or evening with no RT cover on site. In addition, '*we also receive referrals via the safeguarding team, or adult safeguarding team*' (Participant 01-02-07 St Mary's). On the *'more rare occasion we get an external referral. So that can be – I've got a good relationship with a few people at other youth work organisations who will flag to me or to someone else they know on the team, that they know someone that they've been working with has come to the hospital, and then we'll try and find out where they are and see if we can see them'* (Participant 01-01-03 St Mary's). Partnership meetings, such as police intelligence briefings and Empower U, the safeguarding hub in Birmingham will also refer from time to time. Close partnership with the sexual health clinic at St Mary's accounted for a significant number of referrals to the team, particularly domestic violence, sexual assaults and exploitation cases, which are usually picked up by the IDVA or YWW.

It was noted that staff turnover, rotation of junior doctors and challenging shift patterns could lead to a lack of continuity, awareness and understanding in clinical staff. *'I think that there's quite a big changeover of the clinicians in the hospital. I think there's quite a lot of new staff on weekends. There's different staff, so it's sometimes quite difficult to make sure that everyone's aware of us'* (Participant 01-04-16 Woolwich). It appears that the newer, less established RT teams find that this turnover impacts referral rates more significantly. Team leaders spoke of the importance of RT staff being consistently seen in all relevant departments. The presence of posters advertising the RT service, with contact names and pictures of staff members, was cited as a useful reminder and a way to familiarise staff. Regular training of new/bank NHS staff was viewed as an essential means of highlighting the work done by RT. Whilst some sites and departments include RT in their inductions for new employees, it was suggested that more training is needed for staff in general wards who may be less cognisant of what the service provides. '…a *huge turnover of staff. Actually, people, then, who are quite key to knowing our work [don't] know our work and know nothing about us. Yes, we're back at a point where we're doing a lot of training to our clinical teams to upskill and to just inform them again of our work and our criteria'* (Participant 01-04-02 Birmingham).

A lack of physical proximity of RT offices to relevant departments was highlighted as a potential barrier to familiarity with clinical staff. Staff in the sexual health department at St Mary's, for example, acknowledged that the dynamic between teams had massively improved since RT was positioned in the same building, *'So, it actually just works so well now; we are literally able to just to refer easily in and out of the service and support each other'* (Participant 03-10-27 St Mary's). However, some teams are positioned away from relevant departments. Physical working space and having the correct working facilities and resources (access to data and support from the hospital staff, timely NHS honorary contracts, etc.), which help ensure everything works well, are key inputs on the ToC and were highlighted by both RT and others interviewed as in need of development. For example, *'I can't be as close to … the ED floor, as much as I would like. I think our office is too far away from A and E. I've said this to a few people …* P*art of that embedding us in A and E, there's got to be a level of … if the hospital wants Redthread, make room for Redthread'* (Participant 01-02-36 Woolwich).

It was suggested that some referrals are missed, or not made until after discharge due to a reluctance of clinicians to refer cases which come in out of hours when they know RT not to be available. Whilst some sites operate an out-of-hours provision, this is not consistently the case.

Consenting process

All teams suggested that they work to a 'staged consent model'. The stages are reflected in the ToC and involve Practitioners '*continually reflecting on what that young person is asking and wanting to do'* (Participant 01-04-04 St Mary's). Initial consent to be contacted by RT will often be gained by referring clinicians, an activity highlighted in the referral stage of the ToC. However, as RT staff hold honorary NHS contacts, they do not require consent to approach CYPs under the age of 18 years. Whilst not mandatory, staff from all sites implied that having discussions around consent and confidentiality with all CYPs at the outset, and often before the risk management plan is completed, is a courtesy which sets them apart from other services. It also helps to build and develop a deeper relationship of trust, which is viewed as the cornerstone of the work they do.

The intention is that CYPs are fully aware of what information will be stored and any circumstances where confidentiality can be breached as soon as possible, especially in regard to any safeguarding concerns. In MTCs, staff suggested that due to the severity of presentation and injury, *'it would be much more young person-led, and then when things got calmer, the consent process would look more like "Do you want to work with us?"'* (Participant 01-04-04 St Mary's). Wider discussions on issues such as data storage and information disclosure following outward referrals will often take place later in the engagement stage of the ToC or when deemed appropriate. For example, '*sometimes, that can get quite difficult, and it can put off young people, I think, a bit, like when you're talking about … so it's got to be quite delicate'* (Participant 01-04-04 St Mary's). If further support is not consented to at this stage, the ToC suggests that support on safety and discharge planning would be delivered.

It was suggested that the issue of consent could be '*a very tense conversation within Redthread teams'* (Participant 01-04-02 Birmingham). Processes can be 'vague'. Due to the lack of a 'proforma of language' (Participant 01-04-04 St Mary's), processes can vary both between and within teams. In addition, whilst it is acknowledged that good practice is to give a card explaining confidentiality and consent and to record verbal consent on contact sheets and hospital systems, this is not always performed consistently. Because RT staff hold honorary NHS contracts, there is no legal requirement to obtain formal consent until the point of sharing personal data to make an outbound referral (unless safeguarding concerns override the need for this). A number of staff members expressed their discomfort with this approach, although they acknowledged that work is underway to standardise the process.

Duration of work

The ToC highlights that there is no ideal dosage for those engaging with YVIP, but typically, those being provided with longer-term support can engage for up to 12 weeks, with a 6-month follow-up. This was consistent with what we heard at the interviews. All practitioners viewed that the service is designed to be a shorter-term crisis intervention, and there did not appear to be any uniform boundaries where the duration of treatment was concerned. Most practitioners felt they were able to offer a flexible, responsive service, meeting the needs of individual CYPs. On occasion, this may include re-engaging with closed cases if the CYP gets back in contact:

> '*We can support out in the community, but we're thinking about the exit plan for that young person right from the beginning. So, try not to get them too attached and relying on us so much because sometimes, we are not the most appropriate service for the young person; sometimes, we are. So,*

it's really important that we're really open, honest and transparent about that from the offset' (Focus group participant).

The YWW at St Mary's and the senior youth worker, with a focus on exploitation at Queen Elizabeth hospital Birmingham, can also keep cases open for up to a year. The Queen Elizabeth hospital Birmingham also has the benefit of an in-house counsellor to refer to. This may reduce the duration of treatment from YVIP workers in some mental health–related referrals.

Table 14 presents data from the RT case management system on the number of days RT staff spent engaging with CYPs. It shows a broad range in lengths of engagement, from up to a month to over one year. There is no clear pattern of the average length of engagement being longer in MTCs, although this will be affected by the number of open cases and small samples. It should be noted that this data does not reflect the length of a hospital stay, as RT staff will engage with CYPs post-discharge and that there may not be active engagement with a CYP during this period, but this will reflect the time from opening to closing a case.

Table 14. Length of engagement with children and young people by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
1–31 days	3	9.38	2	5.6	9	17.6	3	6.4	3	7.7
32–60 days	6	18.75	2	5.6	17	33.3	7	14.9	10	25.6
61–90 days	6	18.75	4	11.1	6	11.8	9	19.1	4	10.3
91–180 days	6	18.75	6	16.7	12	23.5	13	27.7	15	38.5
181–365+ days	2	6.25	0	0	4	7.8	14	29.8	6	15.4
Open	10	31.25	22	61.1	3	5.9	1	2.1	1	2.6
Total	**32**	**100**	**36**	**100**	**51**	**100**	**47**	**100**	**39**	**100**
Average days (closed cases)	**98.9**		**79.2**		**84.5**		**108.1**		**145.4**	

Regarding the number of contacts YVIP workers make with CYPs or on their behalf, Table 15 shows this for each hospital site. It shows more contacts tend to be made in MTCs, which might be expected given their longer hospital stays and possibly more complex needs. However, in all hospitals, there is a wide range in the number of contacts made.

Table 15. Contacts per child or young person per hospital site (engaged children and young people)

	QEW	UHL	STM	QEB	BCH
Individual CYP in data	32	36	51	47	39
Contacts made	392	247	740	878	715
Average contacts per CYP	12.3	6.9	14.5	18.7	18.3
Range of contacts	1-51	1-21	1-54	1-93	1-56

Intervention activities

It was suggested by one member of the YVIP team that having one ToC for both MTCs and local hospitals was not useful or fit for purpose due to the significant differences seen in, for example, target audience, length of inpatient stay and activities engaged with.

Despite this, all staff agreed that 'discussing and prioritising needs and risks' would be an initial priority for all cases. Short-term crisis support activities, such as advocacy, exploring existing links and signposting to statutory and community agencies/activities, also appear to be consistently delivered by all sites in the initial stages of engagement and continue throughout the CYPs' involvement with RT. Providing emotional support, showing ongoing concern and compassion, and building a trusting relationship would also be consistent features throughout.

As described in earlier sections, practitioners in MTCs say they are able to engage in activities, such as purchasing food and playing cards on the wards, which help to build a foundation of trust and are used as a mechanism for a wider conversation about their needs and risks. Practitioners will often go beyond the initial crisis support and safety planning to address further issues the CYP may be facing whilst the CYP is still admitted. Examples of potential activities include writing CVs and applying for education, funding, benefit support, etc.

The RT case management system records the areas of work undertaken by YVIP staff and CYPs during each contact. In most cases, each contact involves work on a number of different areas as opposed to a single issue. Those listed in the system are:

- Accommodation
- Alcohol and drugs
- Attitudes
- Crime and offending
- Emotional and mental health
- Education, training and employment support
- Family and peer relationships
- Finance
- Health
- Victimisation

Table 16 below shows the frequency of the different areas of work for the contacts YVIP workers had with children (or on their behalf) at the five hospital sites. In all cases, the most common area of work is a child's emotional and mental health.

The table lists those areas of work which are common across the five sites. The records for the two Birmingham hospitals include other areas of work, including exploitation, safeguarding and counselling sessions, which reflect the different make-up of the staff teams in these sites.

Table 16. Areas of work with children and young people by hospital site per contact (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Accommodation	19	2.9	8	2.0	134	9.6	84	9.2	38	5.9
Alcohol and drugs	5	0.8	2	0.5	31	2.2	2	0.2	4	0.6
Attitudes	15	2.3	21	5.2	120	8.6	5	0.6	2	0.3
Crime and offending	45	6.9	17	4.2	119	8.5	68	7.5	33	5.1
Emotional and mental health	263	40.2	140	34.6	375	26.8	481	52.9	374	57.8
Education, training and employment support	75	11.5	43	10.6	145	10.4	89	9.8	49	7.6
Family and peer relationships	80	12.2	102	25.2	118	8.4	69	7.6	41	6.3
Finance	3	0.5	1	0.2	25	1.8	6	0.7	1	0.2
Health	61	9.3	32	7.9	249	17.8	66	7.3	96	14.8
Victimisation	88	13.5	39	9.6	82	5.9	39	4.3	9	1.4
Total[13]	**654**	**100**	**405**	**100**	**1,398**	**100**	**909**	**100**	**647**	**100**

In contrast, children in local hospitals were reported to be typically on site for a maximum of 12 hours and are, therefore, frequently discharged before being seen by RT. Practitioners acknowledge that building initial rapport is, therefore, more challenging, *'I think our intervention often starts in that place, like where you're almost convincing a young person to avail of the service. Whereas I think face to face, it's a lot easier to maybe convey that message and get them to invest in what you're trying to support or give/offer as a means of support'* (Participant 01-02-36 Woolwich). It was suggested that the majority of the work, in some cases, is attempting to contact these CYPs and liaising with any existing support network without seeing or speaking to the CYP. This can make activities listed on the ToC, such as joint planning and identifying strengths, needs and aspirations, unfeasible. Staff do, however, in other cases, potentially have more space than in MTCs to place more focus on sustained, longer-term support in the community, with activities described aligning very closely with those on the ToC.

Case management data provided by RT report the methods of communication used in each of the contacts made with a CYP (or on their behalf), for example, with other professionals. The methods listed in the data are presented in Table 17 below and show variation across the hospital sites.

[13] Data is per contact, so totals are greater than data per child

Table 17. Method of contact by hospital site (engaged children and young people)

	QEW		UHL		STM		QEB		BCH	
	No.	%	No.	%	No.	%	No.	%	No.	%
Email	67	11.3	23	6.4	185	15.9	149	8.9	217	17.4
External site	11	1.9	62	17.2	55	4.7	343	20.4	342	27.4
Face to face	16	2.7	56	15.5	55	4.7	153	9.1	71	5.7
Hospital site	275	46.4	81	22.4	313	26.9	459	27.3	150	12.0
Letter	0	0.0	0	0.0	5	0.4	0	0.0	1	0.1
Telephone call	151	25.5	85	23.5	328	28.2	334	19.9	281	22.5
Text	68	11.5	49	13.6	193	16.6	214	12.7	154	12.3
Video call	5	0.8	5	1.4	28	2.4	27	1.6	34	2.7
Total[14]	**593**	**100**	**361**	**100**	**1,162**	**100**	**1,679**	**100**	**1,250**	**100**

Heterogeneity and standardisation

A number of staff members suggested that consistency of working practices within and between teams is an issue in RT as a whole. Whilst there are clearly consistent elements, as reflected in the ToC, these are not always delivered and monitored consistently. It was suggested that the service expanded very quickly, while processes and procedures did not develop at the same rate, and that the ToC originally developed for MTCs had not, until recently, been adequately adapted to reflect the method by which the intervention is delivered in local hospitals.

Whilst the inconsistencies are viewed by some as an important area to standardise, there is also a widely held belief by staff at all levels within the organisation that the most valued and unique components of the intervention are the ability to be youth-led, flexible and responsive to the varying needs of the CYPs. Some staff felt that given the complexity of the challenges this programme seeks to address, not only is it difficult to communicate the breadth of the intervention activities RT provide, but some pieces of work are never seen or acknowledged, as until recently, they have not been recorded on data management systems. This may have been limited by only inputting case notes for 'open' cases on the data management system Lamplight and relying on paper contact sheets for those cases that had not yet consented to engage with the service.

It was noted in interviews with RT staff that were conducted for this study that there could be a significant time lapse experienced between presentation at the hospital and being contacted by RT. This is particularly the case in local hospitals, where CYPs typically stay for shorter periods, so it is not unusual for initial contact to take place after they leave the hospital. This calls into question how relevant the fundamental concept of a 'reachable moment' is in these instances. In MTCs, especially when CYPs are admitted, they tend to stay longer, so they more often see an RT youth worker whilst still in the hospital.

[14] Data is per contact and so totals are greater than data per child

Data capture and reporting outcomes

Limited quantitative data capture around outcomes was an area highlighted by one community interviewee as an area in need of significant improvement. Whilst it was suggested that they, as funders, receive subjective qualitative case studies, they would like to see more routine, robust performance and outcome data in order to make future funding justifiable. It was suggested that other commissioned services are much better placed to provide evidence as to the impact of their service than RT is. This obstacle was in part attributed to influences outside RT's control and a reluctance by the NHS to provide impact data.

In the RT staff focus groups and interviews conducted late in the pilot study period, it was noted that RT itself do not routinely gather reattendance data on CYPs they have worked with beyond those who reattend for violence-related reasons. However, staff were aware that CYPs more often reattend for mental health reasons linked to the initial violent incident and also driven by long waiting lists for services such as Child and Adolescent Mental Health Services. The researchers also explored with RT staff whether the relationship established by youth workers with CYPs was the reason they might reattend hospital, but this was not thought by staff to be the case.

Capturing the right data to 'support tracking CYPs' engagement and progress so youth workers know if they are on the right track' has been identified as a key input on the ToC. A new system called Thread was rolled out service-wide in April 2023, which hopes to address short-comings in this regard. All referrals, contact details, risk assessments, safety plans and case notes are now recorded in one system rather than on multiple forms and spreadsheets. In addition, it records the onward referrals YVIP workers make to other services and the areas of need these relate to.

Discussions regarding the 'outcomes' on the ToC also generated some interesting insights in interviews and focus groups. One of particular controversy was for CYPs to be 'happy'. Not only was this viewed as far too subjective, '*Being happy and healthy might mean the ability to manage PTSD symptoms, for example, and that's a very different happiness to somebody else'* (Focus group participant), but also too vague to be able to measure meaningfully. It was suggested that this needs to be broken down to make more sense.

Furthermore, it was noted by some RT staff in interviews that reattendance as an outcome can be problematic when it can indicate improved health-seeking behaviour, for example, '*maybe if [the] young person's coming back to hospital it's because they're more engaged with services and actually they've had a positive experience and maybe before, they would have got themselves hurt and then not wanted to go to a hospital because they didn't trust professionals'* (RT central team staff member). This further underscores the need for detailed reattendance data for RT and its commissioners to understand why CYPs might be returning to hospital EDs.

Follow-up, onward referral and engagement with signposted services

As discussed above, a consistent task of all teams across sites involves signposting referred CYPs to relevant services and advocating for their care. The range of services is vast, depending on what is available in the local area and the individual needs of the CYPs. Despite this, we saw a lot of consistency in the types of organisations CYPs are being signposted to. These range from practical support, for example, education/career guidance and housing support, to organisations that provide extracurricular activities, such as 'y*outh clubs or sports activities … we've referred people to kickboxing gyms, boxing gyms, football, Sports for Life. Yeah, youth centres that they're close to. So, it really ranges to whatever's relevant at the time'* (Participant 01-01-08 Birmingham).

Referring to and supporting CYPs to secure safe housing was raised as one of the most time-consuming and demanding processes, as was referral to mental health services, such as counselling. Birmingham has been able to fund a full-time in-house counsellor, which has been reported to be of huge benefit due to the high need for this support in the CYPs they see. The introduction of the NHS role of mental health well-being practitioners is also thought to be beneficial. Some teams spoke of the lack of community mental health support in addition to long waiting lists. Given the significant number of mental health presentations, many feel it would be an advantage to have a counselling provision at more sites, '*there [are] very few places that we can refer that … meet the standard of what I want in terms of where we're referring these young people that have experienced quite deep traumas on to. The worst thing as a youth worker is to pass a young person on to an organisation that's not going to hold them in the same way that we did*' (Participant 01-02-36 Woolwich).

Staff do attempt to monitor the take-up of outward referrals in line with intermediate outcomes featured on the ToC, particularly if ongoing work is to be done around specific risks. However, as previously noted, there are significant challenges in gathering six-month follow-up data from discharged patients, so feedback can be limited. This lack of data appears to be an area of marked concern throughout the organisation and was also cited in partnership interviews. It was suggested that this is a widespread limitation throughout services in this area provided by organisations other than RT. Whilst it may be, in part, a positive sign that the CYPs are moving past a period of crisis, where they are no longer in need of the interventions that organisations such as RT provide, it may also be due to practical difficulties in contacting CYPs post-discharge.

Supervision, training and support

Whilst having a youth work qualification is not a prerequisite to becoming a YVIP practitioner for RT, all staff, without exception, had joined RT with a background in the youth-based community sector. This is in line with key inputs highlighted in the ToC. Previous areas of experience include homelessness, education, counselling, substance misuse, youth offending, hostel work and work in other charities for CYPs. The multidisciplinary nature and broad skill set of the team members were viewed by all as a considerable advantage for the YVIP teams, who are able to draw on a wealth of experience and gain advice and support from both within their teams and the wider group of RT YVIP workers. Both practitioner and programme coordinator staff spoke of having access to group messaging, which is useful for sharing ideas/resources, getting advice from those in other teams and attempting to standardise processes across sites. They also spoke of the importance of regularly sharing information on cases within their teams so that no one practitioner feels that they are the only professional 'holding the risk'.

In relation to supervision and corresponding to a further key input in the ToC, we were told that YVIP practitioners should receive case oversight on a weekly basis with their team leaders, case management meetings on a fortnightly basis and group clinical supervision with an external supervisor every month. In addition, they could request one-to-one support as and when needed from their team leader or programme manager. There was some ambiguity about the consistency with which supervision was received between sites and the quality of that received. In particular, interviews highlighted that the external supervision in place for much of the evaluation period was ineffective, and efforts were being made to change to another system: '*The current clinical supervision set-up that we have just doesn't meet their needs, and they don't feel supported. It doesn't give people the space that they need, and I think that support has really been missing. And I know that – like, people are aware that it's a serious problem'* (Participant 01-04-11 St Mary's).

Some interviewees suggested that 'in this environment, we need to go above and beyond. And I think that would help to go a long way in terms of staff retention and making people feel more valued than they currently feel' (Participant 01-02-36 Woolwich).

It is acknowledged that the retention of staff can be a challenge, and there is a reported high turnover of RT practitioner staff in all of the hospital sites. The duration in post of those interviewed varied between three months and five years. Some interviewees suggested that burnout rates are high, *'Staff retention isn't great because people are knackered'* (Participant 01-04-02 Birmingham), especially when staffing levels are low. One proposed that due to the intensity of the role, it is not advisable to stay in position for much more than two years. It was also proposed that after gaining experience in this area of work, people often move to local authority job roles where they can expect better pay and more security.

RT was also described by interviewees as an organisation in transition. During the course of the evaluation, their long-standing CEO and Founder left, and the replacement postholder resigned soon after being appointed. In addition, there were a number of changes in senior management and front-line team members. As the makeup of the teams is presumed responsible for maintaining effective working relationships with other stakeholders and the smooth running and cohesion of a service whose main asset is its employees, this is an ongoing issue. A further consequence of this concerns the frequent delays in getting NHS honorary contracts, which stalls new workers' access to systems and prevents them from seeing CYPs without supervision.

A number of interviewees suggested that an area which can affect staff contentment concerns a perceived '*disconnect between, sort of, like, head office and … the front-line staff. Like, we don't see them that much, and I think there's a feeling that they just don't really, kind of, understand what we do; like they definitely don't really understand what we do do'* (Participant 01-05-11 St Mary's). The research team was told that higher management rarely visits sites and does not always seem to understand the nuances of the roles within them. The impact of this, coupled with the rapid development of the service and, at times, the sluggish response when changes were needed, has left some staff feeling frustrated with inappropriate processes and undervalued by higher management. This was communicated less in the Birmingham sites, which stated that they work more autonomously.

Despite the reported high levels of stress and often difficult working environment, the vast majority of RT interviewees appeared to feel positive about their work and the level of training, support and supervision they received. Staff overwhelmingly felt that they were confident in their role and in those around them and described their immediate colleagues as supportive and reliable. However, diversity in age, gender, race, experience and perspectives of team members was spoken about as an area of development needed across RT as a whole.

NHS staff interviewed also provided feedback on their RT YVIP colleagues, which was, without exception, positive. '*So, they have been amazing; they are just very open, very supportive and just very … and also just very approachable, and I love that about them because I think that is so important with young people'* (Participant 03-10-27 St Mary's). They were described variously as professional, highly skilled, open, supportive, organised and engaging. NHS staff interviewed further stated that staff can be relied upon and, most importantly, trusted to be a safe pair of hands even when busy. This feedback chimes with the crucial change mechanism of care and compassion which is needed to build and deepen trust with the CYPs they engage with. The service was regarded as collaborative and invaluable, not just for the CYPs but also for the staff and staff morale. One area for suggested improvement from staff in St Mary's related to

communication, feedback and documenting. Whilst some of the workers are very good at handing over and updating NHS staff on risk, it was implied that some are less likely to do so.

In regard to staff development, RT runs a core training package, which all new employees attend during their induction period. This is delivered in-house and covers topics such as motivational interviewing, data recording, risk assessing, intervention planning, violence against women and girls and trauma-informed practice. There is also an expectation that staff in all roles attend level 3 safeguarding training sessions provided by the NHS. Despite this being viewed as mandatory training, it is unclear at what point new staff receive it. Managers stated that whilst there is little funding for personal development, they will try where possible to facilitate and encourage individuals to explore areas of interest during professional development days and through flexible working hours. *'We would offer people training to focus on what they're interested in, so it could be motivational interviewing, it could be CBT, it could be that people … we might not pay for it, but people, if they want to do more clinical-based stuff, then train as counsellors or psychologists or things that … we would work that into their contract, and whether they need part-time or something to be able to do it, so it again depends on what the Youth Worker would want'* (Participant 01-01-04 St Mary's).

Outcomes regarding reattendance

RT data on reattendance to London hospitals within one year were analysed. In the period February 2021 to November 2022, there were 41 attendances, with at least one reattendance, at the three London hospitals considered in this study. This included 23 for St Mary's MTC, 10 for University Hospital Lewisham and eight for the Queen Elizabeth Hospital Woolwich. The reason for the initial presentations to the hospital mirrors the data in Table 8 above for all five hospital sites, showing that the most common reason was assault, particularly at St Mary's MTC, with mental health reasons being more common at the two local hospitals (Lewisham and Woolwich). Similarly, the reasons for referral to YVIP mirrored the findings from Table 9, with the most common reason at St Mary's being assault and the reasons at Lewisham and Woolwich being more varied, including the risk of harm and other forms of violence.

Considering the reattendances, in total, there were 127 reattendances in this period from the 41 initial attendances. The range for these was 1–30. This data was very skewed by two initial attendances to University Hospital Lewisham, which had 26 and 30 reattendances, respectively. Excluding these two cases, the range of reattendances was 1–7. The most common reason for reattendance was mental health concerns (including overdose and self-harm), although this does include the two cases with unusually high levels of reattendance. Reattendances for mental health reasons were more common at the local hospitals, as might be expected given the reason for the initial attendance. A further 21 reattendances were for violence (including various forms of assault) and occurred mostly at St Mary's and the Woolwich local hospital. A further 21 reattendances were for wound care needs, almost all related to St Mary's.

Regarding the NHS Trust data considered in the quantitative impact analysis, we identified 1,391 children eligible for inclusion in the study across the Lewisham, Woolwich and St Mary's sites, of which 1,054 interacted with the YVIP service in some capacity (engaged or supported). This treatment group was compared with a historical control group of 337 children across the three sites. In our primary analysis (supported and engaged vs historical controls), after adjustment, we found no statistically significant difference in the risk of hospital reattendance between those who were either supported by or engaged with the YVIP intervention compared to historical controls at Lewisham and Woolwich. However, at St Mary's MTC, we did find a statistically significant increased risk of reattendance for those children in the

treatment group who worked with the RT YVIP. This correlation was not something we had anticipated. When undertaking subgroup analysis by sex, we noted that this association was more pronounced in male children who underwent the intervention (engaged group and supported + engaged groups) compared to females.[15] As noted above, as a pilot study, our main concern was to assess the extent to which data would be available for a full efficacy study and the quality of that data. The findings from the analyses undertaken can only show correlations between datasets rather than reach causal conclusions.

Unadjusted models results – comparing the risk (and odds) of hospital reattendance for the treatment and historical control groups

When comparing children supported by and engaged with YVIP with the historical control group for the Lewisham and Woolwich local hospitals, there was no statistically significant difference in the IR (0.88: 95% CI 0.66–1.15) or OR (0.82: 95% CI 0.59–1.15) for the odds of reattendance to the hospital within a 12-month period. When considering just the supported and engaged groups, there continued to be no significant difference between the groups.

In the St Mary's data, the same analysis showed substantially increased odds of any reattendance (3.22; 1.46–7.10) in the intervention group (supported and engaged) compared to the historical control group. This appeared to be driven by the increased odds of reattendance in the engaged long-term support group when compared to the control group (3.96: 1.78–8.78). However, when we examine the number of reattendances (count) as our outcome (rather than the binary admitted/not admitted variable), we note that the IR is lower and non-significant in the equivalent analysis (1.82:0.86–3.87). Table 18 presents these unadjusted findings.

Table 18. Unadjusted model main findings – pairwise associations between different treatment groups
The reference group is historical control. Red colouring indicates a statistically significant result

Site	Comparison	IR (95% CIs)	P-value	OR (95% CIs)	P-value	Comparison (no. of events)
Lewisham and Woolwich (QEW and UHL)	Supported vs historical control	0.87 (0.64–1.19)	0.38	0.74 (0.51–1.08)	0.12	77 vs 105
	Engaged vs historical control	0.89 (0.62–1.27)	0.51	0.97 (0.63–1.50)	0.89	52 vs 105
	(Supported + engaged) vs historical control	0.88 (0.66–1.15)	0.34	0.82 (0.59–1.15)	0.25	129 vs 105
St Mary's	Supported vs historical control	1.14 (0.44–2.98)	0.793	1.69 (0.71–4.06)	0.24	26 vs 7
	Engaged vs historical control	2.11 (0.99–4.47)	0.052	3.96 (1.78–8.78)	0.001	125 vs 7
	(Supported + engaged) vs historical control	1.82 (0.86–3.87)	0.12	3.22 (1.46–7.10)	0.004	151 vs 7

Adjusted model results – comparing the risk (and odds) of hospital reattendance for the treatment and historical control groups

[15] The adjusted model (with all covariates) could not be run for the subgroup analysis. One of the coefficients with the full model could not be estimated when running the regression for the subgroup with all covariates.

To account for the impact of possible confounders, we also undertook an adjusted model,[16] and the key findings are outlined in Table 19. Similarly, in the adjusted analysis, we found no statistically significant difference between the groups (IR 0.89:0.68–1.16 and OR 0.80: 0.56–1.15) in Lewisham and Greenwich Trust hospitals. However, in the St Mary's results, after the adjustment, we noted a general increase in the effect size, with a statistically significant finding indicating that the children who underwent the RT intervention had an increased risk (IR 2.09:1.09–4.00) and odds (OR 3.55: 1.59-7.90) of reattendance within one year. For example, in the St Mary's supported vs control analysis, when calculating the IR, we can see an IR of 1.36 (0.64–2.89). This implies that the overall result is non-significant when accounting for the covariates age and sex. However, the row below for age and sex refers to the relationship between that specific covariate and the outcome whilst controlling for the effects of other variables in the model. For example, age has an IR of 0.75 (0.61–0.92), which means that as the age of CYPs goes up by one year in this analysis, their risk of reattendance reduces by 25%. Additionally, compared to females, males have an 83% reduced risk of reattendance (IR 0.17; 0.08–0.33). However, these results should be interpreted with caution. They essentially suggest that as age goes up, the frequency of reattendance reduces and that females in this cohort attend hospital more frequently.

Table 19. Adjusted model main findings – pairwise associations between different treatment groups

The reference group is historical control. Red colouring indicates a statistically significant result Lewisham and Woolwich data adjusted for age, sex, ethnicity and deprivation. St Mary's data adjusted for age and sex.

Site	Comparison	IR (95% CIs)	P-value	OR (95% CIs)	P-value	Comparison (no. of events)
Lewisham and Woolwich (QEW and UHL)	Supported vs historical control	0.92 (0.68–1.24)	0.596	0.77 (0.51–1.15)	0.196	77 vs 105
	Engaged vs historical control	0.82 (0.58–1.17)	0.27	0.89 (0.56–1.43)	0.644	52 vs 105
	(Supported + engaged) vs historical control	0.89 (0.68–1.16)	0.384	0.80 (0.56–1.15)	0.227	129 vs 105
St Mary's	Supported vs historical control	1.36 (0.64–2.89)	0.419	1.95 (0.79–4.84)	0.148	26 vs 7
	Engaged vs historical control	2.43 (1.27–4.63)	0.007	4.42 (1.97–9.92)	0 (<0.001)	125 vs 7
	(Supported + engaged) vs historical control	2.09 (1.09–4.00)	0.027	3.55 (1.59–7.90)	0.002	151 vs 7

Subgroup analyses by sex

When we undertook the subgroup analyses by sex (Table 20), we identified that in line with the key findings (unadjusted and adjusted models above), in Lewisham and Greenwich Trust across both male and female children, there were no statistically significant different odds of reattendance between the groups. In St Mary's, we identified that there were no statistically different odds of reattendance in the female cohort (IR 1.13: 0.39–3.26 and OR 1.62: 0.49–5.32). However, in the male cohort, the risk was statistically significantly increased (IR 4.64: 1.34–16.01 and OR 5.67: 1.76–18.31). It is important to recognise that this analysis is not

[16] Full model details are found in supplementary Tables S1 and S2 presented in the appendices.

comparing males and females. To interpret this correctly, in the female cohort, females who were engaged and supported at St Mary's, when compared to female controls at St Mary's, were not significantly different in their risk of reattendance. Meanwhile, males at St Mary's who were supported and engaged had an increased risk of reattendance compared to male controls at St Mary's. When we examined the supported children (short-term contact with RT) to their controls, this risk increase did not persist.

Table 20. Subgroup analysis by sex (unadjusted model) – pairwise associations between different treatment groups

The reference group is historical control. Red colouring indicates a statistically significant result

Site	Sex	Comparison	IR (95% CIs)	P-value	OR (95% CIs)	P-value	Comparison (no. of events)
Lewisham and Woolwich (QEW and UHL)	Male (N = 325)	Supported vs historical control	0.94 (0.60–1.48)	0.791	0.75 (0.45–1.26)	0.277	36 vs 47
		Engaged vs historical control	1.21 (0.71–2.09)	0.482	1.15 (0.59–2.24)	0.677	19 vs 47
		(Supported + engaged) vs historical control	1.02 (0.68–1.53)	0.932	0.85 (0.53–1.37)	0.508	55 vs 47
	Female (N = 261)	Supported vs historical control	0.87 (0.58–1.31)	0.514	0.77 (0.44–1.37)	0.380	41 vs 58
		Engaged vs historical control	0.65 (0.42–1.02)	0.062	0.69 (0.38–1.25)	0.220	33 vs 58
		(Supported + engaged) vs historical control	0.77 (0.54–1.10)	0.150	0.73 (0.45–1.20)	0.217	74 vs 58
St Mary's	Male (N = 692)	Supported vs historical control	2.16 (0.59–7.92)	0.248	12.68 (0.76–9.38)	0.124	18 vs 3
		Engaged vs historical control	5.62 (1.63–19.31)	0.006	7.05 (2.17–22.85)	0.001	103 vs 3
		(Supported + engaged) vs historical control	4.64 (1.34–16.01)	0.015	5.67 (1.76–18.31)	0.004	121 vs 3
	Female (N = 113)	Supported vs historical control	0.91 (0.25–3.39)	0.893	1.04 (0.27–4.05)	0.958	8 vs 4
		Engaged vs historical control	1.25 (0.42–3.73)	0.689	2.03 (0.59–6.93)	0.260	22 vs 4
		(Supported + engaged)	1.13 (0.39–3.26)	0.826	1.62 (0.49–5.32)	0.431	30 vs 4

		vs historical control					

As stated previously, these outcome analyses are not the main aim of the study and cannot reach causal conclusions about the effect of the YVIP.

Revised theory of change

The interviews and focus groups completed with all groups, but in particular, with RT staff, allowed the research team to prepare a revised ToC for the RT YVIP.

The ToC developed separately by Dartington Service Design lab and presented above was thought to be over-complicated by most staff, and some sites thought that it blurred what was actually going on. Furthermore, we have theoretical concerns with the underpinning of the activities to which CYPs are being navigated. That is to say, many of them will be group interventions, such as education, training, group therapy, addiction services and sports interventions. These interventions may be problematic and cause peer effects, such as those reported by Dishion et al.[28]

With this in mind, we have drafted a simplified ToC below. This outlines the activities described by RT staff. These consist of engagement, assessment, planning, disengagement and follow-up. These activities require a range of inputs, which are shown running across the intervention and consist largely of support, supervision and training based on a set of assumptions regarding the population and access to materials. The mechanisms are then shown as being trust, relationship building and signposting. In essence, the activities undertaken within the YVIP allow workers to create a trusting relationship with CYPs who enter hospitals and with professionals within hospitals and in other organisations. These relationships mean that YVIP staff can help improve the immediate safety of CYPs, utilising the opportunity of the teachable/reachable moment and linking them up with services which can support them in the medium and long term. The short-, medium- and long-term outcomes are engagement with services; improved support with education, health, employment, housing, etc.; and, ultimately, a reduced risk of experiencing serious youth violence or exploitation. Overall, CYPs should have a reduced risk of experiencing serious youth violence or exploitation and a reduced risk of adverse health outcomes as a result of their contact with RT by way of navigation to individual attention rather than in groups. This will reduce exposure to dangerous peer effects, which we suspect are negative for the CYPs involved.[28] We believe that this revised model clarifies the YVIP process and removes much of the duplication within the original. Notably, the 'happiness' outcome has been removed as being too difficult to operationalise and not being clearly in the scope of the intervention.

YVIP revised theory of change

Activities	Mechanisms	Outcomes	
		Short term	*Intermediate*
Referral ● Via NHS or RT staff . ● RT identify (through hospital systems or staff) an eligible CYP. **Engagement – based on CYP's consent** ● Safety and discharge planning. ● RT develop a 'network of support' and makes safeguarding. referrals as necessary **Joint assessment of risks and needs** ● The CYP and RT discuss and prioritise needs, risks and approaches. ● RT involves relevant services from the 'network'. **Planning, actioning and support** ● Priorities are jointly set, and a plan is created to address needs. ● The CYP attends meetings with services. ● The CYP discusses next steps with RT. **Positive disengagement** ● Joint agreement on ongoing engagement with services. ● RT and the CYP reflect on the distance travelled. **Follow-up** ● RT makes contact with the CYP six months on to assess needs and risk. ● Where necessary, RT works with the CYP individually to deal with risk or re-engage with services.	The ***1:1*** relationship with an RT youth worker The CYP begins to trust RT youth workers and experience care, compassion and support. CYPs are actively signposted to services that can support them at an ***individual*** level.	CYPs identify or learn about their needs, strengths and long-term aspirations – including their health needs. CYPs see models of positive engagement with services and experience this for themselves. CYPs increase awareness of their emotions and reactions and develop strategies to manage these.	CYPs have a better network of support from relevant agencies. CYPs are empowered to make informed and appropriate decisions in relation to aspects of their lives that will have positive outcomes, i.e. engagement with education, health, employment, housing, etc.

NHS Staff working in the hospital are trained to support referrals to YVIP.
Youth workers are recruited with experience in working with CYPs impacted by violence and trauma – they will blend bespoke casework and quasi-therapeutic sup
Youth workers are provided with clinical and team supervision to help them manage secondary trauma and support each CYP.
Data is collected to support the tracking of CYPs' engagement and progress so youth workers know if they are on track.

RT will have access to hospital records to support the identification of CYPs.
RT staff will be based in hospitals and have access to desk space and all relevant hospital areas.
The majority of eligible CYPs will be willing to work with RT after the first meeting.

Readiness for trial

The following success criteria were defined in the protocol for the study in agreement with YEF and RT. In this section, we report on the extent to which these were met during the pilot study. Due to the way the study transpired, data was not available on all the criteria, and where it was, in some cases, it related to a different population than planned; for example, the treatment group was comprised of closed cases due to the difficulties with recruiting children. As such, these criteria are not RAG-rated, but instead, a full explanation is provided.

1. Project implementation

a) The UoB and RT are able to make a decision on the use of the SDQ/SRDS based on the pilot RT teams ran in August 2022 and use within the pilot study (if the tools are used).

As outlined in this report, a decision was taken by RT, in consultation with YEF, not to use the SRDS tool because of the risks it was felt to pose to the ability of YVIP workers to create working relationships with the children referred.

A pilot of the SDQ was undertaken by RT teams in August 2022 in which it was found to be difficult to complete the questionnaire with children, so this was also not used in the pilot study.

Both these measures were selected by the funder to allow all projects funded in the same grant round to collect standard information on children taking part in the interventions of interest.

b) Intervention actions aligning with the ToC were chosen after the needs assessment.

The ToC review found that the activities outlined in the original ToC do reflect the work undertaken within YVIP. As outlined above, the YVIP ToC has been refined to make mechanisms and outcomes clearer. Interviews with RT staff and a review of the RT case management data show that all CYPs who work with RT as part of the YVIP complete a joint assessment of risk and needs, which informs the work done throughout.

c) RT case management data show that 75% of actions in an agreed action plan with CYPs were implemented in a collaborative process involving staff and children. Interviews with RT YVIP staff and a review of the available RT case management data show that this joint assessment of risk and needs forms the basis of the work done with CYPs, which is recorded on the RT case management system against the identified needs. The new case management system introduced in April 2023 records more detailed data for all CYPs who start work with the YVIP, regardless of the period of time, data which could be available for a future study.

d) Personnel records show all youth workers received adequate supervision and support.

Interviews with RT YVIP staff suggest that internal supervision and case oversight is offered to all practitioners on a one-to-one and group basis. However, the consistency with which this is received varies by site and operational demand. RT was in the process of changing the monthly supervision system, which was delivered by an external supplier, as it was not felt to meet the needs of staff. This, and the ad-hoc nature of some support received, presented challenges when gathering relevant data.

2. Recruitment and retention

a) Recruitment to the intervention and the control group is at least 60% of the planned numbers within the pilot period.

As outlined above, it was not possible for RT workers in the three hospital sites where the study received C&C to recruit children into the study as planned. As a result, the study design was altered to use closed cases for the treatment group compared to a control group of historic cases, for which a RT referral was not made. The total number of children across the three treatment groups was 1,054 (children engaged and supported), which exceeded the planned sample size of 392. The control samples ended up being relatively small in comparison to the treatment group: 337 children across the three sites, only 32% of the number of children in the treatment group. As such, the intended PSM analysis could not be used, and regression models were used instead.

b) The majority of CYPs referred to and accepted onto the RT programme meet the eligibility criteria.

Interviews with RT YVIP staff and a review of the case management data suggest that CYPs engaged or supported by the YVIP do meet the eligibility criteria for it. They are the right age group, and the reasons for hospital presentation and referral to RT match what would be expected from the criteria defined.

c) RT is able to retain at least 60% of children in support within the intervention to work through the action plan.

From the data provided for the three hospital sites where outcome data was provided, we identified 1,391 children eligible for inclusion in the study, of which 1,054 (75.8%) interacted with the YVIP in some capacity (engaged 59.6% or supported 40.4%). In the two local hospitals, more children were supported short-term (63.5%) than engaged long-term (36.5%). This was the other way around at St Mary's MTC, where more than twice as many children were engaged short-term (70.6%) than supported long-term (29.4%).

3. Measurement

a) Hospital reattendance data (primary outcome)

It was possible to gather data relating to this measure, using the amended study design, from three of the five hospitals approached.

In our primary analysis, after adjustment, we found no statistically significant difference in the risk (or odds) of hospital reattendance between those who were either supported or engaged with the YVIP and the historical controls at Lewisham and Woolwich local hospitals. At St Mary's MTC, we did note when comparing the supported and engaged groups with the historical controls that there was an increased risk of reattendance. This association persists when considering only those engaged with RT longer-term. However, when isolated to only those supported (short-term) compared to controls, this did not persist. When undertaking subgroup analysis, we found that this effect was more pronounced in male children who underwent the intervention compared to females at St Mary's. This data considered reattendance at St Mary's for any reason, as opposed to those related to violent injury. This was due to the lack of granular data, as outlined above. Data from St Mary's lacked covariates (only sex and age were available) to include in the analysis, and this is not a causal finding but, instead, an association of these variables. The data available to this study means that it was not possible to assess what might be causing this result (and it is important to note there is a great degree of uncertainty due to these limitations).

b) Mortality data (secondary outcome)

Data on this outcome was provided for the same three sites where NHS data was shared. As noted above, only very small numbers of deaths were recorded, which did not permit further analysis of this data. This should inform the selected outcomes for any future studies.

Summary

The main issues during the pilot study were related to being able to open the study at hospital sites through NHS Trusts and the ability to recruit children into the study.

As has been outlined above, both the research team and RT worked closely with the two NHS Trusts which covered the Birmingham hospitals to get the study opened. This engagement took place over a 12month period. It was ultimately the decision of those two Trusts that they were unable to support the study for various operational reasons.

As discussed in previous sections, the recruitment of children for the evaluation was discontinued after an unsuccessful attempt in three hospitals to obtain consent from participants. Further interviews and two focus groups with RT staff were conducted to explore why this had been such a significant challenge.

Numerous reasons were cited. These included practical difficulties, such as not being able to contact children who had no phone, were going through court processes or, due to the time of year, were not in the country. Timing also seemed to be a barrier due to referral numbers seemingly being lower during the spring and summer months when recruitment commenced. In addition, it was reported that the evaluation as a whole had not been introduced to YVIP teams by the central RT team in a positive way, which raised barriers to activities linked to the evaluation, especially where they clashed with RT's organisational culture.

Overwhelmingly, staff suggested that it was not appropriate to broach the subject with many children. For some, this was due to mental health crises and a perception that children would not have the capacity to consent, and for others, it was seen as inappropriate due to the nature of the trauma that had brought them into contact with RT. *'The key things that really stand out for me is that really difficult issue about asking young people a series of questions when they are highly distressed and traumatised'* (RT central team staff member). It was felt that introducing the concept of the evaluation and administering questionnaires to a cohort of people who have *'to go from one agency to another and tell their story all over again, multiple times'* (RT central team staff member) could interfere with the delicate process of building rapport and trust, which often has to happen very quickly. This was further compounded, given the expectation that consent would be gained during the initial stages of engagement.

Despite the majority of practitioner feedback suggesting that they were well equipped with sufficient information about the evaluation to explain it to children, there was some indication that the manner in which it was initially presented to RT teams may have been a significant barrier to staff buy-in. That is to say that the study was imposed on teams in a top-down way, which, in turn, created resistance. In addition, it was noted that youth workers could be protective of the CYPs they worked with to the extent that it could exclude their voice from evaluations such as this one; for example, '*I think we have guarded that so much that actually some of our practitioners have decided whose voice they can or can't allow to be in that space … there is gatekeeping happening, I think, within the organisation, and I think [it] stifles the voice of the young person'* (RT central team member). Staff stated that a rigorous analysis of the barriers to success has

taken place at all levels. Difficulties with effective internal communication have been cited as having more fundamental factors, such as the lack of a 'learning culture' within the organisation as a whole; for example, 'W*e have to be … outputs, outcomes-driven and therefore what to be put into the machine to get that out the other end. And I … just don't think most of the organisation understands that or, or [has] a desire to even, kind of, begin that journey at the moment'* (RT central team staff member). This was evidenced by the lack of a single point of contact for the evaluation when it began, in part due to staff turnover and changes in the way the central team was organised:

> *'There wasn't really the sort of in-house resource and expertise to prioritise [the evaluation] as much as it should have been … There was no research and impact team at that point… I think, the people who were managing [the evaluation] just didn't really, sort of, have the time to put the work in that was needed at that stage to, you know, maybe introduce the evaluation the right way to [the] team so that we didn't have to, sort of, do all that work later on, thinking [about] how to frame it and, sort of, positioning the voice of the young person'* (RT central team staff member).

Despite suggestions that more having effective collaboration between sites and more flexibility in recruitment timing and using practice forums and youth ambassadors would help mitigate the obstacles experienced, evaluators feel recruitment of children is unlikely to improve in future evaluations without significant culture shifts in the organisation as a whole.

Cost information

Cost descriptions were provided from RT's point of view. The average annual cost of the YVIP intervention for children aged 11–18 years across all 13 RT programme sites was estimated by RT to be £1,096,035. This was partly funded by YEF at a cost of £588,859, with the remaining cost being met from other sources. RT confirms that this budget has been kept during the pilot study period.

These costs, broken down by broad cost categories, are presented in Table 21 below.

Table 21. YVIP pilot study costs

Expenditure type	Mobilisation and pilot cost
Staff	£981,257
Equipment and materials	£31,050
Overheads	£83,728
Expenditure total	**£1,096,035**
YEF contribution	**£588,859**

Conclusion

Figure 4: Summary of feasibility study findings

Research question	Finding
Establish if sufficient numbers of children can be recruited for the evaluation to run a pilot and efficacy study.	The research team intended to recruit eligible children who had been engaged by YVIP at any of the five hospital sites from April 2022. This was estimated by RT to be 150 children. During the period recruitment was open at the three London hospital sites where the study was opened, one child was recruited. As a result, the decision was made to cease recruiting 'active' cases and focus on data collection from closed cases only. The sample size in these datasets exceeded that planned from the recruitment of children. We identified 1,391 children eligible for inclusion in the study across those three hospitals in London. Of these, 1,054 interacted with the YVIP RT service in some capacity (engaged or supported). Engaged refers to those children who worked with the RT YVIP longer-term during and after their hospital attendance, whereas those supported worked with the RT YVIP teams for a shorter period following their attendance at hospitals. This failure to recruit children into the study is a significant issue for any future efficacy study. Whilst an alternative study design was found, this did limit the data that could be collected from the children directly and the interpretation that could be made from the analyses conducted.
Understand how the intervention is experienced by children, RT staff, NHS and community partner staff.	Interviews were held with representatives from each role within RT YVIP teams, the central team, NHS referral and partnership staff and community stakeholders. In this report, we have documented, in detail, the findings of all aspects of the intervention. It proved difficult to recruit community stakeholders into the study, with details of only six people shared and four interviewed. Interviewees reported considerable variation between the operation of YVIP in local hospitals (such as Lewisham and

	Woolwich) and MTCs (such as St Mary's) with regard to the ToC. Interviews with children working with YVIP did not take place, as it was not possible to recruit children into the study.
Explore the feasibility of collecting the SDQ and SRDS as outcome measures for the treatment group.	During the design stage and in consultation with YEF and RT, a decision was made not to collect the SRDS questionnaire. The questionnaire asks children to self-report their involvement in a range of anti-social and criminal activities. As such, it was considered by RT to be likely to negatively impact the trusting and working relationship YVIP workers were seeking to build with CYPs. This was compounded by the fact that the questionnaire was planned to be administered at the start of the YVIP (and also at the end) when the relationship was just beginning. The use of the SDQ was trialled in two sites, with only a very small number (fewer than 10) questionnaires completed and YVIP workers reporting difficulty in finding an opportunity to ask children to complete it. It was subsequently removed from the protocol when the decision was made to no longer recruit children.
Explore how closely the delivered intervention aligns with the drafted ToC.	An initial draft ToC was developed by Dartington Service Design Lab in consultation with RT in an exercise separate from this study. This draft is presented in this report. Qualitative interview and focus group findings were used to assess how well the intervention converges with this model, and changes to the ToC were proposed to reflect these results. A revised ToC is presented in this report.
Establish if data for a PSM control group can be gathered from participating hospital sites and matched with data provided by RT.	Data was not collected on RT active cases but rather on historical cases, as outlined above. Historical control groups were provided by the informatics teams from the two NHS Trusts that opened the study (Lewisham and Greenwich, covering University Hospital Lewisham and Queen Elizabeth Hospital, and Imperial College Healthcare, covering St Mary's MTC) and provided data. However, the number of participants in the control group was small (337 children across the three sites compared to 1,054 in the treatment group) and had a high level of missing data of covariate data. Furthermore, due to the missing data of the covariate data, PSM could not be undertaken. A combination of these two factors accounts for why we were unable to undertake a PSM

	approach. PSM relies on a comprehensive dataset of covariates for both the treatment and control groups to simulate the conditions of a randomised trial effectively. When covariate data is lacking, it becomes impossible to accurately calculate propensity scores, which are essential for identifying and matching individuals based on their likelihood of receiving the treatment under study. This matching process is crucial for minimising biases and ensuring that the comparisons between groups are valid. Moreover, a large control group enhances the quality of these matches, increases statistical power and ensures that the findings are representative and generalisable. Without sufficient covariate data, the fundamental mechanism of PSM fails, undermining the ability to control for confounding variables and thereby jeopardising the validity of the study's conclusions. Hence, instead of PSM, we analysed a series of regression models, adjusting for the available covariate data to account for confounding. Furthermore, reattendance data was provided for all reasons without this being broken down by reason for reattendance. As such, the analyses presented here deal with reattendance for all reasons. In future analyses, where it is possible to obtain more control data, we would recommend the use of a PSM design in this type of quasi-experimental study as an improved form of accounting for the impacts of confounding.

Evaluator judgement of evaluation feasibility

In summary, there are serious concerns about the possibility of undertaking a full-scale evaluation of the RT YVIP service. Some of the key barriers include the following: 1) the recruitment of children into the study has proven to be a significant challenge which will have implications for a large-scale evaluation, 2) this meant it was not possible to include the voices of children in the study through interviews nor to collect standardised data from them using the outcome measures selected by the funder, limiting the ability to understand the operation and efficacy of the intervention 3) the limited number of community stakeholders identified for interview by RT, which limited the perspectives from this group included in the study, 4) the difficulty opening the study at the two NHS Trusts in Birmingham through the C&C process limiting the number of study sites and 5) if we do proceed with a QED (due to the challenges in undertaking an RCT at hospitals with an existing YVIP) in the future, there is a substantial limitation if we are only able to access historical control data, which makes the decision to proceed with a larger study a serious concern. For example, for those sites that have had YVIP in place for some time, particularly in London, the control data will have to come from some years ago, as was the case at St Mary's in this study, potentially affecting its quality and comparability with any treatment sample.

These are issues that have been faced by previous evaluations of the RT YVIP. For example, the London St Mary's hospital evaluation conducted by NPC associates,[18,19] the NIHR-funded evaluation of the YVIP at University College London Hospitals Trust[30] and the LJMU evaluation of the YVIPs across the Midlands (Birmingham, Nottingham and Nottinghamshire)[31] all struggled to engage CYPs in the evaluations, either at all or to any great extent. Regarding measuring outcomes, only the St Mary's NPC associates evaluation,[18,19] and the evaluation of the YVIP in Queens Medical Centre (Nottingham), undertaken by internal NHS research staff,[20] were able to compare reattendance outcomes with a historical control group from the same hospital sites, as was this study, none have made use of external control sites. In general, it has proved difficult for evaluations of the RT YVIP to access NHS data to assess outcomes and to involve CYPs in evaluations. On the other hand, the results of the St Mary's analysis indicating a potentially negative effect on reattendance (with subgroups potentially indicating an increased risk) means there may be a need to learn from the lessons of this pilot evaluation and push for a scaled-up evaluation using similar methods on a larger sample with improved data quality, which would allow for a PSM analysis, for instance, to determine the value (or not) of this intervention.

Preliminary findings related to the link between the ToC and the intervention appear reasonable according to our qualitative work. However, it is important to qualify this finding with the lack of data from children, which is an obvious limitation. We have used the findings from the qualitative work with RT and stakeholder staff to revise and rationalise the ToC.

Interpretation

This study had many limitations. It seems likely that operational RT staff were not introduced to it in a way that made it easy for the research team to engage and deliver positive results.

The key limitations were being unable to recruit children into the study due to YVIP staff deeming it inappropriate to introduce the study to children who had more pressing physical or mental health needs or finding it difficult to create time to outline the study and its requirements, which was affected by staff turnover in those teams. This meant that the study instead had to use closed-case data and that children could not be interviewed, nor could outcome measures (SRDS and SDQ) be gathered from them. Furthermore, we were only able to receive C&C approval to open the study from two NHS Trusts, covering three hospitals in London, despite extensive work and engagement with the other two Trusts in Birmingham by both the research team and RT.

These limitations meant that the data available to the study was limited and so reduced our certainty in the conclusions we were able to draw from it.

In particular, the St Mary's data contained useable data for only age and sex, which limited the covariates we could control for in the analysis. The outcome data recorded reattendance for any reason, and we were unable to drill down into this to examine the reasons for reattendance and whether they would have met YVIP eligibility criteria or not. The St Mary's data did not contain a reason for reattendance, most likely due to the age of the data. The Lewisham and Woolwich data did contain a reason for reattendance, but as this is collected for operational reasons, it records the nature of the injury or illness but not necessarily whether this was caused by violence. Future work on this issue would need to make use of more case-level data to be able to assess the reasons for such injuries. Interviews with RT staff and the analysis of the caseload data suggest that reattendance for assaults or other risks is unusual and that children may be reattending for other reasons, perhaps linked to their initial experience of assault or exploitation. However, it has not been

possible to test this in the hospital data. Finally, the control groups from the two NHS Trusts were defined using different methods (ICD10 codes in Lewisham and Woolwich and SNOMED codes in St Mary's). This limits, to some extent, the comparisons that can be made between the sites, although we believe the control groups contain a broadly similar group of children who would have been eligible for YVIP. Recruitment of more NHS hospital sites could potentially overcome this. However, as we noted from our experience with the hospital Trusts covering the Queen Elizabeth Hospital Birmingham and Birmingham Children's Hospital, not all Trusts are able to provide such data. Ideally, the solution would be to use contemporary controls. However, as we noted, a substantial proportion of contemporary controls, in fact, refused the YVIP service, making them an inappropriate control group.

The work completed in this study on the ToC shows the complexity of the intervention as well as the long casual pathway proposed between the interactions with children as part of YVIP and the outcome measures. A thorough understanding of the effect of this demands the analysis of data which was not available for this study. Furthermore, the analysis of available data showed that the children in the study and the staff are, in general, a poor demographic fit. Most of the children are male (see Table 11), and many are from disadvantaged and ethnic minority backgrounds. In contrast, at the pilot study sites, RT employed practitioners, nine of whom were female and three of whom were male. During the pilot study period, the staff were working with overarching IT systems that were not ideally suited to assist them in their work, and these systems failed to deliver optimal data in a timely way to enable them to engage quickly and effectively.

Future research and publications

It is clear from this report that further research is needed to understand the operation and effect of the RT YVIP and hospital navigator schemes more generally.

We would suggest that future studies first reexamine the outcome measures of interest to stakeholders, in line with the recent report of another hospital navigator scheme.[29] For example, we would suggest that hospital reattendance is further broken down to understand the reasons for this.

Any future study would also need to access more hospitals to increase the power of the analysis undertaken and allow subgroup analysis of variables of interest. From the experience of this study, this would require adequate funding. Whilst the Trusts did provide the study team with data for free, other Trusts discussed with us the need to charge for data gathering. This is likely to be the case elsewhere, especially where the hospital navigator is not a priority research area for the Trust. We understand that negotiating data access would need to be done on a Trust-by-Trust basis, as NHS digital data for England is not able to link to RT data as was required in this study.

We propose publishing these pilot data in a peer-reviewed journal, subject to YEF approval, so as to improve the dissemination of knowledge about these programmes and research issues in the area.

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Appendices

Redthread Practitioner/ Team Leader and Programme Manager Interview schedule

Introduction:

- Introduce yourself
- Introduce UoB - explain that we are independently evaluating the Redthread Programme.

Aims of this interview:

We are here to learn more about what the programme looks like in practice, from your perspective.

This includes:

- What you do when you're at the hospital,
- What your interactions with young people have been like,
- Any follow-up that you have with young people after you speak to them,
- Your expectations around the impact the programme is having or that you hope it will have.

We're not here to judge you or the programme, just to understand it better.

This interview:

- Should take about 30-60 minutes.
- We want to understand your views and experiences.
- No answers are right or wrong.

Anonymity and privacy:

- All information gathered will be in strict confidence.
- If you agree, we would like to record the interview. The recordings will be stored on a drive only accessible to people working on this project, and will be stored under a code (rather than your name).
- We'll delete the recording at the end of the project, but you can also ask for the recording and any notes to be deleted before that – just let us know.
- We won't share what you have told us with Redthread.
- When we write up the interview, you won't be identifiable in any reports.
- If at any point you feel uncomfortable or prefer not to answer a question, just say so.
- You don't have to take part, and you can end the interview at any point, without giving a reason.

Before beginning the interview

- Any questions?
- Are you happy to proceed with the interview?

[switch on recording]

- **Sign consent form**
- Now that we're recording, can you confirm again that we have discussed the interview and how any data will be stored, that you understand you can stop the interview at any time without giving a reason, and that you are happy to continue?

Context

- How did you get into working for Redthread?

○ How long have you been working for Redthread?
○ Have you done anything like this before?
○ How have you been finding it so far

Target Audience

How many people roughly have you engaged with so far?

● Can you describe what the people you have engaged with have been like? (see prompts below)
○ Age range? Gender? Reason for present at ED e.g. assault injuries, self-harm, substance abuse etc.
● How are you identifying the people to talk to?
○ Are NHS staff referring them?
○ Do you approach anyone yourself?
○ [if yes] Is there any difference between the types of people that you approach and the types of people NHS staff refer? Why do you think that is?
● Do you think there are people coming into the hospital that could benefit from the programme but you aren't getting to speak to?
○ What is limiting them from being included?

Interactions with patients

● Can you walk me through an interaction between you and a person you're supporting? Start from when you introduce yourself to them, what does that look like?
○ What happens next?
○ Could you tell me more about the nature of those conversations?
○ Which resources/ services are you signposting to?
○ Do you use the same approach with all the people you speak to?
○ Do you have any materials or resources you use?
○ What happens at the end of the interaction?

We would like to cover the following stages: initial engagement with the YP, getting their consent to engage and share data, the conversation, any sign-posting to services/extra support. Also good
to understand how the experience might differ depending on the YP they help.

● What happens after the interaction?
○ Do you make any notes or record any data?
○ Is there any follow-up you have to do at the hospital?
○ What about after the hospital? Do you have any contact with the young person? What does this look like? We'd be particularly interested in the support the YP receives going forward, and (if there are different levels) how that decision is made.

Training and supervision

●What training have you had? Do you feel that this has been adequate to be confident in your role?
●What does the supervision you receive look like? How often do you have it and who with?
●Do you ever receive group supervision to explore ways you and your colleagues deliver the programme and to get support and advice?

Challenges

● Have you encountered any stumbling blocks when conducting your role?
●Have there been any factors that have limited your ability to carry out your role?
●Have you been facing any challenges in supporting young people in this way?
●Are you aware of anything that's getting in the way of achieving impact through this intervention?

Close

Was there anything else that you wanted to discuss that we've not

yet talked about?
Thank them for their time and check whether they have any questions

Redthread Practitioner/ Team Leader and Programme Manager Interview schedule

Programme co-ordinator interview schedule

Introduction:

● Introduce yourself

● Introduce UoB - explain that we are independently evaluating the Redthread Programme.

Aims of this interview:

We are here to learn more about what the programme looks like in practice, from your perspective.

This includes:

● Your job role- what you do on a day to basis to support the Redthread Programme

● Your Interactions with other Redthread team members

● Your expectations around the impact the programme is having or that you hope it will have.

We're not here to judge you or the programme, just to understand it better.

This interview:

● Should take about 30-60 minutes.

● We want to understand your views and experiences.

● No answers are right or wrong.

Anonymity and privacy:

● All information gathered will be in strict confidence.

● If you agree, we would like to record the interview. The recordings will be stored on a drive only accessible to people working on this project, and will be stored under a code (rather than your name).

● We'll delete the recording at the end of the project, but you can also ask for the recording and any notes to be deleted before that – just let us know.

● We won't share what you have told us with Redthread.

● When we write up the interview, you won't be identifiable in any reports.

● If at any point you feel uncomfortable or prefer not to answer a question, just say so.

● You don't have to take part, and you can end the interview at any point, without giving a reason.

Before beginning the interview

● Any questions?

● Are you happy to proceed with the interview?

[switch on recording]

●**Sign consent form**

● Now that we're recording, can you confirm again that we have discussed the interview and how any data will be stored, that you understand you can stop the interview at any time without giving a reason, and that you are happy to continue?

Context

● How did you get into working for Redthread?

○ How long have you been working for Redthread?

○ Have you done anything like this before?

○ How have you been finding it so far?

Can you talk me through the responsibilities you have in your job role?

Target Audience

● Can you describe what the people who are referred have been like? (see prompts below)

○ Age range? Gender? Reason for present at ED e.g. assault injuries, self-harm, substance abuse etc.

● How are you identifying the people to talk to?

○ Are NHS staff referring them?

○ Do the Practitioners approach anyone themselves?

○ [if yes] Is there any differences between the types of people that they approach and the types of people NHS staff refer? Why do you think that is?

● Do you think there are people coming into the hospital that could benefit from the programme but you aren't getting to speak to?

○ What is limiting them from being included?

Interactions with patients

Do you have any Interactions with patients themselves?

What is the nature of these interactions?

Training, support and supervision

●What training have you had? Do you feel that this has been adequate to be confident in your role?

●What does the supervision you receive look like? How often do you have it and who with?

●Do you ever speak to Programme co-ordinators in other areas to discuss how you work?

●How supported do you feel as a programme co-ordinator?

●What Is your experience of upper management and the organisation as a whole?

●Have things changed recently with the changes in management?

Challenges

● Have you encountered any stumbling blocks when conducting your role?

●Have there been any factors that have limited your ability to carry out your role?

●Have you been facing any challenges in supporting young people in this way?

●Are you aware of anything that's getting in the way of achieving impact through this intervention?

●If you could wave a magic wand and change anything about the organisation or the way It works, what would you change?

Close

Was there anything else that you wanted to discuss that we've not yet talked about?

Thank them for their time and check whether they have any questions

Partnership Staff interview schedule

Introduction:

● Introduce yourself

Aims of this interview:

We are here to learn more about what the programme looks like in practice, from the perspective or those working within the teams at Redthread, the service users themselves but also those who refer into the project or work alongside them.

This includes:

● hearing your expectations around the impact the programme is having or that you hope it will have.

This interview:

● Should take about 30 minutes.

● We want to understand your views and experiences

● No answers are right or wrong.

Anonymity and privacy:

● All information gathered will be in strict confidence.

● If you agree, we would like to record the interview. The recordings will be stored on a drive only accessible to people working on this project, and will be stored under a code (rather than your name).

● We'll delete the recording at the end of the project, but you can also ask for the recording and any notes to be deleted before that – just let us know.

● We won't share what you have told us with Redthread or anyone else.

● When we write up the interview, you won't be identifiable in any reports which result from It.

● If at any point you feel uncomfortable or prefer not to answer a question, just say so.

● You don't have to take part, and you can end the interview at any point, without giving a reason.

Before beginning the interview

● Any questions?

● Are you happy to proceed with the interview?

[switch on recording]

●**Sign consent form**

● Now that we're recording, can you confirm again that we have discussed the interview and how any data will be stored, that you understand you can stop the interview at any time without giving a reason, and that you are happy to continue?

- Would you mind you briefly describing your job role and the relationship you and your team have with Redthread?
- What has been your experience so far of liaising with the project?
- Can you talk to me about the impact you believe the programme is having?
- Why do you have that impression?
  -How do you monitor their work?
  -What data do you receive and how is data transferred?
  -What is your understanding of how they work/what they do to achieve the results they get?
- How have you found communicating with Redthread?
  -Who do you have contact with in their team most regularly and what form does that take?
  - Have you or any of your teams visited sites and seen work the front-line practitioners are doing?
- To what extent do you feel the service Redthread offer is unique? Are there similar services which you believe replicate any of the work Redthread do?
- Have you experienced any challenges with working with the organisation?
- Are there any changes you would make to the service to make it more effective or to help operations run more smoothly?

Close

- Was there anything else that you wanted to discuss that we've not yet talked about or you feel may be relevant to our evaluation?
  Thank them for their time and check whether they have any questions

Redthread Central Staff interview schedule

Introduction:
● Introduce yourself
● Introduce UoB - explain that we are independently evaluating the Redthread Programme.

Aims of this interview:
We are here to learn more about what the programme looks like in practice, from your perspective.

This includes:
● Your expectations around the impact the programme is having or that you hope it will have.
●The extent to which the programme is being delivered In practice as intended
●How consistency of approach Is maintained across different areas?

We're not here to judge you or the programme, just to understand it better.

This interview:
● Should take between half an hour and an hour.
● We want to understand your views and experiences.
● No answers are right or wrong.

Anonymity and privacy:
● All information gathered will be in strict confidence.
● If you agree, we would like to record the interview. The recordings will be stored on a drive only accessible to people working on this project, and will be stored under a code (rather than your name).
● We'll delete the recording at the end of the project, but you can also ask for the recording and any notes to be deleted before that – just let us know.
● We won't share what you have told us with anyone else from Redthread.
● When we write up the interview, you won't be identifiable in any reports.
● If at any point you feel uncomfortable or prefer not to answer a question, just say so.
● You don't have to take part, and you can end the interview at any point, without giving a reason.

Before beginning the interview
● Any questions?
● Are you happy to proceed with the interview?
● **Sign consent form**

[switch on recording]
● **Now that we're recording, can you confirm again that we have discussed the interview and how any data will be stored, that you understand you can stop the interview at any time without giving a reason, and that you are happy to continue?**

- Can you confirm your job role?
- How long have you been in this role?
- How did you get in to working for Redthread?

- What do you think are some of the Redthread core components which are implemented across sites which make it successful despite the differences in areas?
- How is consistency monitored? How do you at head office know how the workers operate and that the elements or core components which make RT successful are being delivered consistently?
- How do you maintain quality across sites?
- How would you describe the monitoring and feedback system in place at Redthread?
- How receptive are teams to receiving feedback about the job they are doing and how willing are they to make efforts to improve implementation of the programme?
- How is integrity to the programme achieved when all of these factors are at play?
- How about the feasibility of setting up and running the programme within the hospital setting? Are there any obstacles on that side of things? What is support like from hospital management?
- To what extent has programme deviated from original design? How? Why?
- Has change in upper management changed anything substantial? Why?
- How do high levels of staff turnover affect consistency of delivery and approach? How does the organisation ensure that staff are trained effectively for their roles?
- Can you talk to me about your understanding of the supervision process undertaken with your staff members? I have been told about a pilot system of online supervision…can you talk me through this?

Close
Was there anything else that you wanted to discuss that we've not
yet talked about?

Thank them for their time and check whether they have any questions

RT staff follow up interviews / focus groups (Oct/Nov 2023)

Obstacles to recruitment

We want to explore the problems around recruitment

How often/many times did you introduce the idea of the evaluation to CYP?

Who were they (ages? Presenting injuries etc)?

Where were they at the time? ED? Wards? Discharged? Phone/face to face?

How did you present the evaluation to the CYP (language used etc)?

What circumstances and with whom did you chose not to introduce it and why?

When it was spoken about, what were the major reasons given by CYP not to take part?

What were other reasons you felt CYP were not consenting?

What about the study itself?

How was the evaluation initially presented to you?

Did you have enough training/information to understand the rationale and importance of the process and to feel confident selling it to the CYP?

If no, what would have helped?

What about facilitators for recruitment?

What may have helped encourage CYP to take part (incentives etc)? - explore idea of letting the voice of the CYP be heard.

How did you feel when told you no longer had to try recruiting? Why?

Programme managers and team leader additional questions

Were there any teams/ individuals who had more success/ better approach? Why?

Theory of Change

The extent to which RT teams see the same YP more than once, and why they think this might happen. Including understanding something of the geography of available hospitals locally.

Evidence of improved health seeking behaviour - in what ways, why, any particular groups of YP etc

Whether YP are repeat victims of eligible incidents - in what ways, why, any particular groups of YP etc.

Are there types of YP who do and do not accept help from RT - demographics, reasons for admission.

Are there types of YP who are and are not referred to RT by NHS staff - demographics, reasons for admission.

Show ToC to group and explore:

- The 'healthy' ultimate outcome. Why is this not just for the CYP to be healthy!?

- Do CYP go straight to A+E and not GPs? (Are they always registered with GP?)- is A+E this easier?

- How does 'change mechanism' chime with what is really happening?

Adult Participant Information Sheet

An Evaluation of the Redthread Youth Violence Intervention Programme

What we are doing

The University of Birmingham is evaluating the youth violence intervention programme provided by Redthread.

We are trying to find out whether the programe can help support young people who attend hospital with a violence related injury, who are at risk of, or already victims of violence or exploitation or gang involvement or where there are other concerns regarding violence exploitation.

You are being invited to take part in an interview about the programme because you have taken part in some aspect of it (as a practitioner).

Who we are

Name of Project Lead – Professor Paul Montogomery,

p.x.montgomery@bham.ac.uk

Name of Data Protection Officer - Nicola Cardenas Blanco, dataprotection@contacts.bham.ac.uk, Tel: +44 121 414 3916

We are part of University of Birmingham, and are called the 'controller' because we look after your information.

What you will need to do

If you take part in the study, we will ask you some questions about the programme. This will take about an hour. We will record the conversation so that we can remember everything that's said.

Information we collect

We will ask you to give us some information about yourself and your experience of the programme.

How we use your information

We will use the information to find out how well the Redthread programme has worked.

We will write a report about what we find, but the report won't include your name or any

other information that could be used to identify you.

The report will go on the YEF's website and anyone will be able to read it. We might also write up articles or presentations using our findings, but again they won't include your name or any other information that could be used to identify you.

How we comply with the law

We will only use your information in compliance with the law.

We always keep your information safe. During the study, we only let our research team

look at your information and we won't share your information with anyone in other countries.

Keeping you safe

If you feel upset by any of the questions we ask you, you should tell us or a member of Redthread staff. You can refuse to answer any question and we can stop the interview at any time. If you do not feel able to ask us or Redthread for help, we encourage you to make contact with an external support service such as The Samaritans (Tel. 116 123, www.samaritans.org).

We will treat the information that you share with us as confidential, but we may have to break confidentiality if you tell us something that makes us concerned about you or others being at risk. If this happens then we will usually discuss the issue with you first.

Do you want to take part?

We want lots of people to take part because this helps us to understand what makes a

difference for people taking part.

You do not have to take part in the study – it's up to you. You can withdraw your consent up to two weeks following the interview.

How long we keep your information

The University of Birmingham will keep your information for 10 years after we finish our report. Your data will be stored in a way so that people can't link your name to your information.

Your legal rights

The law gives you rights over how we can use your information. You can find full details of these rights the YEF website: https://res.cloudinary.com/yef/images/v1625734531/cdn/YEF-Data-Guidance-Participants/YEF-Data-Guidance-Participants.pdf or in the information sheet we have given to your parent or guardian.

Questions?

If you have any questions about how we use your information, or if you want to complain, you can contact our Data Protection Officer. Their contact details are in the box on the first page.

You also have the right to make a complaint to the Information Commissioner's Office (ICO). You can find more information about the ICO and how to make complain to them on their website https://ico.org.uk/make-a-complaint.

An Evaluation of the Redthread Youth Violence Intervention Programme

Confirmation Statement for Adult participants

I confirm that:

- I have read the information sheet for this study
- I have had an opportunity to ask questions about how personal information is used in the study
- I have enough information to make a decision about whether to participate in the study
- I understand that I am free to withdraw from the study up to two weeks after the interview.

I agree to take part in this study

Signed:

(participant)

Date:

Name in block capitals:

(participant)

Signature of researcher:

Date:

Researcher’s contact details

Name: ----------

Tel: ----------

Email: ----------

CYP Information sheet - simplified

Evaluation of Redthread's services

What?

Redthread is taking part in an evaluation of its service. The research for the evaluation is being done by the University of Birmingham and funded by the Youth Endowment Fund (YEF).

Why?

The YEF want to know how well services like Redthread's work at supporting young people. This evaluation will help Redthread know how to provide the best support we can. The results may also be used by funders and government bodies to make decisions about how to invest in youth work and make sure the most effective services are available.

What's involved?

If you agree to take part in this evaluation:

- Your Redthread youth worker will ask you to fill out a questionnaire twice: once near the start of your work with Redthread and once at the end.
- If you want to, you can also do an interview with a researcher from the University about yourself and your time working with Redthread.
- Some information about you and your medical records will be analysed. This will involve us sharing some personal information about you, such as your name, with researchers at the University.
- Some information about you will also be kept in the YEF's data archive on a long-term basis. Before the data is send to the YEF, your name will be removed and replaced with an ID number. This data can be linked with other public datasets, like education and criminal justice datasets.
- None of this data will be shared with police, immigration or any other law enforcement agencies. The data is for evaluation only, and can only be seen by approved researchers. The YEF will be looking at general patterns across groups of people, not tracking individual people.

Would you like to take part?

No. That's fine! You can go on working with Redthread as normal.

Yes. Great! Please ask your youth worker to show you the full information sheet and consent form. If you're under 13, we'll also ask your parent / guardian to give consent.

Summary of University of Birmingham pilot study - *for Redthread staff and practitioners*

<u>Part of the Youth Endowment Fund funding for diversionary work</u>

Who are we?

We are a team of researchers based at the University of Birmingham, led by Professor Paul Montgomery and Dr Joht Singh Chandan.

Why are we doing this research?

As you may know, Redthread (RT) has been awarded funding by the Youth Endowment Fund (YEF) under their grant round related to diverting children and young people (CYP) aged 10-17 from the criminal justice system. More information on this round can be found here.

YEF have also funded us to carry out an evaluation of Redthread's services with CYP to see how the work you do helps the lives of those you work with.

We are interested to find out not only the extent to which your intervention provides the motivation and support to reduce risk for your clients, but also how you, as practitioners carry out this intervention.

What are we doing?

There are two main parts to this study. The first involves conducting what we call a 'process evaluation'. This is where we explore the work you do in practice so as to help us build an understanding of how the activities you undertake and the methods you use make the intervention 'work'; this will allow us to develop a theory of change for this work (this will build on the work RT is undertaking with Dartington Service Design Lab).

The second, an 'impact evaluation', involves exploring the outcomes of your intervention for the CYP you work with. We will be assessing the extent to which the RT programme leads to a reduction in violence/abuse related hospital admissions in a one-year period following discharge from your service.

For the first year (1st April 2022 - 31st March 2023) we will be undertaking the study in four RT sites - Queen Elizabeth Hospital Birmingham, Birmingham Children's hospital, St Mary's hospital and Queen Elizabeth hospital Woolwich in London. If the first year of the project and evaluation are successful then it will be extended for a further two years.

How are we doing it and what do we need your help with?

Some of the information we need for the process evaluation is already collected as part of the routine case management you undertake (for example the extent and nature of the contact you have with the YP). In addition, we would also like to run some focus groups to hear your thoughts on what works well, the needs of the young people and challenges they face, and whether you feel any changes in the RT intervention could be made to target these needs in a more effective way. These groups would be audio recorded, last about 30-60 minutes (online, or we will come to you) and your answers would be confidential.

We will also speak with senior RT staff, the referring clinical staff and representatives of other community

and statutory organisations who work with RT at each of the four hospitals and a group of CYP at each site to hear their experience and opinions.

For the impact evaluation we will use hospital data on the CYP in the four sites to determine if their level of admission for a violence or abuse related reason is lower at 12 months following working with RT. We will also work with these hospitals to develop a control group to compare against (this may be from historical data or a cohort of CYP not referred to RT for some reason).

We will be asking you to brief CYP and relevant third parties (i.e., parents/carers) on the aims of the study, terms of their participation, assurances on confidentiality and how we will manage the data they give. We will provide information sheets for both CYP and their parents/carers. We will also ask you to gain their informed consent to participate as part of your usual consent process. We will be aiming to recruit all new referrals you assess as eligible for the RT intervention throughout the study period.

We also need to gather responses from CYP you work with at the four sites, to two questionnaires, at the start of your work with them in the community (following discharge) and towards the end. We will be asking you to encourage CYP to complete these questionnaires.

We will provide further details about the study in due course.

Where to get more information?

We have been working with RT since September 2021 to develop the study. The programme managers and team leaders for the four sites have been fully briefed and consulted regarding the study, and so should be able to answer most questions you might have. They can also ask the research team any questions you may have and if you wish to speak to the research team, please contact j.s.chandan.1@bham.ac.uk or p.x.montgomery@bham.ac.uk.

Our protocol for this study will also be published on the YEF website.

Summary of University of Birmingham pilot study - *for Referral and Partner staff*

Part of the Youth Endowment Fund funding for diversionary work

Who are we?

We are a team of researchers based at the University of Birmingham, led by Professor Paul Montgomery and Dr Joht Singh Chandan.

Why are we doing this research?

As you may know, Redthread) has been awarded funding by the Youth Endowment Fund (YEF) under their grant round related to diverting children and young people (CYP) aged 10-17 from the criminal justice system. More information on this round can be found here.

YEF has also funded us to carry out an evaluation of Redthread's services with CYP to see how the work they do helps the lives of those they work with. We are interested to find out not only the extent to which their intervention provides the motivation and support to reduce risk for their clients, but also how their practitioners carry out this intervention.

What are we doing?

There are two main parts to this study. The first involves conducting a 'process evaluation'. This is where we will explore the work Redthread do in practice so as to help us build an understanding of how the activities they undertake and the methods they use make the intervention 'work'; this will allow us to develop a theory of change for this work (this will build on the work Redthread is undertaking with Dartington Service Design Lab to develop a theory of change).

The second, an 'impact evaluation', involves exploring the outcomes of the Redthread intervention for the CYP they work with. We will be assessing the extent to which the Redthread programme leads to a reduction in violence/abuse related hospital admissions in a one-year period following discharge from the Redthread service.

For the first year (1st April 2022- 31st March 2023) we will be undertaking the study in four Redthread sites - Queen Elizabeth Hospital Birmingham, Birmingham Children's hospital, St Mary's hospital in London and Queen Elizabeth hospital Woolwich in London. If the first year of the project and evaluation are successful then it will be extended for a further two years.

How are we doing it and what do we need your help with?

Some of the information we need for the process evaluation is already collected as part of the routine case management Redthread and we will also speak with Redthread staff and CYP at each site.

We would also like to speak with some of the staff who refer to Redthread and who work with Redthread teams in supporting CYP at each of the four sites. This will allow us to hear your experiences and opinions of the programme. This would be run as individual or group sessions (online or we will come to you), be audio recorded and last about 30 minutes. Your answers would be confidential.

For the impact evaluation we will use hospital data on the CYP in the four sites to determine if their level of admission for a violence or abuse related reason is lower at 12 months following working with Redthread. We will also work with these hospitals to develop a control group to compare against (this may be from historical data or a cohort of CYP not referred to Redthread for some reason).

Where to get more information?

We have been working with Redthread since September 2021 to develop the study. The programme managers and team leaders for the four sites have been fully briefed and consulted regarding the study, and so should be able to answer most questions you might have. You can also ask the research team any questions you may have and if you wish to speak to the research team, please contact joht.chandan@nhs.net or p.x.montgomery@bham.ac.uk.

Our protocol for this study will also be published on the YEF website.

Fully adjusted model results for the quantitative impact analysis

Supplementary S1. Pairwise comparisons at St Mary's (fully adjusted models)
Reference group is historic control. Red colouring indicates a statistically significant result.
p of 0 indicates a p-value <0.001.

Comparison	**Covariates**	**Incidence rate (95% Confidence Intervals)**	**P-value**
Supported vs Control	Supported (Ref: Control)	1.36 (0.64 -2.89)	0.419
	Age	0.75 (0.61- 0.92)	0.006
	Male (Ref:Female)	0.17 (0.08- 0.33)	0
Engaged vs Control	Engaged (Ref: Control)	2.43 (1.27- 4.63)	0.007
	Age	0.79 (0.71 -0.89)	0
	Male (Ref:Female)	0.36 (0.25- 0.53)	0
Supported+Engaged vs Control	Supported+Engaged (Ref: Control)	2.09 (1.09-4.00)	0.027
	Age	0.81 (0.73- 0.90)	0
	Male (Ref:Female)	0.33 (0.24- 0.47)	0
Comparison	**Covariates**	**Odds Ratio (95% Confidence Intervals)**	**P-value**
Supported vs Control	Supported (Ref: Control)	1.95 (0.79- 4.84)	0.148
	Age	0.73 (0.56- 0.94)	0.014
	Male (Ref:Female)	0.31 (0.14- 0.70)	0.005
Engaged vs Control	Engaged (Ref: Control)	4.42 (1.97- 9.92)	0
	Age	0.85 (0.73- 0.99)	0.036
	Male (Ref:Female)	0.49 (0.28- 0.84)	0.009
Supported+Engaged vs Control	Supported+Engaged (Ref: Control)	3.55 (1.59- 7.90)	0.002
	Age	0.83 (0.73- 0.95)	0.005
	Male (Ref:Female)	0.50 (0.32- 0.79)	0.003

Supplementary S2. Pairwise comparisons at Lewisham & Lewisham (fully adjusted models). *Reference group is historic control. Red colouring indicates a statistically significant result.*

Comparison	Covariates	Incidence Rate (95% Confidence Intervals)	P-value
Supported vs Control	Supported	0.92 (0.68, 1.24)	0.596
	Control (Ref)		
	Age	1.04 (0.95, 1.13)	0.412
	Gender (Female)	Ref	
	Gender (Male)	0.45 (0.33, 0.61)	0
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.76 (0.39, 1.50)	0.442
	Deprivation_Decile3	0.66 (0.33, 1.31)	0.234
	Deprivation_Decile4	0.83 (0.41, 1.69)	0.613
	Deprivation_Decile5	1.02 (0.49, 2.07)	0.966
	Deprivation_Decile6	0.71 (0.31, 1.63)	0.424
	Deprivation_Decile7	0.58 (0.21, 1.66)	0.314
	Deprivation_Decile8	0.11 (0.01, 1.71)	0.115
	Deprivation_Decile9	0.27 (0.02, 4.11)	0.345
	Ethnicity_Asian	Ref	
	Ethnicity_Black	1.30 (0.46, 3.71)	0.623
	Ethnicity_Mixed	2.09 (0.72, 6.07)	0.176
	Ethnicity_Not Stated	1.27 (0.41, 3.95)	0.681
	Ethnicity_Others	1.94 (0.64, 5.89)	0.24
	Ethnicity_White	1.47 (0.52, 4.17)	0.47
Engaged vs Control	Engaged	0.82 (0.58, 1.17)	0.27
	Control (Ref)		
	Age	1.04 (0.95, 1.14)	0.394
	Gender (Female)	Ref	
	Gender (Male)	0.52 (0.37, 0.73)	0
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.65 (0.28, 1.48)	0.306
	Deprivation_Decile3	0.78 (0.34, 1.76)	0.551
	Deprivation_Decile4	0.86 (0.37, 2.04)	0.738
	Deprivation_Decile5	1.09 (0.47, 2.56)	0.831
	Deprivation_Decile6	0.60 (0.21, 1.74)	0.349
	Deprivation_Decile7	0.53 (0.16, 1.79)	0.309
	Deprivation_Decile8	0.36 (0.05, 2.66)	0.319
	Deprivation_Decile9	0.29 (0.02, 4.38)	0.373
	Ethnicity_Asian	Ref	
	Ethnicity_Black	0.65 (0.27, 1.52)	0.319
	Ethnicity_Mixed	0.99 (0.40, 2.45)	0.985
	Ethnicity_Not Stated	0.79 (0.29, 2.15)	0.652
	Ethnicity_Others	1.08 (0.43, 2.72)	0.868
	Ethnicity_White	0.83 (0.36, 1.93)	0.664
Supported+Engaged vs Control	Supported+Engaged	0.89 (0.68, 1.16)	0.384
	Control (Ref)		
	Age	1.05 (0.97, 1.14)	0.219

	Gender (Female)	Ref	
	Gender (Male)	0.49 (0.38, 0.66)	0
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.63 (0.34, 1.16)	0.138
	Deprivation_Decile3	0.63 (0.34, 1.17)	0.145
	Deprivation_Decile4	0.66 (0.34, 1.28)	0.223
	Deprivation_Decile5	0.89 (0.47, 1.71)	0.73
	Deprivation_Decile6	0.56 (0.25, 1.24)	0.151
	Deprivation_Decile7	0.53 (0.21, 1.32)	0.17
	Deprivation_Decile8	0.26 (0.05, 1.35)	0.109
	Deprivation_Decile9	0.19 (0.01, 3.08)	0.248
	Ethnicity_Asian	Ref	
	Ethnicity_Black	0.75 (0.35, 1.62)	0.46
	Ethnicity_Mixed	1.20 (0.54, 2.67)	0.647
	Ethnicity_Not Stated	0.73 (0.31, 1.71)	0.464
	Ethnicity_Others	1.03 (0.44, 2.40)	0.94
	Ethnicity_White	0.91 (0.43, 1.94)	0.804
Comparison	**Covariates**	**Odds Ratio (95% Confidence Intervals)**	**P-value**
Supported vs Control	Supported Control (Ref)	0.77 (0.51, 1.15)	0.196
	Age	1.02 (0.91, 1.14)	0.732
	Gender (Female)	Ref	
	Gender (Male)	0.41 (0.28, 0.62)	0
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.39 (0.14, 1.08)	0.07
	Deprivation_Decile3	0.39 (0.14, 1.10)	0.076
	Deprivation_Decile4	0.33 (0.11, 0.97)	0.044
	Deprivation_Decile5	0.62 (0.20, 1.88)	0.396
	Deprivation_Decile6	0.31 (0.09, 1.03)	0.057
	Deprivation_Decile7	0.33 (0.08, 1.35)	0.122
	Deprivation_Decile8	0.07 (0.01, 0.68)	0.022
	Deprivation_Decile9	0.18 (0.02, 1.91)	0.154
	Ethnicity_Asian	Ref	
	Ethnicity_Black	0.86 (0.29, 2.51)	0.778
	Ethnicity_Mixed	1.57 (0.50, 4.92)	0.438
	Ethnicity_Not Stated	0.89 (0.27, 2.99)	0.853
	Ethnicity_Others	1.01 (0.29, 3.44)	0.994
	Ethnicity_White	1.06 (0.36, 3.11)	0.91
Engaged vs Control	Engaged Control (Ref)	0.89 (0.56, 1.43)	0.644
	Age	1.01 (0.89, 1.14)	0.835
	Gender (Female)	Ref	
	Gender (Male)	0.49 (0.32, 0.78)	0.002
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.36 (0.11, 1.20)	0.097
	Deprivation_Decile3	0.36 (0.11, 1.18)	0.092
	Deprivation_Decile4	0.33 (0.09, 1.17)	0.086
	Deprivation_Decile5	0.41 (0.11, 1.48)	0.174

	Deprivation_Decile6	0.25 (0.06, 1.07)	0.061
	Deprivation_Decile7	0.32 (0.07, 1.52)	0.153
	Deprivation_Decile8	0.09 (0.01, 1.12)	0.06
	Deprivation_Decile9	0.17 (0.01, 1.99)	0.158
	Ethnicity_Asian	Ref	
	Ethnicity_Black	0.87 (0.28, 2.65)	0.806
	Ethnicity_Mixed	1.16 (0.34, 3.89)	0.815
	Ethnicity_Not Stated	0.54 (0.14, 2.07)	0.367
	Ethnicity_Others	1.02 (0.29, 3.59)	0.969
	Ethnicity_White	0.89 (0.29, 2.69)	0.838
Supported+Engaged vs Control	Supported+Engaged	0.80 (0.56, 1.15)	0.227
	Control (Ref)		
	Age	1.01 (0.91, 1.11)	0.909
	Gender (Female)	Ref	
	Gender (Male)	0.45 (0.32, 0.64)	0
	Deprivation_Decile1	Ref	
	Deprivation_Decile2	0.28 (0.11, 0.76)	0.012
	Deprivation_Decile3	0.29 (0.11, 0.79)	0.015
	Deprivation_Decile4	0.23 (0.08, 0.65)	0.005
	Deprivation_Decile5	0.39 (0.14, 1.10)	0.076
	Deprivation_Decile6	0.19 (0.06, 0.60)	0.005
	Deprivation_Decile7	0.26 (0.08, 0.93)	0.038
	Deprivation_Decile8	0.09 (0.02, 0.58)	0.011
	Deprivation_Decile9	0.10 (0.01, 1.05)	0.055
	Ethnicity_Asian	Ref	
	Ethnicity_Black	0.78 (0.30, 2.03)	0.613
	Ethnicity_Mixed	1.27 (0.45, 3.51)	0.65
	Ethnicity_Not Stated	0.71 (0.25, 2.05)	0.528
	Ethnicity_Others	0.76 (0.26, 2.26)	0.618
	Ethnicity_White	1.01 (0.39, 2.61)	0.978