

Predictive tools in violence prevention: a call for proposals

Summary

The YEF and UKRI are co-funding research on tools which target interventions based on predictions about individual risk of violence. The research will investigate whether these tools can accurately, safely and fairly help practitioners identify people vulnerable to involvement in violence, and whether using them leads to better outcomes. The available budget for this project is £370,000.

The appointed team will conduct two projects:

1. A systematic review of research examining the use of predictive tools to assess a person's risk of committing violence, including sexual violence, and target interventions.
2. Primary research exploring how these tools are used in England and Wales, and the practical and ethical considerations that arise.

The deadline for proposals is 24th November 2025.

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 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 who are vulnerable to becoming involved in violence deserve services that give them the best chance of a positive future. To make sure that happens, we fund promising projects and then use rigorous evaluation to find out what works. We also synthesise the best available evidence from across the world and mobilise what we learn across various sectors to make a change to the lives of children.

It is imperative that YEF fully understands the context in which children live, and in which services operate to support them. Only then can we make evidence-based recommendations on how best to reduce serious violence amongst children and young people. Alongside our programme funding, and evidence synthesis work, we fund a wide range of research projects (including data analysis, youth understanding work, and practice reviews) to better understand young people's lives, and the systems and services that surround them.

About UKRI – UK Research and Innovation

UKRI is an organisation that brings together the seven disciplinary research councils, Research England and Innovate UK. Together, we build an independent organisation with a strong voice and vision

ensuring the UK maintains its world-leading position in research and innovation. Our nine councils work together in innovative ways to deliver an ambitious agenda, drawing on our great depth and breadth of expertise and the enormous diversity of our portfolio.

Supporting some of the world's most exciting and challenging research projects, we develop and operate some of the most remarkable scientific facilities in the world. We are pushing the frontiers of human knowledge through fundamental research and delivering benefits for UK society and the economy through world-class research, skills and business-led innovation.

Funding for this research comes from UKRI's Safer Streets research and development (R&D) mission, part of UKRI's Research and Development Missions Accelerator Programme (R&D MAP). The first challenge explores how advanced data analysis can inform more effective crime prevention strategies.

Background

In this review, a predictive tool refers to a structured framework designed to help professionals (e.g. police analysts, social workers, or psychologists) assess the risk that someone may commit violence. These tools could be used to inform decisions about which people are prioritised for an intervention. This contrasts with approaches using "pure" professional judgement, where practitioners rely solely on their judgement about risk and needs, and don't use a formal checklist or other system.

Predictive tools have been in use for several years but have recently attracted greater attention as new methods of developing these tools emerge, such as machine learning. There are many different types of predictive tools, including:

- **Structured professional judgement (SPJ).** An SPJ tool presents assessors with a checklist of empirically validated risk and protective factors. The assessor gathers information about the person on each factor, rates or describes the presence of the factor, and integrates those ratings to produce an overall risk formulation. The checklist structures the assessment process, but these tools do not use an actuarial formula or algorithm to create an overall risk rating; the final judgement is made by the assessor. An example of a SPJ tool is the Structured Assessment of Violence Risk in Youth (SAVRY).
- **Actuarial tools.** Actuarial tools use statistical methods to estimate the probability that an individual will commit violence. These are based on regression models or algorithms developed using historical data. They combine a fixed set of risk factors using a predefined formula or algorithm, without relying on practitioner discretion to weight the inputs. Actuarial tools such as LSI-R and OASys emerged in the 1990s and 2000s and they are currently widely used in prison and probation services to estimate reoffending risk.

- **Social Network Analysis (SNA).** These tools assess risk by analysing networks and relationships between individuals. They create networks based on interactions like co-offending, social media interactions, or shared locations and identify the people who are central or influential in that network. These tools assume that a person's connections matter as much as their actions, and that risk can be inferred from their position in a broader social structure.
- **Machine learning** approaches. In the approaches described above, a human designs the algorithm or statistical model which makes the prediction. In machine learning approaches, a human designs a machine learning algorithm and provides it with data it can learn from. The machine learning algorithm then automatically learns which factors are predictive and how to combine them, potentially identifying complex, non-linear patterns or interactions that a human might not anticipate. Machine learning algorithms can also update themselves and improve their predictions as they accumulate data. HART, a joint initiative of Durham Constabulary and the University of Cambridge, is a recent example of a machine learning tool used to inform decision making. HART used a machine learning approach to assign a risk rating to people who have offended. The risk rating was used to decide which people are offered an out-of-court diversion scheme instead of prosecution.

Across all types of tool, there is variation in how involved humans are in decision-making. Approaches can include:

- **Decision support.** The tool provides a score, but a practitioner reviews the case and makes the final decision.
- **Human-in-the-loop automation.** The tool makes a recommendation, but humans must approve or adjust it.
- **Fully automated allocation.** The tool output automatically triggers a decision or action, without discretionary human review.

An existing systematic review provides some evidence that, on average, predictive tools can make better predictions than professional judgement.¹ This raises the possibility that they can be used to identify people vulnerable to committing violence, information which can be used to provide effective support. However, demonstrating that these tools provide more accurate predictions than professional judgement is not sufficient to justify a strong recommendation to use them. There also needs to be evidence that they improve outcomes (e.g. reductions in violence). There is also serious concern about potential risks and harms, including the risk that tools trained on biased data could exacerbate

¹ Jodi L. Viljoen and others, 'Are Risk Assessment Tools More Accurate than Unstructured Judgments in Predicting Violent, Any, and Sexual Offending? A Meta-analysis of Direct Comparison Studies', *Behavioral Sciences & the Law*, 43.1 (2025), pp. 75–113, doi:10.1002/bsl.2698.

institutional racism, 'net widening' where people are unnecessarily exposed to the criminal justice system, and erosion of professional judgement and accountability.² Decisions about whether to implement these tools must consider predictive accuracy alongside evidence about their impact on outcomes, equity, and legal rights.

Race equity

There are significant racial disparities in experience of violence and the justice system. For instance, 24% of children in Youth Custody are Black, compared to 6% in the population in England and Wales aged 10-18.³ YEF's 2023 survey of 7,500 children found that while the majority of violence was committed by White children (70%) and the majority of victims were White (72%), Black teenage children were, on average, more likely to be vulnerable as both victims (21%) and perpetrators (22%) compared to White children (16% and 14%, respectively).⁴

The Youth Endowment Fund's mission is to prevent children and young people from becoming involved in violence. We can't achieve this mission if we do not challenge this racial inequity. Addressing these disparities is an important aspect of all our work.

For this review, considerations about racial equity will be crucial. Amnesty International and Liberty have both raised serious concerns about the use of predictive analytics replicating racial biases.⁵ Key questions will include, but not be limited to:

- Do tools make fair predictions or unfairly target some groups?
- How do these tools compare to alternatives (e.g. professional judgement) when it comes to fairness?
- When there is a risk of bias, are there practical ways of preventing it?

² Amnesty International UK, *Automated Racism* (Amnesty International UK, 2025) <<https://www.amnesty.org.uk/files/2025-02/Automated%20Racism%20Report%20-%20Amnesty%20International%20UK%20-%202025.pdf?VersionId=JqCcTODw37yAXyINmAY6uAzrKEWucFF7>> [accessed 25 February 2025].

³ Youth Endowment Fund, *Racial Disproportionality in Violence Affecting Children and Young People* (2025) <https://youthendowmentfund.org.uk/wp-content/uploads/2025/02/YEF_Racial_Disproportionality_FINAL.pdf> [accessed 24 July 2025].

⁴ Youth Endowment Fund, *Children, violence and vulnerability 2023* (2023) <https://youthendowmentfund.org.uk/reports/children-violence-and-vulnerability-2023/>

⁵ Amnesty International UK, *Automated Racism* (London: Amnesty International UK, 2025), accessed February 25, 2025, <https://www.amnesty.org.uk/files/2025-02/Automated%20Racism%20Report%20-%20Amnesty%20International%20UK%20-%202025.pdf?VersionId=JqCcTODw37yAXyINmAY6uAzrKEWucFF7>; Liberty: <https://www.libertyhumanrights.org.uk/fundamental/predictive-policing/>

We will expect teams to explain in their proposals how they will conduct this research in an equitable way. For example, how will they ensure that diverse perspectives influence the design and interpretation of the research?

Research questions and approach

The over-arching research questions for this project are:

- What predictive tools are in use or in development for violence prevention in the UK, in what settings, and for which populations? What data do they use? How do they work?
- How well do predictive tools predict involvement in violence? Do they make more or less accurate predictions than pure professional judgement? How does this vary across tools, populations, settings and outcomes?
- What is the impact of these tools on equity (see questions above)?
- What are the ethical implications of using predictions to target interventions? Can these tools be used ethically?
- What are the impacts of using these tools on practitioner behaviour and outcomes for children? What benefits (e.g. impact on violence) and harms (e.g. net-widening, labelling) occur?
- What is required to implement these tools? What data, infrastructure, staffing, training and ongoing monitoring are required? What are the costs of developing and maintaining them? How can implementation be improved?
- How do young people, families and frontline practitioners perceive and experience these tools? What are their perspectives on ethics, implementation and effectiveness?
- How do responses to the above questions depend on what type of predictive tool is used?

We welcome suggestions on how to improve these research questions in research proposals.

To answer these questions, we are commissioning a research project composed of two parts: a review of the existing research and some primary research.

Systematic Review

We are commissioning a systematic review of the literature encompassing:

- Research reporting on measures of tools' predictive accuracy.
- Evaluations of the real-world implementation of tools. We are interested in both impact evaluation which estimates the impact on violence prevention and Implementation and Process Evaluation (IPE) that examines how tools are used. IPE studies may examine professionals', participants' and other stakeholders' experiences and attitudes; implementation barriers and facilitators; perceptions of ethical issues; and cost information.
- Legal-policy analysis reports which examine ethical and legal implications more deeply.

Our initial thoughts on the scope of this review are below. We welcome applicants to propose improvements to this scope. The final scope for the review will be agreed by the YEF and the research team after they have been appointed.

Population

- We expect the review will likely include both UK and international studies, given the lack of research in the UK context. We would like the review to consider whether the UK and international studies have different findings and how relevant the international studies are to our context.
- Given the involvement of both UKRI and YEF, the review should include studies involving adults and children. YEF is focused on keeping children safe from involvement in violence so we would like to see a specific analysis of the research related to children.
- Studies will include both people who have already offended and people who are considered at risk of offending but have not yet.

Intervention

- Predictive tools that are used to determine the risk of someone committing violence, particularly those which determine suitability to receive a particular intervention or outcome.
- Studies that focus exclusively on predictive mapping tools (identifying locations where high crime is likely) are *excluded* as there is a recent systematic review on this topic.⁶
- Predictive tools are often used to allocate interventions. Any intervention offered based on the use of predictive tools would be in scope. This would include rehabilitative or preventative interventions or enforcement actions.

Study design and outcomes for quantitative studies

- Judging the impact of these tools on quantitative outcomes will require studies that use appropriate experimental or quasi-experimental designs to compare tools to alternatives such as “business as usual”, pure professional judgement or alternative predictive tools (e.g. between actuarial or structured professional judgement tools). We are particularly interested in study designs that provide insights into fairness and equity.
- Outcomes will include:
 - Measures of predictive power. This may include positive and negative predictive power, sensitivity, specificity and area under the curve.

⁶ Youngsub Lee, Ben Bradford, and Krisztian Posch, ‘The Effectiveness of Big Data-Driven Predictive Policing: Systematic Review’, *Justice Evaluation Journal*, 5 July 2024, pp. 1–34, doi:10.1080/24751979.2024.2371781.

- Impact on violence perpetration, including sexual violence. We have some flexibility here and would potentially consider extending the scope to include any offending.

Primary research

To complement the systematic review, we are commissioning primary research on the use of predictive tools in England and Wales. This will address gaps in the existing evidence base; uncover practical and ethical issues that are not covered by published studies; and allow the voices of the public, practitioners and experts to shape the interpretation of the evidence. It will also ensure that insights from this work are timely, locally relevant and actionable. We expect most of the published research in the systematic review to come from other countries so will use this primary research to consider its relevance to the UK context.

Applicants should propose a suitable methodology for answering the over-arching research questions for this project. This could involve:

- Consultation with national experts
- Surveys of current practice to understand the extent and nature of use of tools
- Case studies examining the real-world implementation of specific tools in a sample of locations
- Qualitative research with people (young people, families, practitioners) affected by these tools
- Workshops exploring views of the public

We require the appointed team to conduct some initial primary research and produce an interim report by the end of March 2026 followed by a final report at the end of the project. Proposals should outline the work that can be completed by the date of the interim report.

Outputs and Timeline

We will discuss and agree the timeline with the appointed team, subject to the final research design and volume of literature identified. We expect several outputs from this work:

1. A research plan for the primary research and a protocol for the systematic review by end of March 2026.
2. A systematic review, reported in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines
3. An interim report summarising initial findings from the primary research by the end of March 2026.
4. A final report (December 2026) pulling together insights from across the primary and secondary research, to answer the over-arching research questions.

YEF will arrange for all outputs to be peer-reviewed.

Budget

This work is being commissioned as a Grant.

The available budget for this project is £370,000. We would not expect VAT to be included in teams' budgets. Pass through VAT via sub-granting work to other organisations may in some circumstances be included. However, it is up to the bidding team to decide if they need to include VAT and any charges must be covered within the total grant amount.

How to apply

Step 1: Applicants should submit a proposal by 5pm on 24th November 2025 to peter.henderson@youthendowmentfund.org.uk.

Proposals should not exceed 3,000 words, excluding appendices. Your proposal should respond to the requirements set out above, considering our assessment criteria, and include the following:

- **Objectives and Approach:** Detailed description of how the project will be delivered.
- **Team Experience:** Information on relevant qualifications, experience, and roles of team members.
- **Proposed Budget:** Breakdown of costs, including VAT considerations if relevant.
- **Proposed Timelines:** A project plan.

Step 2: YEF and UKRI will assess proposals according to the criteria below and invite shortlisted applicants to interview.

Step 3: We anticipate inviting our preferred team to a further meeting to refine the proposal before finally awarding the work.

Please get in touch with peter.henderson@youthendowmentfund.org.uk if you have any questions.

Assessment Criteria

Assessment Criteria	Score Weighting
1. Subject Expertise - How extensive is the team's knowledge and experience related to the specific topic?	20%

- Does the team have a proven record of successful outcomes in similar work? - How well does the team understand and address issues of racial equity within the context of the project?	
2. Technical Expertise and Capacity - Does the team's experience demonstrate their technical ability to execute and manage work of similar scale and complexity? - Does the team possess the specific technical skills and resources necessary to meet the requirements of work?	20%
3. Proposed Approach and Methodology - Is the proposed methodology well-aligned with the needs and goals outlined in the brief? - How realistic and achievable is the plan within the proposed timeline and budget constraints? - Does the approach demonstrate a clear understanding of best practices in the field, and is it tailored to the specific needs of the work? - Are there any foreseeable challenges, and does the team have a clear strategy to address or mitigate these risks?	40%
4. Value for Money - Does the proposed budget offer good value relative to the outcomes expected? - Are all costs clearly justified and explained?	20%
Criteria Scoring	Score
Totally fails to meet the requirement - information not available	0
Meets some of the requirements with limited supporting information	1
Meets some of the requirements with reasonable explanation	2

Meets the requirements with limited explanation and evidence	3
Fully meets the requirements with detailed explanation and evidence	4

Thank you for your interest in working with the Youth Endowment Fund and UKRI. We look forward to reviewing your proposal.