

9 ways data is being used to help protect children

1. Think Family and Troubled Families Programme - Bristol, UK

Based on data from multiple sources, researchers in Bristol identified families at risk using predictive analysis. Based on data from multiple sources, they were able to predict expected outcomes based on the observed characteristics of the families and patterns in the data. This helped social workers who, using the information, could intervene at an early stage to prevent hardship. The team of analysts also designed a model to predict children who would be at risk of sexual exploitation, enabling services to monitor the child and her environment and intervene if necessary.

2. Child Abuse Image Database (CAID) - UK

Analysts have compiled a large database of all the pictures of child abuse the police contains. By having all images in one system, police can test any phones of detained abusers against the database, running through ten thousand images in as little as one hour. This helps police to identify devices on the scene, speed up the investigation process and recognise victims of abuse earlier by being able to share the image with other agencies. The database also aims to help private companies to remove content from their website at an early stage when a similar image is detected by the system.

3. Online text analysis to detect sexual predators - University of Lancaster, UK

Detects sexual predators who try to pass as children on social media and chat websites. The system uses text and keyword analysis to flag users masquerading as children, often with multiple online identities. It can differentiate between adult-child and child-child conversation 94% accuracy, revealing sexual predators online by analysing age specific features of the text. The software was developed into an app called ChildDefense which children can use on their phone to tell them the age of person on the other end.

4. Allegheny County Family Screening Tool - Pittsburgh, PA, USA

Social teams have added predictive analytics algorithms to their system which would run through each case after its been reported and assessed by a social worker. For example, a case labelled as low-risk based on the information from the caller and existing reports, is run through the system which assess all phone calls made to this or other social services and judges and produces a risk score on a scale of 1-20. The programme provides a 'second-check', looking through all existing information across agencies, ranging from databases of drug treatment centres, police stations and courts to healthcare and educational facilities. By using the software with existing assessment, social workers are able to quickly assess the situation based on a large volume of evidence and a prediction calculated by screening for certain factors or their combinations. This enables agencies to further investigate cases and intervene at an early stage if necessary.

5. Targeting human trafficking - California, USA

Two researchers at the University of Southern California used data from the internet to develop a software that looks through online escort ads. When looking for vulnerable individuals trapped in the escort system, the system helps to track down the missing person by searching mobile numbers, locations and photos.

6. Family Insights Programme - Newcastle, UK

Newcastle used data as the basis for the restructuring of the city's social services, creating specialist units addressing one set of circumstances and needs identified from the data on families. By grouping families together based on the identified concern factor, social work

units could be reorganised according to these clusters. As a result, social workers are trained in specific areas and are able to provide more niche support, and children and families entering the system are assigned to the most appropriate specialists rather than the closest unit, based on the factors identified by the system.

7. Data integration for support services - Manchester, UK

In Manchester, an integrated data warehouse was created by combining information from 16 services across the city. This enables social workers to look through cases faster, without the need to request information from other agencies or research old case files. The system sorts through all the data, identifying individuals and linking them to all existing information such as multiple addresses, families or agency-related events. The city also used predictive analysis, cluster analysis and decision trees to try and isolate factors related to children being referred to protection services.

8. Location based predictions - Texas, USA

A predictive modelling technique - originally used to predict neighbourhoods or streets where shooting were most likely to happen - was transformed by a doctor who wanted to prevent maltreatment and abuse of children. The project identified the four most significant risk factors associated with child abuse to be physical and sexual assault, as well as runaways and domestic violence. This provides information about areas most exposed to future child abuse based on the risk factors, enabling police, social workers and organisations to focus on the area and offer more supportive services.

9. Troubled Families Programme - Hartlepool, UK

Teams analysed combined data from different sources and identified a common pattern among families on the scheme. After identifying the four main causes - domestic violence, substance misuse, grief and loss and mental health/emotional well-being - they were able to provide targeted training for social workers in these key areas. As a result, social workers were able to spot early signs and intervene, thus minimising children's removal from the home.

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