

Allegheny County Department of Human Services

Using Integrated Data to Support Practice



Integrated Data Systems



Childhood & Education Services

Early Intervention
HeadStart
Homevisting
Family Support Centers
Child Welfare
Family Court
Pittsburgh Public Schools + 10 additional School Districts



Basic Needs

Homeless
Housing Supports
Public Benefits
Public Housing
Employment/Unemployment
Transportation (for medically fragile)
Aging services & supports



Physical & Behavioral Health

Mental Health Services (Medicaid & Uninsured)
Substance Use Services (Medicaid & Uninsured)
Physical Health Services (Medicaid)
UPMC Health Plan (Commercial)
Intellectual Disabilities



Juvenile & Criminal Justice

Juvenile Probation
Delinquency
Pittsburgh Bureau of Police
Criminal Court
Allegheny County Jail
911 Dispatches



Vital Records

Birth Records
Autopsy Records

Improving Key Decisions with Predictive Risk Modeling



Process Non-Negotiables

- Commitment to Implement
- Do Something that Matters
- Competitive Procurement
- Built in the Public Domain (we own the model etc.)
- Ethical Review
- Model Fairness & Discrimination Review
- Stakeholder Input
- Community Engagement
- Willingness to Modify
- Evaluation
- Commitment to Improve
- Transparency

<https://www.alleghenycountyanalytics.us/>

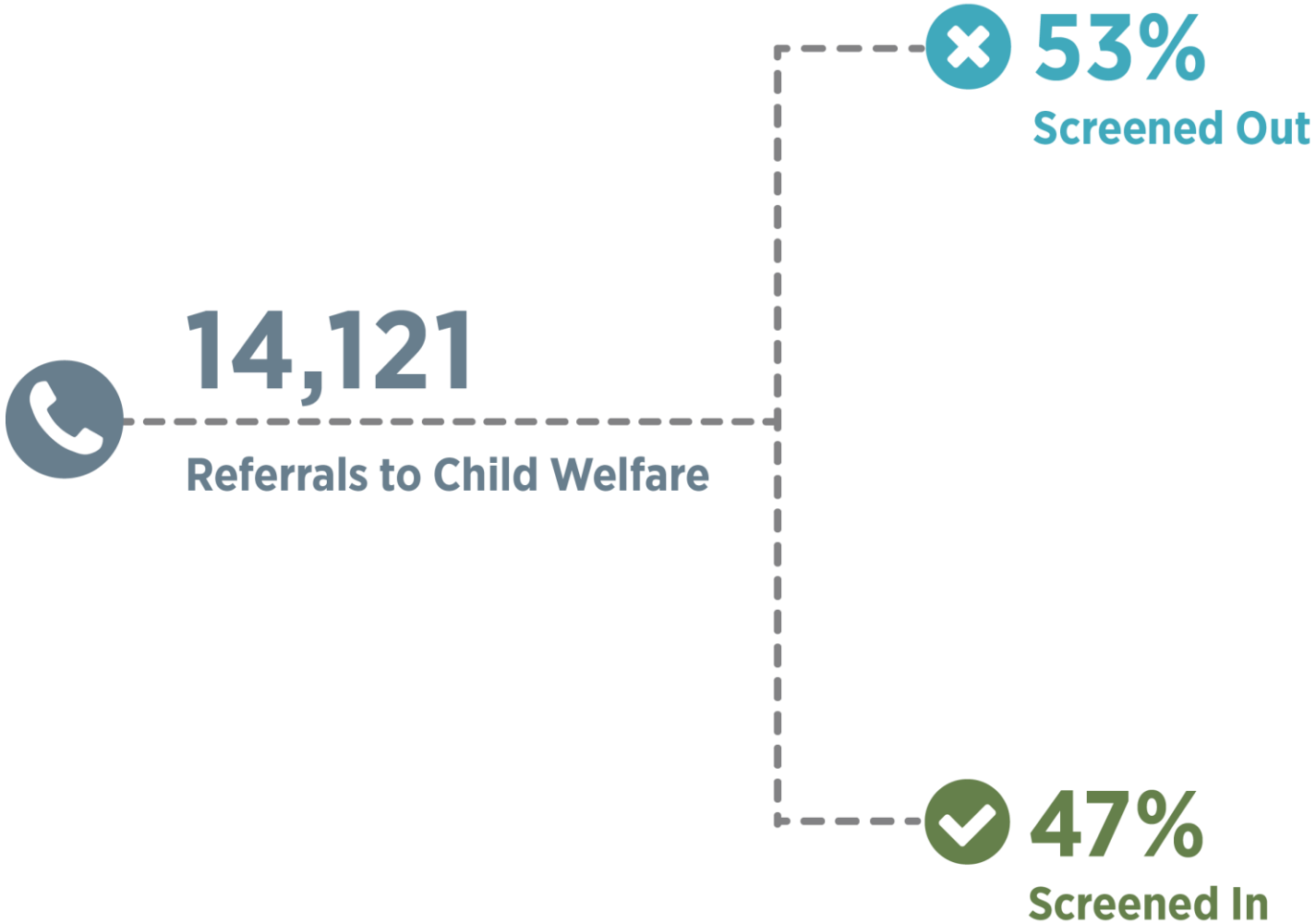
A report of child abuse is made every 10 seconds in the US, involving 6.6 million children per year

37% of children in the US will experience a child abuse investigation at some point in their childhood

We are not the police. We don't have resources to respond to every report

Consequences are tremendous

Improving Hotline Decision-Making



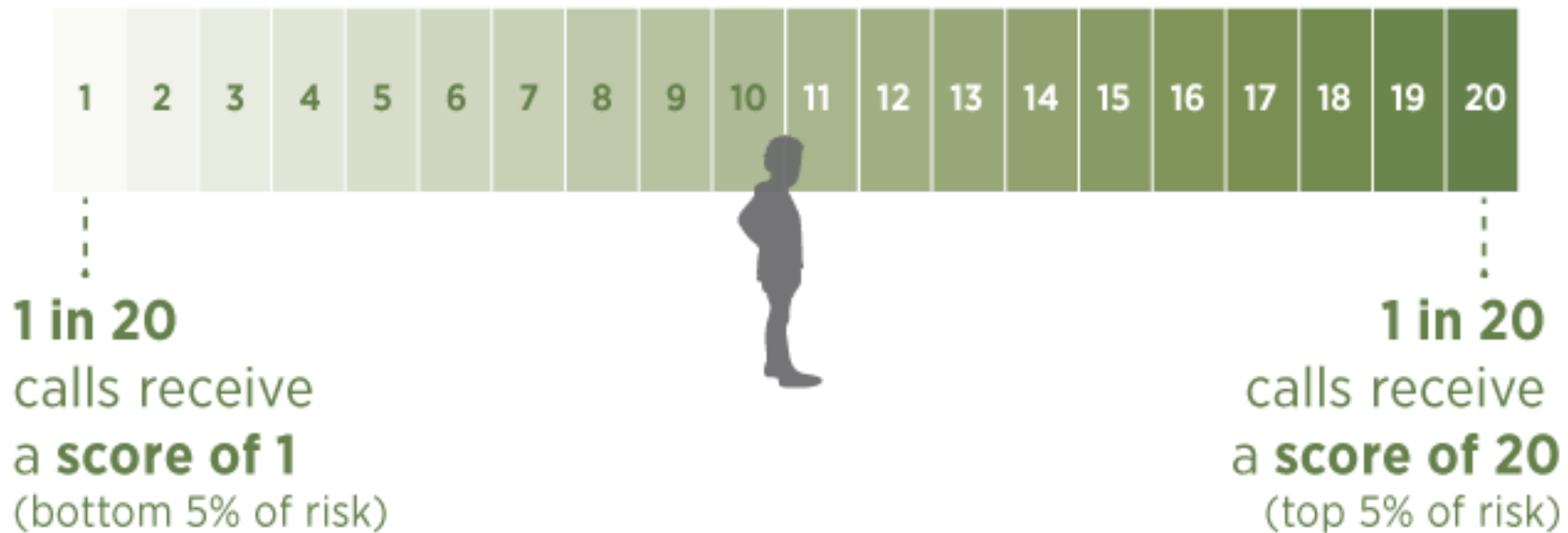
You know what's scarier than predictive risk modeling to help make important decisions?

The way you are making those decisions right now

-me, just now

Developing a Screening Score

- **The screening score is from 1 to 20**
- **The higher the score, the higher the chance of the future event** (e.g., abuse, placement, re-referral) according to the data



Researchers built a screening model based on information that we already collect

They identified more than 100 factors that predict future referral or placement

To test if the model might improve the accuracy of screening decisions, we scored thousands of historical maltreatment calls and then followed the children in subsequent referrals to see how often the model was correct...

The Results: Out-of-Home Placements



1 in 100 children

who received a **score of 1** were placed
out-of-home within 2 years of the call

The Results: **Out-of-Home Placements**



1 in 2 children

who received
**a score of 20 were placed
out-of-home** within
2 years of the call

A group of six diverse young children are sitting on a wooden bench outdoors. From left to right: a boy in a striped polo shirt, a girl in a floral dress, a girl with glasses in a pink shirt, a boy in a plaid shirt, a girl in a striped shirt, and a girl in a white sweater. They are all smiling and appear to be in conversation. The background shows a school building and trees under a clear sky.

Under previous practice:

**27% of highest risk cases
were screened out**

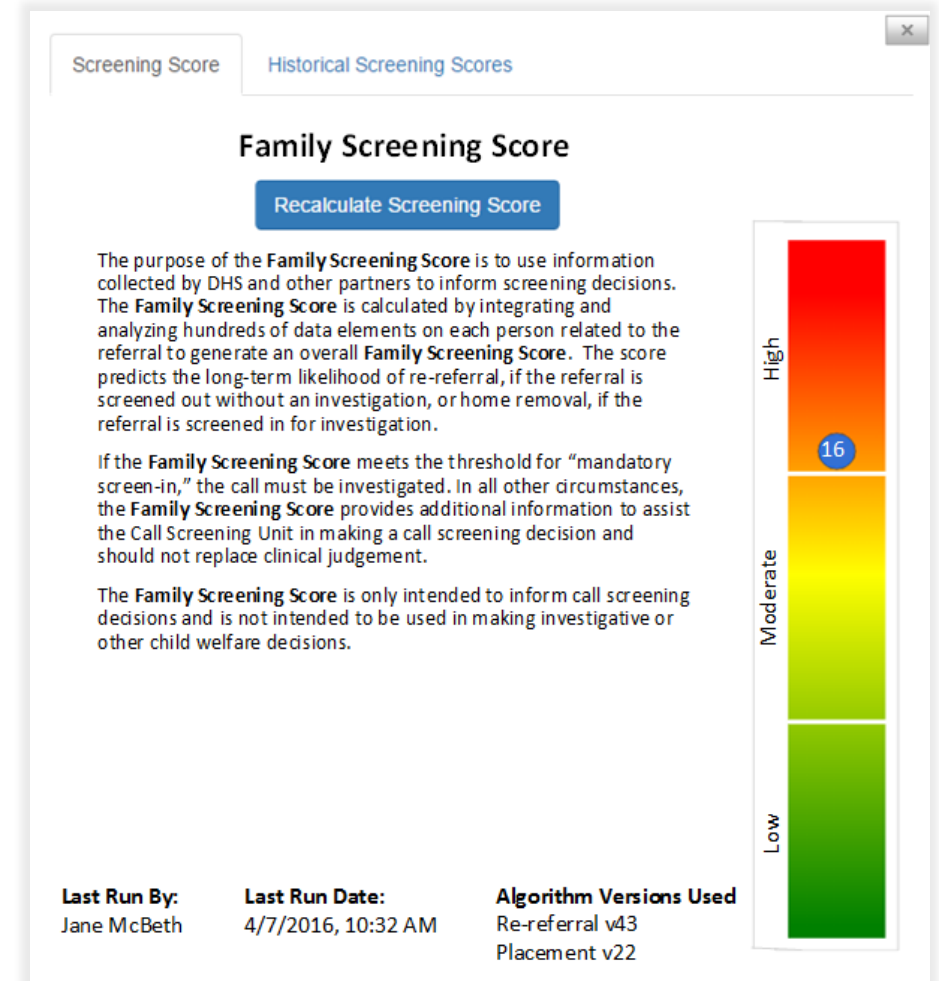
**48% of lowest risk cases
were screened in**

Implementation

- **Live since August 2016**
- **Fixed bugs in November, 2016**
- **Major changes to model, business processes & policies, November, 2018**

So far:

- Viewed in 100% of cases
- Caseworkers not as impressed as the New York Times Magazine
- No increase in investigations but an increase in cases opened
- Not replacing clinical judgement: Concurrence with the score: 31% of low risk cases being screened in; ~61% of high risk cases screened in; recent changes



The screenshot displays a web interface for the Family Screening Score. At the top, there are two tabs: "Screening Score" (selected) and "Historical Screening Scores". Below the tabs, the title "Family Screening Score" is centered, followed by a blue button labeled "Recalculate Screening Score".

The main content area contains three paragraphs of text explaining the score's purpose and usage. To the right of the text is a vertical color scale legend with three sections: "High" (red), "Moderate" (yellow), and "Low" (green). A blue circle with the number "16" is positioned on the boundary between the High and Moderate sections.

At the bottom of the interface, there are three columns of information:

Last Run By:	Last Run Date:	Algorithm Versions Used
Jane McBeth	4/7/2016, 10:32 AM	Re-referral v43 Placement v22

Implementation Considerations

- Technical
- Practice
- Policy
- Communication

Significant Changes in Version 2

- What we are predicting
- Underlying data used
- Modeling method
- Adding a low risk protocol
- Enhanced WTF button
- Enhanced quality assurance

Impact Evaluation

“Implementation of the AFST saw no adverse consequences and increased the accurate identification of children who needed further intervention services, without increasing the workload on investigators.”

Impact Evaluation

- Increased the identification of children determined to be in need of further child welfare intervention.
- Led to reductions in disparities of case opening rates between black and white children.
- Did not lead to increases in the number of children screened-in for investigation.
- No evidence that the AFST resulted in greater screening consistency.

Next Steps

- Monitoring AFST Version 2, particularly concurrence with the score on calls the AFST deems to be very low risk & very high risk.
- Continue culture change around moving away from an allegation-driven system.
- Continued evaluation in Allegheny and monitoring progress in Colorado & California
- Implementing model and intervention designed to **prevent** abuse & neglect

