

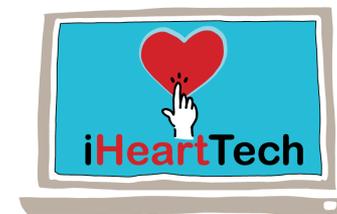


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The mission of the Institute for Healthy Engagement and Resilience with Technology (iHeartTech) is to discover and disseminate research and best practices related to healthy engagement and resilience with technology, and the productive use of technology for social good and effective delivery of social services.



Chair, husITa

human services Information Technology Association) is an international registered US 501(c) non-profit organization whose mission is to promote the ethical and effective use of information technology for human betterment.

Publishes *Journal of Technology in Human Services*



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Network Leadership

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- > [Shari Miller](#) University of Georgia
- > [Melanie Sage](#) University at Buffalo
- > [Jonathan Singer](#) Loyola University Chicago

Harness technology for social good

Innovative applications of new digital technology present opportunities for social and human services to reach more people with greater impact on our most vexing social problems. These new technologies can be deployed to more strategically target social spending, speed up the development of effective programs, and bring a wider array of help to more individuals and communities.

BRIEF DESCRIPTION



How do we harness technology for social good?

(my current social work research)

Ethical practice: how do/how should child welfare workers use technology to inform practice?

Theory building: how do youth in foster care develop *digital resilience* to inform development of *healthy online relationships*?

Engagement: What are relational ways for teachers, schools, clinicians, and agencies to harness tech to improve their outcomes?

Broadly: *How can technology improve outcomes for youth in foster care?*



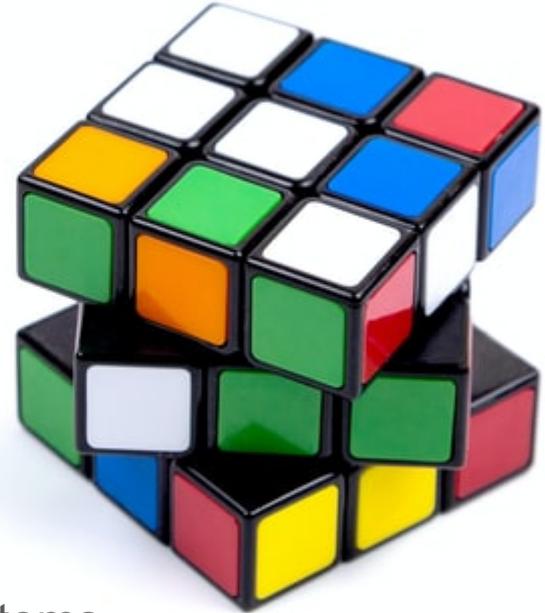


Predictive Analytics in Child Welfare

Landscape,
Pilots, Opportunities,
Barriers & Future Directions

Landscape of Child Welfare (data impacts)

- High caseloads
- High workforce turnover
- Inconsistent policy and practice
- Large disparities in racial outcomes
- Inconsistent service access and delivery
- States (counties) set most standards
- Low data literacy among workers
- Lack of evidence-based solutions
- Inconsistent data definitions, systems
- Unlinked data, out of date data management systems
- Reliance on contracted systems- vendors lose interest, systems too expensive to update, agencies create, interoperability, “shadow systems”



Predictive Risk Analytics

- Allegheny PA/
New Zealand
- NYC (w Kroll)
- Eckerd Rapid Safety
Feedback (FL, IL, OK,
ME, CT, LA, AK, IN,
AL)
- Predict-Align-Prevent
(GPS, Richmond, VA)
- Foster/adoptive
placement matching
(CA)



Allegheny County, PA: Predictive Risk Modeling

Allegheny Family Screening Tool

Please click the Calculate button to run the algorithm.

[Calculate Screening Score](#)

Lower RiskMedium RiskHigher Risk



Last Run By :Last Run Date :
10/15/2018, 09:02 AMAlgorithm Version Used:
Placement v17
Re-Referral v14

The Allegheny Family Screening Tool considers hundreds of data elements and insights from historic referral outcomes to estimate the likelihood of this referral resulting in the need for a child's protective removal from the home within 2 years. It is only intended to help inform call screening decisions, and is not intended for use in investigation or other decision - nor should it be considered a substitute for clinical judgement.

Uses:

- Child welfare records
- Jail records
- Juvenile probation records
- Behavioral health records

Predicts the likelihood that child will come into foster care in the next two years

Screener can override decision

Blind to worker who visits the home

"This book is downright scary—but...you will emerge smarter and more empowered to demand justice." —NAOMI KLEIN



AUTOMATING INEQUALITY

HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR



VIRGINIA EUBANKS

Facebook was just fined

\$5 BILLION

For doing what Pittsburgh's child protective services agency does every day:

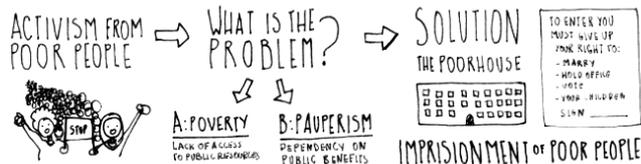
Taking people's data without their consent and turning it against them.

National Coalition for Child Protection Reform, www.nccpr.org

WE'RE BUILDING A DIGITAL POORHOUSE



1819: CONTAINMENT



1873: INVESTIGATION



1973: DIGITAL SURVEILLANCE → PREDICTION



New York City's effort

EYE ON THE NEWS

Official Neglect

Can New York City's flawed child-welfare system be fixed?

Amy Neustein

August 30, 2018 New York; Health Care

Against this bleak picture of administrative dysfunction, David Hansell, commissioner of the Administration for Children's Services since 2016, has fought to revamp his agency's image. Through a series of PowerPoint presentations and media interviews, he has tried to usher in a new era of transparency. Following the lead of the NYPD, whose use of data has been lauded for containing and preventing crime, Hansell championed "predictive analytics" to enable early detection of which children are likely to be at risk of abuse or neglect. Before this initiative got off the ground, though, his metrics drew intense fire from activists, who condemned the proposal as a pretext for "racial profiling" of parents, in order to seize their children without cause.

Director of Predictive Analytics - 400124

NYC Administration for Children's Services • New York City, NY, US

Job Description

The Predictive Analytic unit focuses on the design, implementation and evaluation of predictive models. The models, using routinely collected administrative data, support more efficient and equitable allocation of resources and services. The unit director will be reporting to the Associate Commissioner for Research and Analytics within the Division of Policy Planning and Measurement.

Responsibilities Include

- Lead a small team in developing, refining and validating predictive risk statistical models for individuals and families involved in the NYC child welfare and juvenile justice systems.
- Evaluate the performance of models and their integration into the agency's business processes
- Maintain and update pipelines written in R and SQL for automating model building and risk predictions.
- Use current research on fairness, accountability, and transparency from the machine learning community (i.e., FAT-ML) to inform model development and implementation.
- Develop reports and presentations that summarize models' specifications, performance and evaluations for technical and non-technical audiences including internal and external stakeholders.
- Draft literature reviews about the use of predictive models in child welfare, juvenile justice and other relevant domains such as other social services and criminal justice.
- Provide data analysis support to other units within the Division of Policy Planning and Measurement and other ACS units, as needed

PREDICT

Optimize efficiency and focus

Geospatial predictive risk modeling identifies high-risk places where child maltreatment and related fatality are likely to occur in the future -- without profiling individuals.

The resulting maps clearly demonstrate how child abuse and neglect co-occur geographically with preventable infant and child deaths and toxic-stress-related outcomes such as asthma and low third grade reading proficiency.

This visualization makes a very strong argument for the importance of cross-sector strategic planning and collaboration across cities, counties, and states.

ALIGN

Make a bigger impact

Once we learn where children are most vulnerable to maltreatment and related fatality we can align resources precisely where they will do the most good.

We work with motivated communities to bring together medical, faith-based, social services, government, police, policy and other stakeholders to strategically and rigorously address the problems that CAN be solved in a community to prevent child abuse and neglect. Also determined during this phase are capacity needs for vital services, gaps in the safety net, and opportunities for community-wide standardization of prevention messaging.

PREVENT

Put children first

If the resources and services aligned in high-risk areas are effective, there should be a reduction in child abuse and neglect, related deaths, and contributory risk factors. These outcomes are tracked at a population level inside high-risk places.

Objective measures of improvement include a reduction in events such as violent crime, domestic violence, teen pregnancy, drug arrests, mental health crisis, school bullying, neglectful supervision related child injuries, and ultimately child maltreatment. Some combination of services, support, infrastructure and economic development will be preventive.

Risk terrain modeling: geospatial data

- | |
|-----------------------|
| • Aggravated Assaults |
| • Bars & Nightclubs |
| • Murders |
| • Domestic Violence |
| • Drug Crimes |
| • Gang Presence |
| • Prostitution |
| • Poverty |
| • Robberies |
| • Runaways |

**Dependent variable:
Substantiated Cases of Child
Maltreatment**

It was able to accurately predict 52% of all instances during the subsequent year in only one-tenth of the city's area that was identified as having the most problematic aggregation of risk factors.

Possibilities

- Use of data and evidence to make better decisions
- Accountability about how decisions are made
- Effective use of public dollars/targeted services
- Better understandings of the routes to outcomes
- Preventative services/move upstream
- Build stronger communities (GPS)
- More time with clients
- Increase “fairness”
- Individualized plans/
intervention matching
may increase equity

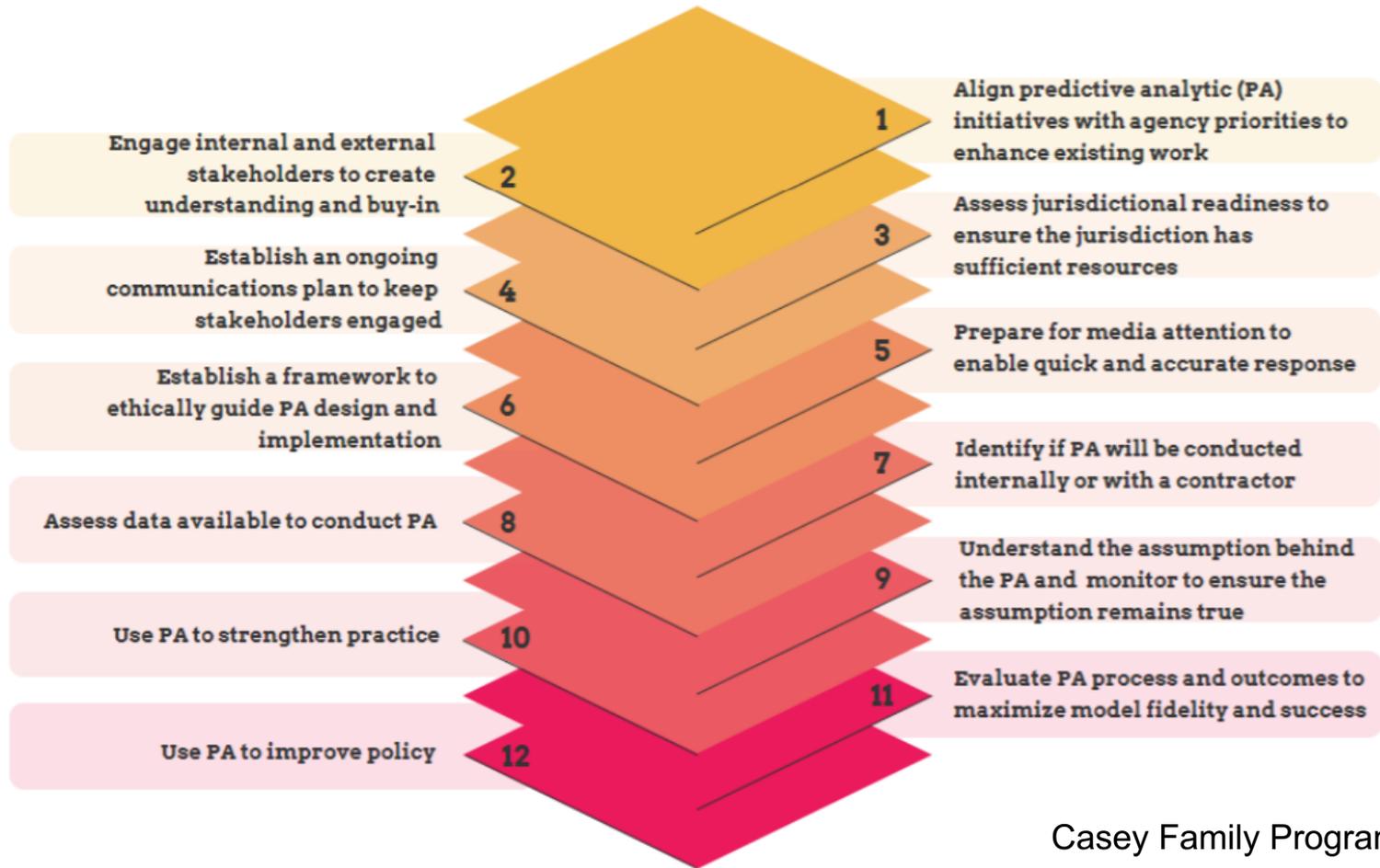




Concerns

- Surveillance/civil liberties/confidentiality
- Over-surveilling targeted communities
- Human bias embedded in data
- Bad data (collection, representation)
- Service allocation
- Stigmatization- often the “predictors” are not correctable
- “Black swan” events
- Culpability for decision-making
- Disproportionate use of public information privileges those with resources
- Lack of effective treatment/responses
- Black box/lack of transparency in design
- Public perceptions/accountability
- Allure of objectivity
- Useability/Usefulness
- Other ways data may bias service delivery
- Multiple views of fairness re: outcomes

12 Considerations for Applying Predictive Analytics in Child Welfare



Social Science Talk	Computer Science Talk
Data quality concerns	Garbage in, Garbage Out
Over-representation of high risk cases in data	Data is enriched without correcting for oversampling
Data isn't useful to workers	UX/UI Problems
Goal is to id cases for preventative services	Recommender system
Involve stakeholders in design	Participatory modeling
Systematically identifying concerns	Annotation task
Environment	Sociaotechnical context
Human bias captured in the data	Bias, through various intermediaries, bound up in training data



transparent, accountable, explainable, trustworthy, and fair

Advice if you want to do work like this...

- Develop clear research question
- Engage stakeholders and advisory group (workers, cs, Social scientists, community)
- Assess org readiness and resources
- Decide internal/external design
- Communication and media plan
- Ongoing ethical guidance
- Assess data
 - Examine bias, consider consent issues
- Include community-level analytics
- Monitor assumptions about data
 - Past predicts present; data reliable
- Develop meaningful reporting
- Use outcomes to improve practice
- Use outcomes to improve policy
- Consider usability (UX/UI/practical application)
- Informs clinical judgement, not replaces



Current NYTD Fairness Project: Goals

- **Contribute to foundational computer science knowledge**
 - Develop applied framework (qualitative and computational) for evaluating and carrying out applied PA projects
 - Conceptualize multiple perspectives of fairness so that they can inform algorithms
- **Inform the field about how to use predictive analytics for policy and practice improvement in child welfare**
 - Youth aging out of foster care- can we develop a fair recommender system?
 - With focus on ethical considerations and impact on most vulnerable



National Youth in Transition (NYTD) Datasets

- Assist youth in transitioning to adulthood- youth characteristics and services offered since 2010
- Required by states- report every 6 months: ages 17, 19, 21
- Links by child ID to AFCARS measures
- Demographics, services, outcomes (financial self-sufficiency, education, homelessness, parenting, drug tx, incarceration, and health insurance)
- Participation rates by states vary (25%-60%)

Social work questions:

- **How do we better target preventative services to those who most need them?**
- **How do we get child welfare agencies and stakeholders to trust and adopt Predictive Analytics?**
- **How can PA inform organizational policy and practice?**

Computer science questions:

- **How do we develop a framework (qualitative and computational) that accounts for bias in data?**
- **Can we computationally model and systematically adjust for multiple perspectives of fairness?**

Complicated things to figure out:

How do we build equity into an algorithm? Is it just (or legal) to use race as a factor to target services that improve equity?

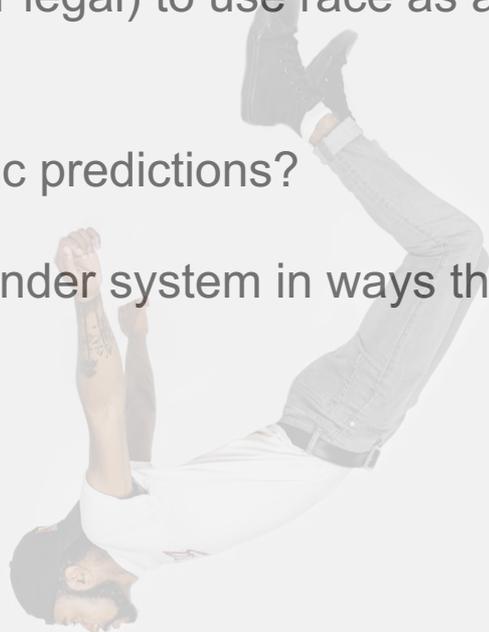
How do we balance perceived fairness with algorithmic predictions?

How do we balance clinical wisdom and the recommender system in ways that promote accountability?

How do we avoid recommendations that fuel bias?

Do the benefits outweigh the risks?

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Should we use predictive analytics to make decisions about who comes into foster care?

What are possible definitions of “fairness” in service delivery to foster youth??

PASSION LED US HERE



Resources

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