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## Predictive Analytics in Child Welfare: Five Principles for Regulating Algorithmic Accountability in a New Wave of Predictive Models

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PREDICTIVE ANALYTICS IN CHILD WELFARE: FIVE  
PRINCIPLES FOR REGULATING ALGORITHMIC  
ACCOUNTABILITY IN A NEW WAVE OF PREDICTIVE  
MODELS

*Michael Blanchard\**

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## I. INTRODUCTION

Every forty-seven seconds in America, a child is abused or neglected.<sup>1</sup> While this equates to approximately 700,000 cases of maltreatment a year, child protective agencies can receive in excess of 4.4 million referral reports to evaluate and investigate.<sup>2</sup> These agencies struggle to keep up with the high volume of calls and often resort to making quick decisions regarding follow-up investigations based on a limited set of facts.<sup>3</sup> Agencies must also attempt to determine the likelihood that a family will need assistance and support later on, as well as recommend various support and intervention programs.<sup>4</sup> Historically, screening decisions were solely handled by human case workers who evaluated each call on a case-by-case basis.<sup>5</sup> In an effort to streamline the call process and limit deficiencies in the current system, select jurisdictions across the country have implemented predictive algorithms to assist in this

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1. *Child Abuse Statistics*, CHILD. ADVOC. CTR. TENN., <http://www.cactn.org/child-abuse-information/statistics> [<https://perma.cc/K47E-8NEE>] (last visited Apr. 3, 2022); see also Mason P. Thomas, Jr., *Child Abuse and Neglect Part I: Historical Overview, Legal Matrix, And Social Perspectives*, 50 N.C. L. REV. 293, 293 (1972); Mary Hoft & Lisa Hadda, *Screening Children for Abuse and Neglect: A Review of the Literature*, 13 J. FORENSIC NURSING 26, 26 (2017), <https://nursing.ceconnection.com/ovidfiles/01263942-201703000-00005.pdf> [<https://perma.cc/E7AM-D8HV>] (“Child abuse and neglect, also known as child maltreatment . . . , are a national and international public health epidemic with devastating consequences.”).
2. See *Child Maltreatment Statistics*, AM. SOC’Y POSITIVE CARE CHILD., <https://americanspcc.org/child-abuse-statistics/> [<https://perma.cc/2KPR-2HPR>] (last visited Apr. 3, 2022); see also Melissa T. Merrick & Natasha E. Latzman, *Child Maltreatment: A Public Health Overview and Prevention Considerations*, 19 ONLINE J. ISSUES NURSING, Jan. 31, 2014, at 1, <https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-19-2014/No1-Jan-2014/Child-Maltreatment.html> [<https://perma.cc/826R-CAR5>]; CHILD WELFARE INFO. GATEWAY, CHILD MALTREATMENT PREVENTION: PAST, PRESENT, FUTURE 1 (2017), [https://www.childwelfare.gov/pubPDFs/cm\\_prevention.pdf](https://www.childwelfare.gov/pubPDFs/cm_prevention.pdf) [<https://perma.cc/8HXF-XZVN>].
3. See *infra* notes 42–51 and accompanying text.
4. See *infra* Section II.B.
5. See *infra* Section II.B.

difficult decision-making process.<sup>6</sup> By evaluating a range of demographic and historical data, these algorithms attempt to predict the likelihood of future abuse or neglect and assess the need for follow-up investigations.<sup>7</sup> While the goal of adopting algorithmic tools is sound, numerous scholars have demonstrated that the data used to make this prediction disproportionately affects low-income and minority families and discriminates on cultural and socioeconomic distinctions.<sup>8</sup>

Some jurisdictions are aware of these disparities and are attempting to correct them by moving away from the earlier ‘retrospective’ based assessment models to a new wave of ‘proactive’ predictive based models.<sup>9</sup> In September 2020, the Allegheny County Department of Human Services launched the new “Hello Baby” predictive risk modeling (PRM) tool.<sup>10</sup> This tool is the first of its kind and attempts to categorize new families into different service tiers based on predicted future needs.<sup>11</sup> Starting when a baby is born, this tool automatically connects families with services and resource specialists who contact the family and offer support.<sup>12</sup> Hello Baby essentially acts as a gatekeeper and makes predictions about a family’s propensity for maltreatment without ever giving them the chance to raise their new child.<sup>13</sup> By comparing the two well-known predictive models used in Pennsylvania, this article will show that the new Hello Baby PRM tool reinforces long-standing biases and fails to address the negative effects that prior models have on low-income families.<sup>14</sup>

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6. See *infra* Section II.C; see also Amer Shakil et al., *Pedhits: A Screening Tool to Detect Childhood Abuse in Clinical Settings*, 50 *FAM. MED.* 763, 763 (2018) <https://journals.stfm.org/media/1905/bridges-2018-0203.pdf> [<https://perma.cc/U5ZM-7V2X>] (“Despite [the] pervasiveness [of child abuse and neglect], health care providers fail to screen for abuse at rates sufficient to detect or preempt events.”).
  7. See *infra* Section II.C.
  8. See Betsy Anne Williams et al., *How Algorithms Discriminate Based on Data They Lack*, 8 *J. INFO. POL’Y* 78, 83–94 (2018); see also *infra* Parts II–III.
  9. See *infra* Part III.
  10. *Hello Baby: Innovative Child Maltreatment Prevention Program Launches in Allegheny Co., PA*, *CHILD WELFARE MONITOR* (Oct. 21, 2020) [hereinafter *CHILD WELFARE MONITOR*], <https://childwelfaremonitor.org/2020/10/21/hello-baby-innovative-child-maltreatment-prevention-program-launches-in-allegheny-co-pa/> [<https://perma.cc/D6F4-5HGY>].
  11. See *id.*
  12. See *id.*
  13. See *id.*
  14. See *infra* Part III.

Algorithms are becoming increasingly common in many facets of society;<sup>15</sup> however, there is currently a lack of overarching regulation to monitor and restrain them—including those in the child welfare realm.<sup>16</sup> Due to the high stakes of child welfare cases, decisions regarding available support and placement of children should not be left solely to biased computer algorithms.<sup>17</sup> Because of a psychological phenomenon of assuming computers are better decision-makers,<sup>18</sup> caseworkers often over rely on these predictive scores. A certain level of human intervention is needed, and polices should be implemented to ensure that all families receive a fair determination of their situation and that caseworkers are not improperly influenced by computer generated scores.<sup>19</sup> Child welfare algorithms currently lack accountability measures and continue to disproportionately single out low-income families and minority groups.<sup>20</sup> Algorithmic accountability regulation is needed and this article will discuss five principles that future models can adopt that would cure some of the discriminatory effects.<sup>21</sup>

Part II of this Comment discusses the issue of child maltreatment and gives a historical overview of the various methods used for screening abuse and neglect.<sup>22</sup> It outlines how calls are screened by human case workers and how deficiencies in that system led some jurisdictions to introduce predictive analytics into the process.<sup>23</sup> Part III provides an analysis of the new Hello Baby predictive risk modeling (PRM) tool and discusses how, despite improved efforts, there are still many deficiencies and potential discrimination within the model.<sup>24</sup> Part IV of this Comment explores various principles the Hello Baby model could adopt to help improve accuracy and limit

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15. See CATHY O'NEIL, *WEAPONS OF MATH DESTRUCTION* 31 (2016).

16. See generally Reuben Binns, *Algorithmic Accountability and Public Reason*, 31 *PHIL. & TECH.* 542, 552 (2018).

17. See Stephanie K. Glaberson, *Coding Over the Cracks: Predictive Analytics and Child Protection*, 46 *FORDHAM URB. L.J.* 307, 336 (2019).

18. See *infra* notes 147–51 and accompanying text.

19. See Arne Wolfewicz, *Human-in-the-loop in Machine Learning: What is it and How Does it Work?*, *LEVITY* (Dec. 24, 2021), <https://www.levity.ai/blog/human-in-the-loop> [<https://perma.cc/NC5U-AUB6>] (describing the concept of human in the loop).

20. See Nicol Turner Lee et al., *Algorithmic Bias Detection and Mitigation: Best Practices and Policies to Reduce Consumer Harms*, *BROOKINGS* (May 22, 2019), <https://www.brookings.edu/research/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/> [<https://perma.cc/7H8W-H8Z4>].

21. See *infra* Part IV.

22. See *infra* Part II.

23. See *infra* Part II.

24. See *infra* Part III.

bias.<sup>25</sup> Part V concludes by summarizing the next steps that must be taken if Allegheny County or other jurisdictions hope to see the Hello Baby PRM tool and similar models work successfully and with limited disproportionate effects on minority groups and low-income families.<sup>26</sup>

## II. HISTORICAL OVERVIEW: SCREENING FOR CHILD MALTREATMENT

### A. *The Problem of Child Maltreatment*

Child maltreatment is an overarching term used to describe the abuse and neglect of children under eighteen years of age.<sup>27</sup> While most commonly thought to involve only physical and emotional harm to a child, maltreatment also includes things such as sexual abuse, neglect, negligence, or any other action that results in actual or potential harm to a child's health.<sup>28</sup> Child maltreatment has been rampant throughout history but has only recently started to gain more acknowledgement.<sup>29</sup> The World Health Organization reports that “[n]early 3 in 4 children—or 300 million children—aged 2–4 years regularly suffer physical punishment and/or psychological violence at the hands of parents and caregivers.”<sup>30</sup> Additionally, “[i]n the past century, [child maltreatment] has surpassed disease as the leading

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25. See *infra* Part IV.

26. See *infra* Part V.

27. *Child Maltreatment*, WORLD HEALTH ORG. (June 8, 2020) [hereinafter WORLD HEALTH ORGANIZATION], <https://www.who.int/news-room/fact-sheets/detail/child-maltreatment> [<https://perma.cc/D25G-FACX>].

28. See *id.*; see also Cathryn Hunter, *Effects of Child Abuse and Neglect for Children and Adolescents*, AUSTL. INST. FAM. STUD. (Jan. 2014), <https://aifs.gov.au/cfca/publications/effects-child-abuse-and-neglect-children-and-adolescents> [<https://perma.cc/3W2C-233X>] (“Child abuse and neglect refers to any behaviour by parents, caregivers, other adults or older adolescents that is outside the norms of conduct and entails a substantial risk of causing physical or emotional harm to a child or young person.”).

29. See CHILD WELFARE INFO. GATEWAY, *supra* note 2; see also JOHN E. B. MYERS, *LEGAL ISSUES IN CHILD ABUSE AND NEGLECT PRACTICE* 1 (2d ed. 1998).

30. WORLD HEALTH ORGANIZATION, *supra* note 27; see also Kimberly Key, *Why is Child Abuse on the Rise?*, PSYCH. TODAY (Nov. 10, 2016), <https://www.psychologytoday.com/us/blog/counseling-keys/201611/why-is-child-abuse-the-rise> [<https://perma.cc/MC3T-6YUM>] (Child abuse has a “\$124 billion [annual] cost in the U.S. . . . [and] 23.1 per 1,000 babies under the age of 1 year suffer from child maltreatment.”).

cause of child mortality in the United States.”<sup>31</sup> There has also been a notable spike in child maltreatment-related injuries during the COVID-19 pandemic.<sup>32</sup> While the overall number of reports has slightly decreased, the number of harmful injuries suffered by children has increased.<sup>33</sup> Experts believe this was primarily because children were no longer able to go to in-person school and consequently had less interaction with mandated reporters.<sup>34</sup> “Mandated reporters’ are people who, because they hold occupations such as teachers or police officers, are required by state law to report maltreatment.”<sup>35</sup>

Despite popular belief, the primary reason children are removed from the home is due to allegations of neglect and not for abuse.<sup>36</sup> Neglect is loosely defined as depriving a child of basic needs and involves things such as food or housing insecurity, lack of affordable childcare, and lack of healthcare accommodations.<sup>37</sup> These deprivations are disproportionately experienced by low-income families.<sup>38</sup> There is currently a problem with rampant over-reporting of perceived neglect, particularly in communities of color or

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31. Jennifer A.L. Sheldon-Sherman, *Preventing Child Maltreatment Fatalities*, 20 VA. J. SOC. POL’Y & L. 365, 367 (2013).
  32. See Candy Woodall, *As Hospitals See More Severe Child Abuse Injuries During Coronavirus, ‘The Worst is Yet to Come’*, USA TODAY, <https://www.usatoday.com/story/news/nation/2020/05/13/hospitals-seeing-more-severe-child-abuse-injuries-during-coronavirus/3116395001/> [<https://perma.cc/KWF9-ARHV>] (May 13, 2020, 12:18 PM) (noting that while reports have dissipated during the stay-at-home period—most likely due to the lack of interaction between children and mandated reporters—the abuse has not).
  33. *See id.*
  34. See Shanta Trivedi, *Why the Drop in Child Welfare Reports Might Be a Good Sign*, SLATE (May 14, 2020, 1:26 PM), <https://slate.com/news-and-politics/2020/05/coronavirus-child-welfare-reports.html> [<https://perma.cc/296S-YWQV>].
  35. AARON DUMAS ET AL., CHILD WELFARE SCREENING IN WISCONSIN: AN ANALYSIS OF FAMILIES SCREENED OUT OF CHILD PROTECTIVE SERVICES AND SUBSEQUENTLY SCREENED IN 2 (2015), <https://lafollette.wisc.edu/images/publications/workshops/2015-dcf.pdf> [<https://perma.cc/TMZ6-ZDNS>] (“Failure to report may result in six months in prison and/or a \$1000 fine.”).
  36. See Trivedi, *supra* note 34; see also Ferol E. Mennen et al., *Child Neglect: Definition and Identification of Youth’s Experiences in Official Reports of Maltreatment*, 34 CHILD ABUSE & NEGLECT 647, 647–48 (2010).
  37. See Mennen et al., *supra* note 36; see also Trivedi, *supra* note 34.
  38. See Trivedi, *supra* note 34; see also DOROTHY ROBERTS, SHATTERED BONDS: THE COLOR OF CHILD WELFARE 33 (2002) (“Neglect is usually better classified as child maltreatment *defined* by poverty rather than maltreatment *caused* by poverty.”).

poverty.<sup>39</sup> The influx of unsubstantiated or frivolous claims overburdens the system and limits the resources available for others—thereby creating a paradox where the more “help” a state tries to offer actually creates more harm for those who are experiencing real maltreatment.<sup>40</sup> Consequently, “parents lose their children every day simply because they are poor” and not because of actual neglect.<sup>41</sup>

While every jurisdiction varies with respect to how they screen calls, most follow a similar process.<sup>42</sup> When a call is made to Child Protective Services (CPS) that alleges abuse or neglect, staff must first decide whether to “screen in” or “screen out” the call.<sup>43</sup> A report is typically screened in if there is sufficient information to suggest abuse or neglect.<sup>44</sup> Conversely, “[a] report may be screened out if there is not enough information on which to follow up or if the situation reported does not meet the [s]tate’s legal definition of abuse or neglect.”<sup>45</sup> After this initial determination, calls that are screened out require no additional action and may be referred to community assistance programs at the caseworker’s discretion.<sup>46</sup> Calls that are screened in undergo a more intensive investigation.<sup>47</sup> During this investigation, most states use a preponderance of the evidence standard of review to assess whether the report is substantiated.<sup>48</sup> If a report is substantiated, states are given some discretion in their next

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39. See Trivedi, *supra* note 34; see also ROBERTS, *supra* note 38, at 6 (“Black families are overrepresented in child maltreatment reports, case openings, and the foster care population.”).

40. See Trivedi, *supra* note 34.

41. See *id.*

42. See Walter R. McDonald, *Assessing the Feasibility of Creating and Maintaining a National Registry of Child Maltreatment Perpetrators: Research Report*, U.S. DEP’T OF HEALTH & HUM. SERVS. (Aug. 31, 2012), <https://aspe.hhs.gov/reports/assessing-feasibility-creating-maintaining-national-registry-child-maltreatment-perpetrators-0> [<https://perma.cc/8W6K-LT3C>]; see also *How Does the Child Welfare System Work?*, MENTALHELP.NET [hereinafter *Child Welfare System*], <https://www.mentalhelp.net/abuse/how-does-the-child-welfare-system-work/> [<https://perma.cc/49XH-4C2T>] (last visited Apr. 3, 2022).

43. *Child Welfare System*, *supra* note 42.

44. See Jeri L. Damman et al., *Factors Associated with the Decision to Investigate Child Protective Services Referrals: A Systematic Review*, 25 CHILD & FAM. SOC. WORK 785, 786 (2020).

45. *Child Welfare System*, *supra* note 42; see also Damman et al., *supra* note 44.

46. See CHILD WELFARE INFO. GATEWAY, MAKING AND SCREENING REPORTS OF CHILD ABUSE AND NEGLECT 68 (2017), <https://www.childwelfare.gov/pubPDFs/repproc.pdf> [<https://perma.cc/4JU3-HXUR>].

47. See McDonald, *supra* note 42.

48. *Id.*



steps but are required by federal law to “provide ‘reasonable efforts’ to ‘prevent or eliminate the need for removing the child from the child’s home.’”<sup>49</sup> This could be in the form of preventative services, mandated counseling, or periodic home visits.<sup>50</sup> In more severe cases, agents may seek to remove the child from the home or may petition the court to compel participation in preventative services if it is apparent that the child’s wellbeing is at significant risk.<sup>51</sup>

### B. *Human Decision-Making Screening*

Historically, the decision to screen in or screen out a call was left solely to human decision making.<sup>52</sup> Under that model, when a report is made to CPS, a case worker weighs the allegations to determine whether further action is needed.<sup>53</sup> This process requires compassion, empathy, understanding, and consideration of several factors.<sup>54</sup> Human decision making continues to be the predominate approach taken by the majority of jurisdictions today and serves as a baseline for evaluating the overall efficiency of the call screening process.<sup>55</sup>

It is a well-accepted fact that marginalized communities are overrepresented in the child welfare system.<sup>56</sup> This is partly due to some of the misconceptions surrounding neglect discussed earlier<sup>57</sup> but also due to both a conscious and unconscious bias held by those who are evaluating the reports.<sup>58</sup> “In fact, the child protection process is designed in a way that practically invites racial bias. Vague definitions of neglect, unbridled discretion, and lack of training form a dangerous combination in the hands of caseworkers charged with deciding the fate of families.”<sup>59</sup> Case workers are given virtually

49. 42 U.S.C. § 671(a)(15)(B)(i) (2019); *see also* Glaberson, *supra* note 17, at 313.

50. *See* Glaberson, *supra* note 17, at 313–14.

51. *See id.* at 314–15.

52. *See id.* at 317–20.

53. *See id.* at 312.

54. *See* DIANE DEPANFILIS & MARSHA K. SALUS, U.S. DEP’T OF HEALTH & HUM. SERVS., CHILD PROTECTIVE SERVICES: A GUIDE FOR CASEWORKERS 17–18 (2003).

55. *See generally id.* at 35–37; *see also* ROBERTS, *supra* note 38, at 54–55.

56. *See* SUSAN CHIBNALL ET AL., U.S. DEP’T OF HEALTH & HUMAN SERVS., CHILDREN OF COLOR IN THE CHILD WELFARE SYSTEM: PERSPECTIVES FROM THE CHILD WELFARE COMMUNITY 3 (2003), <https://www.childwelfare.gov/pubPDFs/children.pdf> [<https://perma.cc/K2MR-446J>]; *see also* Tanya A. Cooper, *Racial Bias in American Foster Care: The National Debate*, 97 MARQ. L. REV. 215, 224 (2013) (“In 2013, African American children comprised only 13.9% of the overall population of children in the United States but represented nearly double that percent in foster care at 26% (or 101,938 African American children).”).

57. *See supra* text accompanying notes 37–41.

58. *See* ROBERTS, *supra* note 38, at 47, 52, 56.

59. *See id.* at 55.

unfettered discretion in their interpretation of abuse and neglect and their decisions to screen in a call.<sup>60</sup> This leads to a myriad of different results and overall confusion and mistrust in the system.

To combat these disparities and to improve efficiency, some jurisdictions have adopted manual risk assessment models that caseworkers can utilize in their decision-making processes.<sup>61</sup> Risk assessment models are guides or checklists that caseworkers use to help better predict and identify risk to children.<sup>62</sup> “Caseworkers typically check off and weigh a list of family traits to tell the degree to which a child is likely to be abused or neglected at some point in the future.”<sup>63</sup> While adopting this approach does bring some uniformity to the human decision-making process, it still fails to address the underlying concerns of bias.<sup>64</sup> Staff are ill-prepared to detect their own biases and—despite increased training—a person’s unconscious bias will still influence their ability to make decisions.<sup>65</sup> Additionally, most of these risk assessment models are not properly researched or evaluated before they are implemented.<sup>66</sup> “[U]se of inadequately designed or researched risk-assessment instruments may result in poorer decisions, because workers will rely on mechanical rules and procedures instead of trying to develop greater clinical expertise.”<sup>67</sup> The inadequacies of the human decision-making process, even when using manual risk assessment models, are what lead some jurisdictions to adopt predictive analytics in an effort to help cure some of these deficiencies.<sup>68</sup>

### C. *The Addition of Predictive Analytics to Child Welfare*

To better improve and streamline the process of screening calls, some jurisdictions have begun to use predictive analytics and risk assessment algorithms to aid case workers in detecting abuse and

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60. *See id.* at 56.

61. *See id.* at 57; *see also* Stephanie Cuccaro-Alamin et al., *Risk Assessment and Decision Making in Child Protective Services: Predictive Risk Modeling in Context*, 79 CHILD. & YOUTH SERVS. REV. 291, 292 (2017).

62. *See Risk Assessment*, CANADIAN CTR. OCCUPATIONAL HEALTH & SAFETY, [https://www.ccohs.ca/oshanswers/hsprograms/risk\\_assessment.html](https://www.ccohs.ca/oshanswers/hsprograms/risk_assessment.html) [<https://perma.cc/5T48-7FS9>] (last visited Apr. 3, 2022).

63. ROBERTS, *supra* note 38, at 57.

64. *See id.*

65. *See id.* at 56–57.

66. *See id.* at 57.

67. *Id.*

68. *See infra* Section II.C.

neglect.<sup>69</sup> The goal is to bring a certain amount of automation to the human decision-making process discussed earlier and to supplement human reasoning in the evaluation.<sup>70</sup>

Predictive analytics, also known as “predictive risk modeling,” involves “the use of data, statistical algorithms and machine learning techniques to identify the likelihood of future outcomes based on historical data.”<sup>71</sup> At its core, an algorithm is merely a set of mathematical instructions designed to perform a specific task.<sup>72</sup> Computers can use these mathematical instructions to run regressions and develop trends in data to forecast likely results.<sup>73</sup> An algorithm

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69. See *Predictive Analytics*, FLA. INST. FOR CHILD WELFARE, <https://ficw.fsu.edu/research-evaluation/predictive-analytics> [<https://perma.cc/M9MH-X96M>] (last visited Apr. 3, 2022); see also *Research Areas*, DIG. WELL-BEING FOR CHILD WELFARE, <https://www.digitalchildwelfare.org/research-areas/> [<https://perma.cc/NPQ9-2QX9>] (last visited Apr. 3, 2022) (“Algorithmic decision-making systems are now being used in the public sector to make important decisions about human lives.”).
70. See Virginia Eubanks, *A Child Abuse Prediction Model Fails Poor Families*, WIRED (Jan. 15, 2018, 8:00 AM), <https://www.wired.com/story/excerpt-from-automating-inequality/> [<https://perma.cc/Q869-GP7L>].
71. *Predictive Analytics: What it is and Why it Matters*, SAS, [https://www.sas.com/en\\_us/insights/analytics/predictive-analytics.html](https://www.sas.com/en_us/insights/analytics/predictive-analytics.html) [<https://perma.cc/Y73P-6PT6>] (last visited May 4, 2022); see also Clay Halton, *Predictive Analytics*, INVESTOPEDIA, <https://www.investopedia.com/terms/p/predictive-analytics.asp> [<https://perma.cc/G9LZ-BSKD>] (June 30, 2021) (“[P]redictive analytics refers to the use of statistics and modeling techniques to make predictions about future outcomes and performance.”); Rhema Vaithianathan et al., *Section 1: Developing Predictive Risk Models to Support Child Maltreatment Hotline Screening Decisions: Allegheny County Methodology and Implementation*, in *DEVELOPING PREDICTIVE RISK MODELS TO SUPPORT CHILD MALTREATMENT HOTLINE SCREENING DECISIONS* 1, 4 (Auckland Univ. Tech. 2017), [https://www.alleghenycountyanalytics.us/wp-content/uploads/2019/05/16-ACDHS-26\\_PredictiveRisk\\_Package\\_050119\\_FINAL-2.pdf](https://www.alleghenycountyanalytics.us/wp-content/uploads/2019/05/16-ACDHS-26_PredictiveRisk_Package_050119_FINAL-2.pdf) [<https://perma.cc/KF8E-ZXRC>] (“Predictive Risk Modelling (PRM) uses routinely collected administrative data to model future adverse outcomes that might be prevented through a more strategic delivery of services.”).
72. See Jacob Brogan, *What’s the Deal with Algorithms?*, SLATE (Feb. 2, 2016, 10:29 AM), <https://slate.com/technology/2016/02/whats-the-deal-with-algorithms.html> [<https://perma.cc/D2S8-BJBT>]; Stephen F. Deangelis, *Artificial Intelligence: How Algorithms Make Systems Smart*, WIRED, <https://www.wired.com/insights/2014/09/artificial-intelligence-algorithms-2/> [<https://perma.cc/P9AB-22K8>] (last visited Apr. 29, 2022).
73. See Deangelis, *supra* note 72 (noting that algorithms are often used in things that require calculation, data processing, and automated reasoning). A regression is “a functional relationship between two or more correlated variables that is often empirically determined from data and is used especially to predict values of one variable when given values of the others.” *Regression*, MERRIAM-WEBSTER,

can either be rule-based, where it relies on pre-determined rules to form its analysis, or it can be based on machine learning.<sup>74</sup> Machine learning models are more flexible than pure rule-based models and operate on the idea that outputs can be explained by a combination of input variables and other parameters.<sup>75</sup> Machine learning models can be rule-based but do not need constant oversight, rather they use programmed instructions and will compare data to produce predictions based on those instructions.<sup>76</sup> The goal is that with the use of algorithms, the consequences of a negative action can be limited by formulating a better prediction.<sup>77</sup>

By using a machine learning approach, child welfare algorithms mine large amounts of administrative data to attempt to discover historical trends and correlations.<sup>78</sup> Administrative data is “data gathered for operational purposes and held by various government entities[.]”<sup>79</sup> Administrative data in the child welfare context often includes criminal records, educational records, census reports, and past CPS incident reports—all things that directly affect minority and low-income groups.<sup>80</sup>

The most well-known predictive model in child welfare is the Allegheny Family Screening Tool (AFST).<sup>81</sup> In an effort to streamline its call process to better detect child abuse and neglect, the Allegheny County Department of Human Services enlisted the help of various researchers in 2015 to create AFST.<sup>82</sup> This tool was a first of its kind and was based on risk assessment supported by predictive risk modeling.<sup>83</sup> When calls alleging maltreatment are made to Child

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<https://www.merriam-webster.com/dictionary/regression> [https://perma.cc/4X9C-CL7H] (last visited May 11, 2022).

74. See *Machine Learning vs Rules Systems*, DEPARKES (Nov. 24, 2017), <https://deparkes.co.uk/2017/11/24/machine-learning-vs-rules-systems/> [https://perma.cc/XQK8-A6MX].

75. See *id.*

76. See *id.*; see also Deangelis, *supra* note 72.

77. See generally Deangelis, *supra* note 72 (describing pattern recognition and outcome prediction as common algorithm uses).

78. See Glaberson, *supra* note 17, at 328.

79. *Id.*

80. *Id.* at 328–29; see also Vaithianathan et al., *supra* note 71, at 5.

81. See generally *The Allegheny Family Screening Tool*, ALLEGHENY CNTY., <https://www.alleghenycounty.us/Human-Services/News-Events/Accomplishments/Allegheny-Family-Screening-Tool.aspx> [https://perma.cc/GVU3-HDY7] (last visited Apr. 29, 2022); see also Vaithianathan et al., *supra* note 71, at 5.

82. See *The Allegheny Family Screening Tool*, *supra* note 81.

83. See *id.*

Protection Services, a case worker will screen the call and input the facts into AFST.<sup>84</sup> The program then generates a risk prediction known as a “Family Screening Score.”<sup>85</sup> By weighing different predictive variables, the model will rate the potential risk on a scale from 1–20 (1 being lowest risk and 20 being highest risk).<sup>86</sup> Some of the variables considered include: “receiving county health or mental health treatment; being reported for drug or alcohol abuse; accessing supplemental nutrition assistance program (SNAP) benefits, cash welfare assistance, or Supplemental Security Income (SSI); living in a poor neighborhood; or interacting with the juvenile probation system.”<sup>87</sup>

By using predictive risk analytics, this model is able to rapidly integrate and analyze hundreds of data points to attempt to predict the current risk to a child’s wellbeing—a task once done solely by human assessment.<sup>88</sup> Child Protective Services also uses the insight gained through the score to make a better prediction on the likelihood that the child will need support in the future or need to be removed from the home altogether.<sup>89</sup> AFST seeks to replace the practice of manual, human-based risk assessment and instead attempts to offer a “neutral” consideration of factors—still allowing a human case worker to interpret its results.<sup>90</sup>

Since its inception, AFST has been heavily criticized by researchers as being discriminatory to minorities.<sup>91</sup> Scholars found that the data the system relies on and the method in which it makes its predictions singled out families of color and families in poverty.<sup>92</sup> Access to SNAP, cash welfare, and SSI are all public benefits used primarily by low-income families.<sup>93</sup> As mentioned above, being poor

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84. See Eubanks, *supra* note 70.

85. *The Allegheny Family Screening Tool*, *supra* note 81.

86. See Eubanks, *supra* note 70.

87. *Id.*; see also Vaithianathan et al., *supra* note 71, at 13.

88. See *The Allegheny Family Screening Tool*, *supra* note 81.

89. *Id.*

90. See Vaithianathan et al., *supra* note 71, at 4.

91. See Eubanks, *supra* note 70; see also CARSTEN ORWAT, RISKS OF DISCRIMINATION THROUGH THE USE OF ALGORITHMS 42 (2020), [https://www.antidiskriminierungsstelle.de/EN/homepage/\\_documents/download\\_diskr\\_risiken\\_verwendung\\_von\\_algorithmen.pdf?\\_\\_blob=publicationFile&v=1.92](https://www.antidiskriminierungsstelle.de/EN/homepage/_documents/download_diskr_risiken_verwendung_von_algorithmen.pdf?__blob=publicationFile&v=1.92) [<https://perma.cc/5NA4-LGC4>].

92. See Eubanks, *supra* note 70.

93. See SARA EDELSTEIN ET AL., CHARACTERISTICS OF FAMILIES RECEIVING MULTIPLE PUBLIC BENEFITS 3 (2014), <https://www.urban.org/sites/default/files/publication/22366/413044-Characteristics-of-Families-Receiving-Multiple-Public-Benefits.PDF> [<https://perma.cc/2DLK-DGHP>].

is sometimes conflated with neglect,<sup>94</sup> and because AFST focuses on data that is over representative of low-income families, it incorrectly screens in poor families.<sup>95</sup> Professor Virginia Eubanks notes that “AFST [improperly] interprets the use of public resources as a sign of weakness, deficiency, even villainy.”<sup>96</sup> Due to this scrutiny, AFST has consequently undergone many updates and reprogramming.<sup>97</sup> In November 2018, the Allegheny County Department of Human Services released version two of the Allegheny Family Screening Tool.<sup>98</sup> Version two tweaked the algorithm to exclude public benefits data and provided a policy change which allows for more human override.<sup>99</sup> Despite minor improvements from these changes, AFST is still criticized by many as discriminatory and does not replace the bias found in the earlier human-decision models.<sup>100</sup> The other data the tool utilizes—including mental health treatment, educational data, and being reported for drug or alcohol abuse—is still targeted towards marginalized groups.<sup>101</sup>

The underlying problem with predictive algorithm models is that they “are built on data that reflects the [then] existing problems in the child welfare system.”<sup>102</sup> Algorithms can be as biased as the people who designed them and as skewed as the data that they use to make their predictions.<sup>103</sup> Unlike humans, an algorithm is not able to employ empathy, compassion, and thoughtfulness when making a

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94. See *supra* text accompanying notes 37–41.

95. See Trivedi, *supra* note 34.

96. VIRGINIA EUBANKS, AUTOMATING INEQUALITY: HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR 108–09 (2018).

97. See Rhema Vaithianathan et al., *Section 7: Allegheny Family Screening Tool: Methodology, Version 2*, in DEVELOPING PREDICTIVE RISK MODELS TO SUPPORT CHILD MALTREATMENT HOTLINE SCREENING DECISIONS 1, 2 (2019), [https://www.alleghenycountyanalytics.us/wp-content/uploads/2019/05/16-ACDHS-26\\_PredictiveRisk\\_Package\\_050119\\_FINAL-2.pdf](https://www.alleghenycountyanalytics.us/wp-content/uploads/2019/05/16-ACDHS-26_PredictiveRisk_Package_050119_FINAL-2.pdf) [<https://perma.cc/KF8E-ZXRC>].

98. See *id.*

99. See *id.* at 3–5.

100. See *id.* (discussing only the changes made to public benefits data and not other discriminatory factors).

101. See Eubanks, *supra* note 70.

102. See Glaberson, *supra* note 17, at 336.

103. See Emily Keddell, *Algorithmic Justice in Child Protection: Statistical Fairness, Social Justice and the Implications for Practice*, 8 SOC. SCIS., Oct. 2019, at 1, 8, [https://mdpi-res.com/d\\_attachment/socsci/socsci-08-00281/article\\_deploy/socsci-08-00281.pdf](https://mdpi-res.com/d_attachment/socsci/socsci-08-00281/article_deploy/socsci-08-00281.pdf) [<https://perma.cc/2GVJ-EH77>] (“[H]umans using an algorithm to inform their decision still showed bias when combining it with their own judgement process.”).

decision.<sup>104</sup> So, while Allegheny County and other jurisdictions sought to limit the bias in the call screening process by removing certain elements of human decision making, they only replaced it with a similarly biased model.<sup>105</sup>

There has been a general abandonment of predictive models in child welfare because of the public backlash over the Allegheny County model.<sup>106</sup> Shortly after the emergence of AFST, Eckerd College introduced a similar tool used to predict child abuse called the “Rapid Feedback Safety Program.”<sup>107</sup> This model was adopted by various states, including Connecticut, Louisiana, Maine, Oklahoma, Tennessee, and Chicago.<sup>108</sup> Unlike AFST, most jurisdictions abandoned the Eckerd model shortly after its implementation due to its inaccurate and biased predictions.<sup>109</sup> A key difference between AFST and the Eckerd model is that instead of screening individuals and families individually, the Eckerd model looked “geographically at where adverse childhood experiences and other social determinants of health coexist spatially.”<sup>110</sup> This was thought to be even more discriminatory and led to more inaccurate risk scoring.<sup>111</sup>

In a continued effort to streamline and improve the child maltreatment detection process, on September 21, 2020, the Allegheny County Department of Human Services released its newest child welfare algorithm called Hello Baby.<sup>112</sup> This new model differs from earlier models and demonstrates an overall shift in algorithmic predictions.

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104. See Angeliki Kerasidou, *Artificial Intelligence and the Ongoing Need for Empathy, Compassion, and Trust in Healthcare*, 94 BULL. WORLD HEALTH ORG. 245, 246–47 (2020).

105. See generally Keddell, *supra* note 103, at 8–9.

106. See *id.* at 4.

107. *Id.*

108. *Id.*

109. See *id.* (“[It] rated children’s risk of being killed or severely injured in the following two years, but . . . [skewed predictions with various] high-risk scores, including 4000 children deemed at 90% or higher of serious injury or death, while children who did experience serious harm were missed.”).

110. Sean Price, *Predict and Prevent: Using Statistics to Stop Child Abuse*, TEX. MED. ASSOC. (July 2018), <https://www.texmed.org/Template.aspx?id=48011> [<https://perma.cc/HFR5-UVY6>]; see also Keddell, *supra* note 103, at 2 (“There is not a single type of use, a single type of algorithm, uniform types of data, nor a single end user impacted by the use of algorithmic risk prediction tools in child protection. In terms of type of use, algorithmic tools can be used either to distribute preventive family support services, in child protection screening decision making, or in risk terrain profiling to predict spatially where child abuse reports might occur.”).

111. See Keddell, *supra* note 103, at 4.

112. See CHILD WELFARE MONITOR, *supra* note 10.

### III. HELLO BABY: A NEW APPROACH WITH OLD CONSEQUENCES

#### A. *Hello Baby: An Overview*

Hello Baby is a predictive risk modeling (PRM) tool positioned as an innovative parenting initiative offered to new families in Allegheny County.<sup>113</sup> It is a collective effort by family-focused organizations and includes groups such as “Allegheny County DHS, Health Department, Healthy Start, Family Centers, NurturePA and the United Way of Southwestern PA.”<sup>114</sup> The program differs from the earlier AFST model—which is still being used independently—as it is designed to be a voluntary program that gives support and aid to families of newborns who the model flags as being at risk of abuse and neglect.<sup>115</sup> When a new child is born, families are automatically enrolled in this program and will receive resources based on their predicted needs.<sup>116</sup>

Hello Baby is based on a graduated three-tiered approach to offering services with more intense engagement for families determined by the algorithm to have a higher risk.<sup>117</sup> In tier one, named the Universal Tier, general services are offered to any new family who is a resident of the county.<sup>118</sup> These services include things such as “access to resources on the Hello Baby website and the Hello Baby support-line . . . referrals to Family Centers, determining eligibility for state and federal programs . . . and access to Nurture PA, a text-based mentoring program for new mothers[.]”<sup>119</sup> Tier two, named the Family Support Tier, is offered to families who have been identified by the algorithm as having moderate needs.<sup>120</sup> Families under this tier are “prioritized for support from outreach workers from an existing network of community-based resource hubs called

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113. *See id.*

114. *About*, HELLO BABY [hereinafter HELLO BABY Homepage], <https://hellobabypgh.org/about/> [<https://perma.cc/A2QS-PH5M>] (last visited Apr. 29, 2022).

115. *See id.*

116. *See id.*

117. *See* RHEMA VAITHIANATHAN ET AL., IMPLEMENTING THE HELLO BABY PREVENTION PROGRAM IN ALLEGHENY: METHODOLOGY REPORT 3 (Auckland Univ. Tech. 2020) [hereinafter HELLO BABY METHODOLOGY REPORT], [https://www.alleghenycountyanalytics.us/wp-content/uploads/2020/09/hello-baby-Methodology-Report\\_9-9-20-v2.pdf](https://www.alleghenycountyanalytics.us/wp-content/uploads/2020/09/hello-baby-Methodology-Report_9-9-20-v2.pdf) [<https://perma.cc/C82D-VL79>].

118. *See id.*

119. *Id.*

120. *Id.*



Family Centers.”<sup>121</sup> Instead of Family Center waiting for families to voluntarily come to them for support, families are automatically connected with Family Center staff and referred to different resources.<sup>122</sup> These resources include things such as “home visiting, family support, [and] childcare subsidies.”<sup>123</sup> Tier three, named the Priority Tier, is the most invasive of the three tiers and includes families predicted as having the most complex needs.<sup>124</sup> Families under this tier are automatically linked with the community-based agency, Healthy Start, Inc.<sup>125</sup> This agency involuntarily connects families to a family engagement specialist and a social worker who acts as the family’s support team.<sup>126</sup> With consent from the family, “the family support team will [then] undertake an initial needs assessment, ensure the family’s prioritization into existing services, and provide ongoing support and case coordination.”<sup>127</sup> Most importantly, all providers of prevention programs in tier two and three are mandated reporters.<sup>128</sup>

Hello Baby allows any family to participate in the Universal Tier.<sup>129</sup> Families referred to the Support and Priority tiers can be chosen through “(1) self-referral through a Family Center or by calling the Hello Baby support-line; (2) provider referral from a birthing hospital, midwife, physician, or other clinical professional; and (3) the Hello Baby predictive risk model (PRM), which uses universal County records to prioritize higher needs families with newborns for the Family Support and Priority tiers.”<sup>130</sup> While participation in Hello Baby is advertised as voluntary, families are automatically enrolled in their services and have to take deliberate steps to opt-out within twenty days after birth of the child.<sup>131</sup> Enrollment begins at the time of birth and to opt-out, a user would need to respond to a postcard mailed to them a few weeks later.<sup>132</sup> If the family fails to opt-out by responding to the post card within the timeframe, the Hello Baby PRM tool will automatically assess the

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121. *Id.*

122. *Id.*

123. *Id.*

124. *See id.*

125. *See id.*

126. *See id.*; *see also About Us*, HEALTHY START, <https://healthystartpittsburgh.org/about-us/> [<https://perma.cc/9P9E-QGYQ>] (last visited Apr. 29, 2022).

127. HELLO BABY METHODOLOGY REPORT, *supra* note 117.

128. *See id.* at 4.

129. *Id.* at 3.

130. *Id.* at 3–4.

131. *See id.* at 29.

132. *See id.*

family's propensity for abuse and neglect and place them in one of the three tiers.<sup>133</sup>

*B. Comparison: Shift from Retrospective to Predictive*

The key difference between AFST and Hello Baby is that Hello Baby focuses on prevention of maltreatment rather than assessing harm after it allegedly occurs.<sup>134</sup> To make its predictions, some of the data used by the Hello Baby model includes “county birth records, . . . child protective services [records], homeless services and . . . justice system [data].”<sup>135</sup> The model's tier ranking is also strongly correlated to other factors, including “the mother being booked in jail, homelessness and maternal mortality, post-neonatal infant mortality, and preventable injury death.”<sup>136</sup> Unlike the earlier AFST model, the Hello Baby model claims to only rely on data where the County has the potential to have records for every family, using “only universal (rather than means tested) data sources[.]”<sup>137</sup> Means tested data looks at a person's financial state to determine eligibility for public resources, whereas universal tested data theoretically applies to everyone regardless of wealth.<sup>138</sup> As discussed later, this duality is open to some speculation as wealthier people do not typically experience homelessness or high incarceration rates.<sup>139</sup>

The earlier AFST model is a more retrospective-based algorithm. It analyzes key data points and takes specific information from a call to then run a prediction on the most likely outcome.<sup>140</sup> The call to child protective services is presumed to take place after the concern is already present, and the algorithm is deployed to take those results and make predications based on the past.<sup>141</sup> As discussed, the empirical data the AFST model relies on to make predictions has potential negative effects for low-income families.<sup>142</sup> In comparison, the new Hello Baby model marks a shift in algorithmic models to a

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133. *See id.*

134. *See id.* at 3.

135. HELLO BABY: FREQUENTLY ASKED QUESTIONS 10 (2020), <https://www.alleghenycounty.us/Human-Services/News-Events/Accomplishments/Hello-Baby-FAQ.aspx> [<https://perma.cc/39KU-9KMZ>].

136. HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 4.

137. HELLO BABY: FREQUENTLY ASKED QUESTIONS, *supra* note 135.

138. *See* Timothy Besley, *Means Testing versus Universal Provision in Poverty Alleviation Programmes*, 57 *ECONOMICA* 119, 119 (1990).

139. *See infra* text accompanying notes 160–64.

140. *See supra* Section II.C.

141. *See The Allegheny Family Screening Tool, supra* note 81.

142. *See supra* text accompanying notes 91–101.

more proactive, predictive-based approach. Families are essentially judged and ranked *before* maltreatment occurs or sometimes before their baby even leaves the hospital.<sup>143</sup> This level of prediction is alarming because it seeks to categorize families who have no reason for monitoring or intervention.

While the intention of this new approach is to support families, the outcome is no less discriminatory to low-income families than its predecessors. As already discussed, the underlying problem with predictive models is that they are created and defined by data “that reflects the [then] existing problems in the child welfare system.”<sup>144</sup> Factors associated with child abuse and neglect are low income, low parental education, young age of the mother, mental health issues, and single-parent status—all criteria slanted against those from impoverished areas.<sup>145</sup> These potential inequalities still exist even in the new Hello Baby model. Despite their claims of universal neutral data, the new model still focuses on administrative data and factors that are discriminatory to low-income families.<sup>146</sup>

*C. Analysis: Will Hello Baby be Able to Overcome Problems Found in Other Models*

Hello Baby promises a better way to connect families with child welfare services. Proponents of the model argue that by replacing human decision making, this welfare model will be less biased and will assess factors from a neutral standpoint.<sup>147</sup> This argument is somewhat misleading. “Faith that big data, algorithmic decision-making, and predictive analytics can solve our thorniest social problems—poverty, homelessness, and violence—resonates deeply with our beliefs as a culture. But that faith is misplaced.”<sup>148</sup> There is a general misconception that computer generated results are the most optimal solution and are always correct.<sup>149</sup> Professor Meredith

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143. HELLO BABY Homepage, *supra* note 114.

144. Glaberson, *supra* note 17, at 336.

145. Peggy Nygren et al., *Screening Children for Family Violence: A Review of the Evidence for the US Preventive Services Task Force*, 2 ANN. FAM. MED. 161, 161–62 (2004).

146. See HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 4; see also ROBERTS, *supra* note 38, at 5.

147. See Katherine Heires, *The New Math: Bringing Predictive Analytics into the Mainstream*, RISK MGMT. MAG. (May 1, 2014), <https://www.rmmagazine.com/articles/article/2014/05/01/-the-new-math-bringing-predictive-analytics-into-the-mainstream-> [<https://perma.cc/2QB2-GT5W/>].

148. Eubanks, *supra* note 70.

149. MEREDITH BROUSSARD, ARTIFICIAL UNINTELLIGENCE: HOW COMPUTERS MISUNDERSTAND THE WORLD 7–8 (2018).

Broussard defines this phenomena as “Technochauvinism.”<sup>150</sup> As she writes, “Technochauvinism is the assumption that computers are superior to people, or that a technological solution is superior to any other.”<sup>151</sup> This assumption is false as computer algorithms operate on empirical data and can merely reinforce biases held by the people who construct the program and the data itself.<sup>152</sup> Data is only as accurate and trustworthy as the person who collected it or as the person who programmed the model.<sup>153</sup> A better question to ask is, “What is the right tool for the task?”<sup>154</sup> Sometimes the right tool for the task is a computer while other times the right tool is human oversight.<sup>155</sup> One is not better than the other, it’s about context.<sup>156</sup>

Because there are two equally important competing interests in child welfare—safety of the children and the constitutional right of the parents to maintain family relations—the right tool for the task should not be reliance on a computer.<sup>157</sup> A certain amount of human intervention is required to ensure that the predictions and conclusions of these models are reviewed for their discriminatory effects. While models like AFST and Hello Baby allow for human override, the psychological phenomena of assuming computers are better decision-makers can cause the person reading the projected score or recommendation to have an unconscious bias towards siding with that outcome.<sup>158</sup> This is called “automation bias.”<sup>159</sup> Additionally, the scores and recommendations will at times reaffirm the call-screening staff’s implicit biases towards minority groups and low-income families and can help sway their decision.<sup>160</sup> This calls for more training and attention on behalf of those interpreting the scores to

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150. *Id.*

151. Meredith Broussard, *Letting Go of Technochauvinism*, PUB. BOOKS (June 17, 2019), <https://www.publicbooks.org/letting-go-of-technochauvinism/> [https://perma.cc/9M7E-9EPS].

152. BROUSSARD, *supra* note 149; see also Claire Cain Miller, *When Algorithms Discriminate*, N.Y. TIMES (July 9, 2015), <https://www.nytimes.com/2015/07/10/upshot/when-algorithms-discriminate.html> [https://perma.cc/FS9Y-J29Q].

153. See Miller, *supra* note 152.

154. Broussard, *supra* note 151.

155. *Id.*

156. *Id.*

157. See Annette R. Appell & Bruce A. Boyer, *Parental Rights vs. Best Interests of the Child: A False Dichotomy in the Context of Adoption*, 2 DUKE J. GENDER L. & POL’Y 63, 64 (1995).

158. See Lindsey Barrett, *Reasonably Suspicious Algorithms: Predictive Policing at the United States Border*, 41 N.Y.U. REV. L. & SOC. CHANGE 327, 343 (2017).

159. *Id.*

160. See ROBERTS, *supra* note 38, at 56–57.

ensure they are not merely relying on unfair assumptions. Outsourcing crucial decisions on family placement and services to computer algorithms serves an injustice to marginalized communities—especially given the known bias that is incorporated into these models.<sup>161</sup>

The Hello Baby PRM tool relies on data that is just as discriminatory and biased as the data used by earlier models. The model claims to only use universally-sourced information; however, all the metrics it evaluates are disproportionately negative to low-income families and families of color.<sup>162</sup> Some of the information the model looks at are “child welfare records, homelessness, [and] jail/juvenile probation records . . . .”<sup>163</sup> “Although that data is potentially available about anyone, . . . these systems . . . disproportionately involve low-income people and people of color.”<sup>164</sup> This creates the same problem where children will be removed from their home simply because the family is poor.<sup>165</sup>

Unlike humans, computers are not able to employ extra rationalization, such as compassion and empathy.<sup>166</sup> They are only as accurate as the information they use to determine their conclusions.<sup>167</sup> Having this information plagued with bias and overrepresentation of minority groups will only lead to discriminatory results.<sup>168</sup> The difference is that when a human makes a mistake, it only impacts that one family;<sup>169</sup> however, when an algorithm makes a mistake, it’s impacts happen at scale.<sup>170</sup>

Perhaps the biggest issue with the Hello Baby algorithm is that it involuntarily puts families that otherwise would not be subject to speculation under the direct examination of welfare services.<sup>171</sup> This

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161. Ulu Mills, ‘Less Bad’ Bias: An Analysis of the Allegheny Family Screening Tool, MEDIUM (Feb. 5, 2019), <https://medium.com/mps-seminar-one/less-bad-bias-an-analysis-of-the-allegheny-family-screening-tool-ef6ffa8a56fb> [<https://perma.cc/88QM-SAKP>].

162. See HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 4; see also ROBERTS, *supra* note 38, at 5.

163. Elizabeth Brico, *How an Algorithm Meant to Help Parents Could Target Poor Families Instead*, TALK POVERTY (Nov. 26, 2019), <https://talkpoverty.org/2019/11/26/algorithms-parents-target-low-income/> [<https://perma.cc/KZ2C-GFHS>].

164. *Id.*

165. See Trivedi, *supra* note 34.

166. Kerasidou, *supra* note 104, at 246.

167. Keddel, *supra* note 103, at 6.

168. See *id.*

169. See Glaberson, *supra* note 17, at 320.

170. See Lee et al., *supra* note 20.

171. See HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 10 (discussing differentiated tier approach).

is an issue because it is well established that “heightened monitoring of poor families results in the [false] discovery of . . . [alleged] child maltreatment—especially neglect—that would have gone unnoticed [among other demographics] . . . .”<sup>172</sup> This perceived maltreatment is not always actual neglect; it is evidence of a low-income household struggling to survive.<sup>173</sup> As surveillance increases, so does speculation—this phenomenon is referred to as “surveillance bias.”<sup>174</sup> The Hello Baby model connects families with welfare workers based on a prediction of how likely they are to succeed as a family.<sup>175</sup> The primary purpose is to rate and judge families based on their perceived ability to offer adequate care.<sup>176</sup> Some of the families judged by this model have just had their first child and have not yet exhibited any cause for speculation. While the goal is to proactively detect maltreatment before it happens, putting families under speculation without cause will unfairly expose them to more surveillance. This has the potential to improperly discriminate against low-income families and families of color.<sup>177</sup>

Despite the County’s claim that predictions will not be shared with Child Protective Services, increasing the amount of social services a family receives will increase a family’s contact with mandatory reporters and, thus, enhance the likelihood that false or inaccurate allegations of neglect or abuse will be reported.<sup>178</sup> Each of the organizations and services the algorithm involuntarily connects families with are filled with mandated reporters.<sup>179</sup> Despite heightened training offered to reporters by the program, the ambiguity in defining abuse and neglect discussed earlier will increase the likelihood that a reporter will improperly categorize a

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172. ROBERTS, *supra* note 38, at 32.

173. *See id.*; *see also* Michele E. Gilman, *The Poverty Defense*, 47 U. RICH. L. REV. 495, 496 (2013) (discussing how poverty is often conflated with neglect).

174. *See* Mark Chaffin & David Bard, *Impact of Intervention Surveillance Bias on Analyses of Child Welfare Report Outcomes*, 11 CHILD MALTREATMENT 301, 301 (2006) (noting that surveillance level is directly correlated to whether a family will be the subject of maltreatment claims).

175. *See* HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 3.

176. *Id.*

177. *See supra* text accompanying notes 91–101.

178. ROBERTS, *supra* note 38, at 59 (“Caseworkers often misinterpret Black parents’ cultural traditions, demeanor, and informal means of handling family distress as neglect. The Black communities’ cultural traditions of sharing parenting responsibilities a monkey and have been mistaken as parental neglect.”).

179. *See* Chaffin & Bard, *supra* note 174, at 303–04.

family's situation.<sup>180</sup> Overall, while Hello Baby attempts to combat some of the problems of earlier predictive analytic models, the foundation on which it is based has the potential to be just as discriminatory and biased as its predecessors. To be accurate and non-biased while supporting families in need, designers of predictive algorithms such as Hello Baby, and the jurisdictions that adopt them, should consider several policy changes.

#### IV. SOLUTION: HOW TO FIX THE HELLO BABY ALGORITHM

So far, this article has outlined the current problem that algorithms place on child welfare and highlighted the inequality experienced by low-income families.<sup>181</sup> As mentioned before, algorithms continue to emerge into various aspects of the child welfare system, but there is no overarching regulation that governs their operation.<sup>182</sup> Instead, scholars have suggested various principles to promote transparency and functionality of algorithms that can limit bias.<sup>183</sup> The lack of formal regulation is alarming as algorithms are becoming more prevalent and are being relied on for very important and life altering decisions—such as whether parents are allowed to keep a child.<sup>184</sup> Despite attempting to directly address some of the problems of using predictive algorithms, the Hello Baby model is just as discriminatory and problematic to minority groups as its predecessors. The following section will synthesize and recommend some principles from the algorithmic fairness literature that jurisdictions using a Hello Baby-type model should implement to cure its deficiencies.

##### *A. Principle One: Right Against Automatic Enrollment*

A primary issue with the Hello Baby PRM tool is the automatic and involuntary enrollment of any person who gives birth within the County.<sup>185</sup> Additionally, there is a lack of transparency in how a user can opt-out of the system and what the result will be if a person fails to do so. As discussed earlier, once a child is born, information regarding Hello Baby is given to the family at the hospital.<sup>186</sup> From that date, the family has twenty days to opt-out of the program.<sup>187</sup> It

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180. *See supra* Section II.A.

181. *See supra* Parts II–III.

182. *See* Binns, *supra* note 16.

183. *See infra* Sections IV.A–E.

184. *See* discussion *supra* Section II.C.

185. *See* HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 5.

186. *Id.* at 29.

187. *Id.*

is unclear if one parent or both parents acting in conjunction can opt-out. Additionally, a postcard is sent to the family a few weeks after leaving the hospital.<sup>188</sup> This card acts as one of the sole mechanisms a person can use to opt-out of being screened by the algorithm.<sup>189</sup> Failure to respond to this postcard means that an individual will be evaluated by the algorithm and potentially placed with services and mandatory reporters they would otherwise not encounter.<sup>190</sup>

Mandatory algorithms entrap people within the surveillance state.<sup>191</sup> A way to potentially combat this problem would be to change the Hello Baby tool to a fully voluntary experience. Instead of automatically enrolling families and requiring them to opt-out of its services, the model should be reformed to require a person to voluntarily opt-in. Information regarding the model could still be given and explained to new families at the hospital, but instead of requiring them to take steps to opt-out via the elusive postcard option, a person would need to explicitly sign themselves up for this service if they so wished. This would limit the potential for families' unwilling participation within this program.

#### *B. Principle Two: Record Concealment Rights*

Another key issue with the Hello Baby tool is the improper use of existing government records to determine a person's propensity for child maltreatment.<sup>192</sup> The Hello Baby PRM tool uses prior Child Protective Services records and parental criminal records as factors in its analysis.<sup>193</sup> As discussed more fully above, reports made to Child Protective Services frequently result in no finding of abuse or neglect.<sup>194</sup> This is because reports are often based on unsupported assumptions made by an unknowing third party.<sup>195</sup> On average, low-income families receive more complaints and reports for suspected child maltreatment than their wealthier counterparts.<sup>196</sup> This is due to some of the hardships low-income families face that tend to be

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188. *Id.*

189. *See id.*

190. *See id.*

191. *See generally* Brico, *supra* note 163.

192. HELLO BABY: FREQUENTLY ASKED QUESTIONS, *supra* note 135.

193. *See id.*

194. *See discussion supra* Sections II.A–B.

195. *See supra* text accompanying notes 35–41.

196. Melissa Jonson-Reid et al., *Understanding Chronically Reported Families*, 15 CHILD MALTREATMENT 271, 271–72 (2010).



improperly interpreted as neglect.<sup>197</sup> Similarly, the model factors in the average months a parent is active with the state's criminal courts—regardless of whether that charge or matter ended in a conviction.<sup>198</sup> The danger of allowing these unproven reports to be a statistical factor in the prediction of the Hello Baby model creates the potential for improper discrimination against low-income families.<sup>199</sup>

To improve the data sets relied on by these models, non-conviction criminal records and unsubstantiated claims of neglect or abuse should be eliminated from consideration. This would be different from a general expungement because it would ideally allow a parent to conceal non-expungable offenses that do not relate to the overall welfare of a child, i.e., non-violent offenses or small-claims civil cases. Doing so would limit the potential improper use of prior records to determine a person's propensity for child maltreatment.<sup>200</sup> With a voluntary service, such as Hello Baby, a person ought to be allowed to control (within reason) what data and records these algorithms have and are able to consider in their predictions.

### C. Principle Three: Auditing Mechanism

An additional barrier to accountability with the Hello Baby PRM tool is the lack of an official auditing or oversight process.<sup>201</sup> Allegheny County is currently given some autonomy by the State in deciding how to program and implement their predictive algorithms—both with AFST and Hello Baby.<sup>202</sup> This creates a problem of accountability. While the official methodology report does highlight how the model operates in a substantially transparent manner,<sup>203</sup> there is no auditing mechanism in place to ensure compliance with these stated principles. The only information given is that researchers will continue to monitor the effects of the model.<sup>204</sup> This limits the public from also monitoring and understanding the effects of these models.

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197. See ROBERTS, *supra* note 38, at 33 (“Neglect is usually better classified as child maltreatment *defined* by poverty rather than maltreatment *caused* by poverty.”).

198. See HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 14.

199. See Jaboa Lake, *Criminal Records Create Cycles of Multigenerational Poverty*, CTR. AM. PROGRESS (Apr. 15, 2020, 9:03 AM), <https://www.americanprogress.org/issues/poverty/news/2020/04/15/483248/criminal-records-create-cycles-multigenerational-poverty/> [https://perma.cc/FAP7-JNGY].

200. See Jonson-Reid et al., *supra* note 196.

201. See Margot E. Kaminski, *Binary Governance: Lessons from The GDPR's Approach to Algorithmic Accountability*, 92 S. CAL. L. REV. 1529, 1569 (2019).

202. See generally HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 13–19.

203. See *id.*

204. See *id.*

There should be periodic audits and impact assessments of the Hello Baby model to ensure there are no discriminatory effects.<sup>205</sup> These reports should be published so the public can also monitor and scrutinize the effects of the Hello Baby model.<sup>206</sup> Doing this will force Allegheny County to “evaluate [the Hello Baby PRM tool] for bias, discrimination, privacy, fairness, and security; and refine their systems based on the results of these impact assessments.”<sup>207</sup> This will ultimately ensure responsible programing and usage.<sup>208</sup>

*D. Principle Four: Periodic Reassessment of Family Needs*

Another issue to consider is that families are forever changing—both in their internal dynamics and socioeconomic standing.<sup>209</sup> What may be true when the assessment of needs was first conducted may not be true in a few years.<sup>210</sup> In an effort to improve the accuracy of the Hello Baby algorithm, there should be periodic reassessments of those users who opted-in for this service.<sup>211</sup> This will help better accomplish the goals of the Hello Baby model and will ensure that families are able to get the resources they need at the different times they are needed. Adopting a formal reassessment mechanism would also be beneficial to its users and would allow mobility for families. Instead of permanently leaving a family in one of the more severe tiers, doing a reassessment would allow them to lessen the speculation they receive by improving their socioeconomic standing.

*E. Principle Five: Mandatory Legal and Technical Training for Child Welfare Advocates*

Among most legal and welfare professionals, an underlying issue preventing algorithm accountability is the disparity in the

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205. See Kaminski, *supra* note 201, at 1574.

206. See *id.* at 1575.

207. *The Role of Policymakers*, NEW AM., <https://www.newamerica.org/oti/reports/charting-path-forward/the-role-of-policymakers/> [<https://perma.cc/KV83-XRH9>] (last visited Mar. 29, 2022) (discussing the recently proposed Algorithmic Accountability Act and the PACT Act bills introduced to Congress).

208. See *id.*; see also Kaminski, *supra* note 201, at 1563.

209. See Rand D. Conger et al., *Socioeconomic Status, Family Processes, and Individual Development*, 72 J. MARRIAGE & FAM. 685, 685–89 (2010).

210. See *id.*

211. See NANCY M. YOUNG ET AL., SCREENING AND ASSESSMENT FOR FAMILY ENGAGEMENT, RETENTION, AND RECOVERY 4–5 (2006), <https://ncsacw.samhsa.gov/files/SAFERR.pdf> [<https://perma.cc/N7SD-AUH6>].

understanding of how algorithms work.<sup>212</sup> Law schools currently have a lack of courses dedicated to learning technology tools and how to advocate against them.<sup>213</sup> Similarly, welfare professionals have limited training on how algorithms are used to predict and what factors are considered.<sup>214</sup> Hello Baby claims to offer a comprehensive training to staff members providing services in tier 2 and tier 3.<sup>215</sup> However, the key points listed in the methodology report only cover basic principles of what a PRM is.<sup>216</sup> The problem is that service providers operate on limited knowledge of what placed the families in their service. While this does help combat bias, there is a risk that unknowing welfare professionals could misinterpret a families' involvement in the program as automatically negative. To improve possible misconceptions, there needs to be "training programs for those engaged in AI development and data processing to raise awareness of inherent biases in the data[.]"<sup>217</sup> Hello Baby can improve its accuracy and fairness by offering more education to personnel who work with the system—beyond that of just a general understanding.

## V. CONCLUSION

Child welfare is an extremely difficult and complex area of law.<sup>218</sup> There are high stakes and competing interests at play that make

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212. See Michele Gilman, *Poverty Lawgorithms*, DATA & SOC'Y (Sept. 15, 2020), <https://datasociety.net/wp-content/uploads/2020/09/Poverty-Lawgorithms-20200915.pdf> [<https://perma.cc/EE6P-VLPG>] ("In the justice system, the concern is that judges and juries will yield to algorithmic determinations without adequate context or skepticism.").
213. See Randy Kiser, *Why Lawyers Can't Jump: The Innovation Crisis in Law (205)*, LEGAL EVOLUTION (Oct. 4, 2020), <https://www.legalevolution.org/2020/10/why-lawyers-cant-jump-the-innovation-crisis-in-law-205/> [<https://perma.cc/UKB3-4RLF>].
214. See Kevin King, *Underprepared Staff Are Doing the Most Difficult Work in Child Welfare*, THE IMPRINT (May 14, 2020, 4:48 AM), <https://imprintnews.org/opinion/underprepared-staff-are-doing-the-most-difficult-work-in-child-welfare/43242> [<https://perma.cc/48DL-4LEF>].
215. See HELLO BABY METHODOLOGY REPORT, *supra* note 117, at 5.
216. *See id.*
217. Heather J. Meeker & Amit Itai, *Bias in Artificial Intelligence: Is Your Bot Bigoted?*, BLOOMBERG L. (Oct. 19, 2020 4:00 AM), <https://news.bloomberglaw.com/us-law-week/bias-in-artificial-intelligence-is-your-bot-bigoted> [<https://perma.cc/49F7-NY6W>].
218. See William Booth et al., *Can Children's Attorneys Transform the Child Welfare System?*, AM. BAR ASS'N (Jan. 15, 2019), <https://www.americanbar.org/groups/litigation/committees/childrens-rights/articles/2019/winter2019-can-childrens-attorneys-transform-the-child-welfare-system/>.

decisions hard for lawmakers and policymakers alike.<sup>219</sup> The process of fielding complaints and determining what services to offer is plagued by biased discrimination and unfair speculation.<sup>220</sup> While some jurisdictions have attempted to limit the disparities of the current system by moving away from the earlier retroactive-based algorithms to a more predictive approach, the latter attempt still fails to offer an impartial consideration of a family's situation.<sup>221</sup> By adopting new policies related to training of welfare professionals, collection of empirical data, and reliance on these predictive models, the Hello Baby algorithm can better serve society as a supplemental tool and not as an absolute decision-maker. While there is currently a lack of overarching algorithmic accountability regulation, by adopting these five principles, the Hello Baby model—and other similar predictive models—can improve fairness.<sup>222</sup>

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219. See Appell & Boyer, *supra* note 157, at 64–68.

220. See *supra* Part II.

221. See *supra* Section II.C.

222. See discussion *supra* Part IV.

