Child Welfare System: Interaction of Policy, Practice and Algorithms

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Abstract
This paper focuses on understanding the collaborative work of multi-disciplinary teams in the child-welfare system (CWS). CWS workers participate in meetings mediated by policies in place, current child-welfare practice, as well as algorithms that offer recommendations. We conducted 25 observations of these meetings to assess how algorithms aid decision-making in a domain where decisions often come down to the policies and practices in place. Our findings suggest that the algorithm works fairly well at recommending placement settings, however, these recommendations are often overridden because of policy or legal requirements. Moreover, re-appropriation of the placement algorithm to prescribe the rates for foster parents has led to unintended consequences. This poster identifies uses cases of the algorithm in place, scenarios where conflicts arise between the algorithm and policy/practice, as well as how these conflicts are addressed. Our work identifies a need for human-centered algorithms that can better support CWS.

Author Keywords
Child Welfare System, Algorithmic Decision-Making, Human-Centered Algorithm Design

ACM Classification Keywords
[Applied Computing]: Computing in Government.

Side Bar 1
Child-Welfare teams

Red team: The Case Manager is the primary point of contact on a case and is assisted and guided by the Supervisor and Program Director

Blue team: The primary goal of CWS is family reunification and this team works closely with the bio-parents and children to provide them services (for e.g., parenting classes, anger management, therapy) to ensure children can be reunified with their parents.

Green team: This team becomes involved when family reunification is not an option and the child needs to either be permanently placed in foster care or is ready to be adopted by a family.

Gray members: These CWS members offer their domain expertise to the CWS team to guide decision-making.

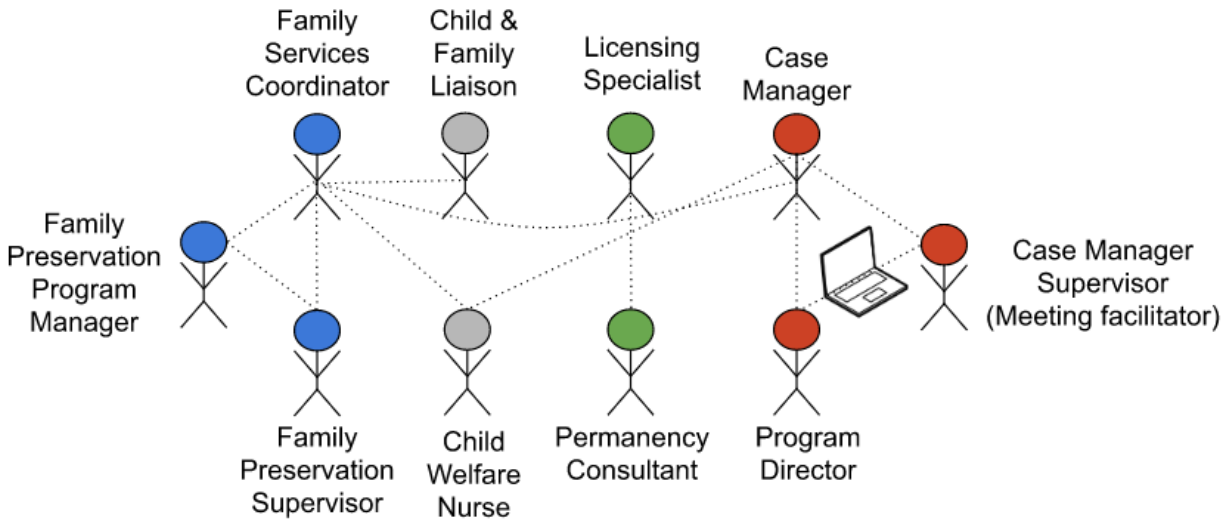

Figure 1: This image depicts a child-welfare multidisciplinary team meeting. The dotted lines depict the smaller teams and people who work together in the background. **Sidebar 1** depicts the roles of three smaller teams depicted in this image.

Introduction

This study is part of a larger work-in-progress project on developing human-centered algorithms to aid decision-making in CWS. It depicts our preliminary findings in regards to the algorithms currently being used and how they impact CWS workers' decisions. In this study, we posed the following high-level research questions:

RQ1: *What are the use cases of algorithms currently employed in child-welfare practice?*

RQ2: *What scenarios lead to a conflict between the algorithm's recommendation and policy and/or practice?*

RQ3: *How are the scenarios of conflict between the algorithm and policy/practice addressed?*

Background

In this section, we provide some background knowledge on the CWS team meetings that we observed as well as some important details about the algorithm being used by the team. The goal of this research project is to inform the design and implementation of systems that support CWS stakeholders in accordance with prior GROUP research [1].

Trauma-informed Care Meetings

These meetings incorporate all child-welfare team members involved at the front-end in order to provide thorough information gathering which ultimately assists with decision-making in regards to placement stability and permanency. One integral part of this process is to place trauma front and center, and deliberate over a child's needs based on

Side Bar 2
CANS domains

Life Functioning: Family Functioning, School Behavior, School Achievement, Social Functioning etc.

Strengths: Family Strengths, Interpersonal, Optimism, Vocational etc.

Child Needs: Attachment, Anxiety, Depression, Impulsive/Hyperactive etc.

Traumatic Experiences: Sexual Abuse, Physical Abuse, Neglect, Medical Trauma etc.

Traumatic Stress Symptoms: Emotional and/or Physical Dysregulation, Grief and Separation, Numbing, Dissociation etc.

Risk Behaviors: Suicide Risk, Danger to others, Runaway, Fire Setting etc.

Cultural Factors: Language, Traditions and Rituals, Cultural Stress etc.

Caregiver Capacity: Supervision, Involvement with Care, Organization, Residential Stability etc.

possible trauma symptoms resulting from trauma exposure. Trauma-informed care is an evidence-based practice that leads to better permanency outcomes and finding placements for children capable of meeting their needs. Figure 1 illustrates the child-welfare team members that attend these meetings.

Child & Adolescent Needs & Strengths (CANS) Algorithm
The CANS algorithm is constructed using the CANS psychometric scale that consists of 104 items organized across eight domains as depicted in **Side Bar 2** [5]. It makes a recommendation from six levels of care in the order of increasing severity – independent living, transitional living program, foster home, specialized foster care, group home, and residential treatment center.

Methods

We conducted 25 observations of CWS team meetings to understand how policies, child-welfare practice and algorithms interact and impact decision-making processes.

RQ1: What are the current use cases of the CANS algorithm?

Based on our field observations, we summarize the use cases for the CANS algorithm. The algorithm is designed to assess a foster child's level of need by determining the associated risk factors as well as well-being indicators (see Side Bar 2). Based on the level of need, the algorithm recommends a placement setting for the foster child. However, the CANS algorithm has also been re-appropriated to calculate the rate offered to foster parents. Based on the algorithm's recommendation, the higher the needs of a foster child, the higher rate is offered to foster parents. CANS is recalculated every few months and as the child supposedly exhibits lower trauma symptoms, their needs are lowered and so is the rate offered to foster parents. One child-welfare worker explained that by lowering the rate, foster parents were being punished for being emotionally involved and helping traumatized children. (see P1 in Side Bar 3).

RQ2: What scenarios lead to a conflict between the algorithm and policy/practice?

The re-appropriation of CANS algorithm to calculate the foster-parents rate has led to several conflicts. CWS team members are now being trained in trauma-informed care and one child-welfare worker stated that trauma stays with a child for years and cannot be alleviated in a few months (see P2 quote). Lowering foster parents' rate because traumatic symptoms are not actively being manifested is problematic and disincentivizes foster-parents who are actively involved and help a child cope with trauma and progress emotionally. Furthermore, the CANS algorithm makes a placement recommendation based on a child's level of need, however, the placement decisions in CWS often come down to the availability of resources or policy related factors [6]. For example, a child might have severe mental and/or medical needs and the algorithm might recommend placing the child in a residential treatment center. However, most residential treatment centers have very limited openings. Here, the CWS team might be forced to place the child in a group home or specialized foster care that is not well-equipped to manage the child's needs. Moreover, residential treatment centers receive a higher rate for accepting out-of-state children, and therefore, are incentivized to offer the limited positions to out-of-state children. This is problematic because the primary goal of CWS is family reunification which means that children need to be placed closer to bio-parents, thereby, hindering an out-of-state placement.

RQ3: How are scenarios of conflict between the algorithm and policy/practice addressed?

Policy dictates decisions whenever there is a conflict between the algorithm and policy and/or practice. For exam-

Side Bar 3
Participant Quotes

Prescribing foster-parent rates: *"Foster parents need this money but we are punishing foster parents for being emotionally involved with children and helping them slowly recover. All of this because some policy-maker thought it would be a good way to cut costs" -P1*

Impact of Trauma: *"It took my own adopted son 5 years to open up to me and tell me that his mother had set the apartment on fire to get away from paying rent. All this time he was trying to protect his mom even though she almost killed him and his brother." -P2*

Legal barriers: *"Houses need to be legally compliant with all safety codes before a child can be placed there. These rules make sense on paper but in practice we lose so many good placement options because relatives can't afford to move or fix everything in the house to be legally compliant" -P3*

ple, child-welfare practice corroborates that foster children have a higher chance of achieving placement stability when placed in kinship care [4], however, a child-welfare worker explained that policy requires relatives to meet all the legal requirements and go through a cumbersome licensing process to become foster parents (see P3 quote). The algorithm is consulted again if the relatives fail to meet any legal requirements and appropriate placement options are located whose availability is once again dictated by policy [6]. The re-appropriation of CANS algorithm to calculate the foster parent rate has become a cause of great frustration for child-welfare workers because they are unable to override lowered rates and any rate changes must be approved by the State, thereby, adding another systemic barrier to practice.

Discussion and Future Research

Our initial findings from the field observations suggest that the algorithm in use only accounts for the risk arising from child/parent related factors, however, it does not account for risks posed by the system itself [6]. This is especially problematic in a domain where decisions are often dictated by systemic/policy related factors. Re-appropriation of the algorithm to prescribe foster parent rates leads to conflicts that CWS workers are unable to resolve independently. These problems arise because the stakeholders' needs, domain knowledge and social interpretations of algorithmic systems are not incorporated into the algorithm design process. We recommend taking a Human-Centered Algorithm Design (HCAD) [2] approach to ensure higher utility and interpretability of algorithms. HCAD informs algorithm design in three ways: 1) *theoretical approach* can help incorporate the theoretical knowledge arising from child-welfare practice, 2) *participatory approach* can help incorporate domain knowledge through the active involvement of stakeholders, as well as the affected community [3]. This is imperative in a domain encumbered with policy and systemic factors that vary from one state to another, and 3) *speculative approach* allows researchers to be innovative and find solutions beyond what is currently technologically feasible. This is especially important for algorithm design where the boundaries of possibility change every day.

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