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, reappropriation 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
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

Child-Welfare teams

Red team: The Case Manager is 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 to 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.

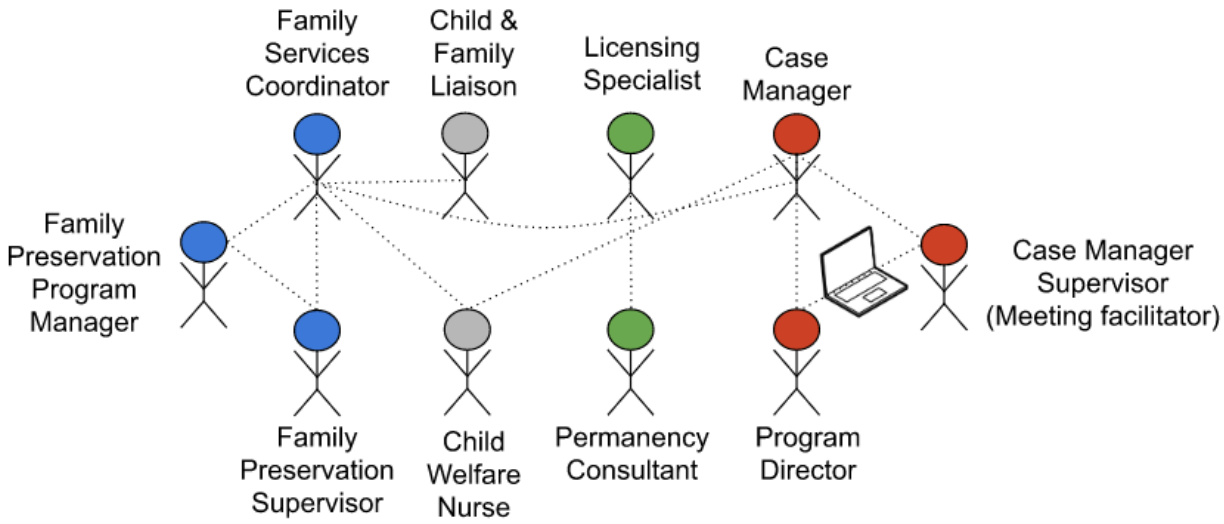

Figure 1: This image depicts a child-welfare multidisciplinary team meeting. The dotted lines depict the smaller teams and people who work together in the background. **Sidebar 1** depicts the roles of three smaller teams depicted in this image.

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 do the stakeholders address scenarios of conflict between the algorithm and policy/practice.*

Background

In this section, we provide some background knowledge on the child-welfare team meetings that we observed as well as some important details about the algorithm being used by the team.

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 possible trauma symptoms resulting from trauma exposure. Trauma-informed care is an evidence-based practice that

Sidebar 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.

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 the **Sidebar 2** [3]. 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 child-welfare team meetings to understand how policies, child-welfare practices and algorithms interact with impact decision-making processes.

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

The CANS algorithm is designed to assess a foster child's level of need by determining the associated risk factors (for e.g., suicide risk, aggression, fire setting) as well as well-being indicators (for e.g., school attendance, relationship with teachers). Based on the level of need, the algorithm recommends a placement setting for the foster child. However, the CANS algorithm has also been reappropriated 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.

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

The CANS algorithm makes a placement recommendation based on a child's level of need. However, quite often the placement decisions in CWS come down to the availability of resources or policy related factors [5]. 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 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 placed closer to bio-parents hindering an out-of-state placement. Furthermore, the reappropriation of CANS algorithm to calculate the foster-parents rate has led to several conflicts. CWS team members who are now being trained in trauma-informed care understand that trauma stays with a child for years and cannot be alleviated in a few months. Lowering foster-parents' rate because trauma symptoms are not actively being manifested is problematic and disincentivizes foster-parents who are emotionally involved and help a child cope with trauma.

RQ3: How do the stakeholders address scenarios of conflict between the algorithm and policy/practice.

Policy dictates decisions whenever there is a conflict between the algorithm and policy and/or practice. For example, child-welfare practice corroborates that foster children have a higher chance of achieving placement stability when

placed in kinship care [2], however, policy requires relatives to meet all the legal requirements and go through a cumbersome licensing process to become foster parents [7]. 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 [5]. The reappropriation 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

The child-welfare system has come under criticism from the public and media [4] and is being pressured into using algorithms as a means of standardizing the decision-making process [8]. This is especially problematic because the current algorithms do not account for systemic/policy related factors in a domain where decisions are often dictated by these factors. For instance, the CANS algorithm accounts for the risks arising from child/parent related factors, however, it does not account for risks posed by the system itself [2]. Moreover, the empirical knowledge in CWS is quite fragmented leading to unreliable predictions [6]. These problems arise because the domain knowledge, needs and values of stakeholders are not incorporated into the algorithm design process. We recommend taking a Human-Centered Algorithm Design (HCAD) [1] approach to ensure higher utility and transparency of algorithms. HCAD inform algorithm design in three ways: 1) *theoretical approach* helps to incorporate the theoretical and conceptual knowledge arising from child-welfare literature, 2) *participatory approach* help incorporate domain knowledge through the active involvement of stakeholders. This is imperative in a domain encumbered with policy and systemic factors, and 3) *speculative approach* allows researchers to be innovative and develop 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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