



# Using Data to Enhance Equity in Child Welfare: Findings from an Environmental Scan

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## Overview

### Introduction

This brief summarizes emerging data practices that may help advance equity in child welfare. We define data practices as all activities involving data, including activities that support data planning, collection, access, analysis, reporting, and dissemination. We identified the emerging data practices by conducting an environmental scan of academic literature, policy documents, and other relevant sources. These emerging data practices have the potential to support efforts to promote equity throughout the continuum of child welfare services. However, it was beyond the scope of the environmental scan to comprehensively review evidence regarding the impact of these practices. In this brief, we organize data practices into five sequential stages of the data life cycle: (1) data planning; (2) data collection; (3) data access, management, and linking; (4) data analysis, metrics, and interpretation; and (5) reporting and dissemination. Emerging data practices at each stage of the data life cycle offer unique opportunities to recognize and improve equity. To comprehensively understand and address inequities, child welfare agencies and their partners may consider ways to implement data practices at each stage of the data life cycle to inform and support equitable decision making.

### Primary research questions

The following research questions guided the environmental scan and development of this research brief:

- / How do state and local child welfare agencies and their partners collect and use data to understand and advance equity in service delivery and child and family outcomes?
- / Which data practices show promise for supporting child welfare agencies in advancing equity across the child welfare service continuum?

### Purpose

To support child welfare agencies and their partners in the implementation and delivery of equity-centered data practices, this brief highlights the ways that agencies may be able to use data to advance equity. As we describe emerging data practices from the environmental scan, we also describe potentially problematic data practices identified in the literature and we offer alternative practices. We also provide examples of ways that child welfare agencies and their partners are implementing these emerging data practices across each stage of the data life cycle. This information about data practices to better understand and improve equity may be helpful for a wide audience of child welfare agency staff and their partners, including agency leadership, frontline staff, research and data staff, as well as advisory councils and community partners.

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<sup>1</sup> A revision was made to the subheading on page 10.

## Key findings and highlights

Emerging data practices in each of the five stages of the data life cycle offer unique opportunities to recognize and improve equity.

- / **Data planning.** Emerging data planning practices include engaging the community in data planning and throughout the data life cycle, developing guidelines for equity-focused policies and practices, and ensuring the development of appropriate data systems and training opportunities.
- / **Data collection.** Emerging data collection practices include considering how to collect disaggregated data, practicing sensitivity and cultural competency during data collection, and developing or adapting data collection instruments to collect data that may inform equitable service delivery and placements.
- / **Data access, management, and linking.** Emerging data practices include ensuring data accessibility and data transparency (e.g., about how data are collected and any biases that may exist), sharing data between systems, maintaining quality data, and implementing policies and oversight to ensure data security.
- / **Data analysis, metrics, and interpretation.** Emerging data practices include using disaggregated data to identify inequities, leveraging innovative analysis approaches, using equity-centered approaches to contextualize and interpret the data, considering how results may affect communities, and determining how agencies will address inequities.
- / **Reporting and dissemination.** Emerging practices for reporting and disseminating data include developing actionable products, being transparent (e.g., by providing clear descriptions of the analytical models used), and making materials accessible to and interpretable for all audiences.

## Methods

Our findings are based on an environmental scan that reviewed 85 publications, including peer-reviewed journal articles, federal policy documents, and documents from the grey literature such as published reports, issue briefs, data toolkits, and web bulletins. We focused primarily on literature from child welfare and closely adjacent fields, such as health equity. In total, we identified 237 data practices from the environmental scan. We conducted the scan in the following four stages from February through August 2022:

1. **Search.** We searched academic and grey literature published from January 2012 through March 2022 by using a set of key terms related to child welfare, equity, data practices, and health equity. We searched academic databases (PubMed and ProQuest) to identify the published literature, and we conducted a customized Google search of websites from child welfare research, policy, and advocacy agencies to identify relevant grey literature (e.g., issue briefs, evaluation reports). We also conducted a targeted review of federal policy documents that describe policies that inform state and local child welfare agency data practices. We also issued a public call for information to solicit input from the field.
2. **Screen.** A team of trained screeners reviewed the titles and abstracts of each document to identify those most relevant.
3. **Review.** Using a standardized template to identify key information, we conducted a detailed review of the highly relevant documents to identify data practices.
4. **Synthesize.** To summarize key findings, we used a combination of thematic and descriptive analysis techniques. We used qualitative coding to categorize individual data practices as either potentially promising (which we refer to in this brief as “emerging data practices”) or potentially problematic relative to enhancing equity.



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## Inequity in child welfare

Research has shown extensive racial and ethnic disproportionalities and disparities throughout all aspects of the child welfare services continuum—from reports of maltreatment to removal and placement in foster care to a child’s exit from care (Martin and Connelly 2015; Summers 2015). Children of color, particularly Black and Native American children, are more likely to be removed from their homes, spend more time in foster care, and experience more changes in placement; in addition, they are less likely to be reunified with their families (Child Welfare Information Gateway 2021; Martin and Connelly 2015). At the same time, research demonstrates that disproportionalities and disparities exist for lesbian, gay, bisexual, transgender, and questioning (LGBTQ) children along the child welfare service continuum (Wilson and Kastanis 2015). As many child welfare agencies seek ways to better understand and overcome these inequities, the strategic use of data may promote equity within their communities and improve the experiences of affected families (OIAA 2021; Capacity Building Center for States 2018).

## Identifying equity-focused data practices

To support child welfare agencies and their partners in their efforts to improve equity, this brief identifies data practices throughout the data life cycle that may help agencies better measure, understand, and advance equity. We identified the data practices in this brief from an environmental scan of recently published literature and federal policy documents conducted for

### Key terms as defined for the project

**Data practice.** All activities involving data, including activities that support data planning, collection, access, analysis, reporting, and dissemination.

**Data life cycle.** The five sequential stages that depict how data move through the earliest stages of data planning to eventual reporting and dissemination.

**Emerging.** A data practice identified in the literature with the potential to reduce inequities, including practices demonstrated to reduce inequities and those hypothesized to reduce inequities.

**Problematic.** A data practice identified in the literature with the potential to exacerbate inequities, including practices shown to worsen existing inequities and those hypothesized to exacerbate inequities.

**Equity.** The consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as people who identify as Black, Latino, Indigenous, Native American, Asian American, Pacific Islander, and other people of color; members of religious minorities; people who identify as LGBTQI+; people with disabilities; people who live in rural areas; and people otherwise adversely affected by persistent poverty or inequality (White House 2021).

the Child Welfare Study to Enhance Equity with Data ([CW-SEED](#)) project, which aims to understand how and to what extent data child welfare agencies and their partners use data to promote equity in child welfare service delivery and child and family outcomes. Mathematica and its partners—the Center for the Study of Social Policy and the University of North Carolina School of Social Work—conducted this work under a contract with the Office of Planning, Research,

<sup>2</sup> A revision was made to the subheading on page 10.

**Figure 1.** Stages of the data life cycle



and Evaluation in collaboration with the Children's Bureau, both in the Administration for Children and Families.

In addition to identifying emerging data practices, the environmental scan identified potentially problematic data practices. It is important to recognize data practices that are potentially problematic, so that child welfare agencies and others can explore alternative strategies. When problematic data practices are identified, we provide examples of alternative practices that could be considered instead, which are highlighted throughout the brief with lightbulb icons.

Although the CW-SEED environmental scan identified a wide variety of data practices, this brief is limited to providing a high-level overview of the data practices that were identified in the environmental scan, which included peer-reviewed and grey literature and federal policy documents published between January 2012 and March 2022. Another brief in this series, titled "The What, Why, and How of Collecting and Analyzing Demographic Data to Improve Equity in Child Welfare," focuses on some of the data collection and measurement data practices. Further details about specific data practices may also be found in the cited sources found throughout the brief. Additionally, while there are multiple dimensions of equity, this brief frequently discusses data practices that address race and ethnicity and LGBTQI+ equity, as those were the focus of the majority of the articles identified in the environmental scan.

While we feature many examples of data practices and share helpful issues to consider, the efforts to implement data practices are often more nuanced than what can be conveyed in this brief. However, this overview of data practices and selected examples could be used as a starting point to prompt consideration of what might be possible among child welfare agencies and their partners.

## Identifying data practices across the data life cycle

We organized data practices into five stages across the data life cycle: (1) data planning; (2) data collection; (3) data access, management, and linking; (4) data analysis, metrics, and interpretation; and (5) reporting and dissemination.

Emerging data practices at each stage of the data life cycle offer unique opportunities to recognize and improve equity. To comprehensively understand and address inequities, child welfare agencies and their partners can consider ways to implement data practices at each stage of the data life cycle to inform and support equitable decision making.

## Data planning

Planning, which is the first stage of the data life cycle, establishes the foundation for the following four stages. Whether agencies are planning a one-time data collection effort or enhancing their administrative data system to systematically collect data, the planning stage often includes tasks such as (1) developing a project plan; (2) identifying and engaging community members with diverse perspectives; (3) determining the mission, purpose, or goals of the data; and (4) drafting guidelines for ethical data use (Hawn Nelson et al. 2020).

In our environmental scan, roughly 20% of the identified data practices were part of the data planning stage. Common emerging data practices used for data planning include (1) engaging the community, (2) developing guidelines for equity-focused policies and practices, and (3) ensuring that appropriate data systems and training opportunities are in place.

## Engaging the community from start of the data life cycle

Even though community engagement and community voice are essential throughout all aspects of the data life cycle, much of the reviewed literature stressed the importance of engaging community members and diverse perspectives—such as those with lived experience, members of populations served, and agency staff with data expertise—at the outset of the work. Engaging diverse perspectives may help develop a more nuanced understanding of problems and their root causes and strengthen collective efforts to design and sustain strategies to address them (Kia-Keating et al. 2017; Child Welfare Information Gateway 2021). Examples from the literature of involving community members and diverse perspectives during data planning as well as during other stages of the data life cycle include:

- / Designing, monitoring, and evaluating data equity plans (Capacity Building Center for States 2021; Child Welfare Information Gateway 2021)
- / Determining and defining the data to be collected and analyzed (Kia-Keating et al. 2017; Hawn Nelson et al. 2020)
- / Interpreting findings and developing recommendations (Kia-Keating et al. 2017; Tajima et al. 2022)
- / Deciding how to disseminate findings (Capacity Building Center for States 2021; Hawn Nelson et al. 2020)



### Data practices in action: Engaging the community

The Broward Data Collaborative (BDC), established in 2017, aims to improve outcomes for community members by integrating data from various sources (such as the Florida Departments of Children and Families and Juvenile Justice). To center equity in the development of the BDC, the Children's Services Council of Broward County used a Community Participatory Action Research (CPAR) framework to involve community members and those with lived experiences in "the process of governance, research, evaluation, and solution creation to address racial, economic, and social/spatial gaps" (Hawn Nelson et al. 2020).

As child welfare agencies engage community members, examples found in the literature raised cautions about:



- Relying solely on a singular perspective, such as the perspective of only the child welfare agency or only academic institutions, to frame the problem and identify key questions that can be examined with data (Hawn Nelson et al. 2020)
- Practicing token representation by seeking the perspectives of marginalized community members without sincerely involving such community members as engaged participants (Hawn Nelson et al. 2020)

To ensure community members participate directly in the work, an example from the literature discussed the development of a community advisory board (CAB) that engages representatives of community organizations serving youth, leaders of key community sectors, interdisciplinary researchers, parents, and youth (Kia-Keating et al. 2017).

## Developing guidelines for equity-focused policies and practices

Developing standards and frameworks at the outset of data planning to help guide and monitor equitable data practices may ensure that equity is sufficiently prioritized and highlighted throughout the data life cycle (Hawn Nelson et al. 2020). Examples from the literature include:

- / Developing, through the collaboration of community members with diverse perspectives, a shared agenda and plan for data collection and use. For example, The Hope Zone conducted focus groups with residents and community partners in Baton Rouge, Louisiana, as part of a project aimed at addressing risk factors and health disparities. They conducted focus groups during project planning to better understand these neighborhoods, their strengths and challenges, and possible approaches for effective community engagement later on during the project (Brown and Stalker 2020)
- / Determining oversight responsibility for analytic model development and implementation with clear communication channels for input, including identifying individuals responsible for addressing any possible negative impacts from the analytical models (Hawn Nelson et al. 2020)



- / Developing non-discrimination and inclusion policies that outline the confidential procedures for reporting violations and the consequences for committing discriminatory acts (Cooper et al. 2017).

Child welfare agencies may be assuming adherence to best practices with using data to promote equity, but they may lack explicit policies and oversight of those practices. To help guide agencies' use of analytics and other data applications, an example from the literature noted child welfare agencies could develop a comprehensive code of ethics that address fiscal, social, and legal implications, to help guide agencies' use of analytics and other data applications (Capatosto 2017).



## Ensuring that appropriate data systems and training opportunities are in place

The data planning period may be used to ensure that the correct data systems, metrics and analysis methods, and staff training opportunities are in place to deliver and support equity-focused data practices. Examples from the literature include:

- / Planning for and investing in systems that allow information to be entered at several junctures and key decision points along the child welfare system continuum to ensure that the data accurately reflect changes in conditions and self-identification (GAO 2022; Martin and Connelly 2015)
- / If community engagement was utilized during project planning, ensure that their feedback and ideas are effectively integrated into data systems and procedures (Hawn Nelson et al. 2020)
- / Establishing staff roles and assessing whether staff members responsible for collecting and/or using data within the agency have the knowledge, resources, and capacity to collect and use data to promote equity and provide needed training. For example, the Massachusetts Department of Public Health's Racial Equity Program Data Readiness Assessment is a self-assessment tool to determine the extent to which staff and data systems are in place to support data-driven racial equity work. (Correia et al. n.d.)
- / Engaging domain experts (for example, agency staff and caseworkers) and methods experts (for example,

data scientists and statisticians) to ensure that analytic models are appropriate for examining the research questions within the local context (Hawn Nelson et al. 2020)

- / When developing training opportunities for staff, consider: (1) including real life examples and scenarios that help staff visualize how these trainings apply to their practice, and (2) providing ongoing education to staff through regular intervals (Cooper et al. 2017).



### Data practices in action: Data systems and training

After initiating a culturally responsive effort to provide affirming services to LGBTQ communities, Pennsylvania's Allegheny County Department of Human Services (DHS) piloted guidelines in 2013 for collecting data on sexual orientation, gender identity, and gender expression (SOGIE) for youth in the child welfare system. DHS convened a steering committee to prepare for the collection of the new data. The steering committee recommended (1) updating DHS's case management system to capture SOGIE data, (2) implementing SOGIE standards of practice to ensure data security, and (3) offering training and supports to staff responsible for carrying out these practices (Hawn Nelson et al. 2020).

When an agency procures a data system from an outside vendor, the agency may not necessarily own the system or the data, potentially limiting the agency's authority over the system and its ability to make system changes and revisions (Berger et al. n.d.). An example from the literature described the importance for public agencies to consider their system ownership and the associated flexibility to revise their data systems to allow for adaptations in context, environment, or system changes over time (Berger et al. n.d.).



## Data collection

Data collection is the second stage in the data life cycle. It is the process of systematically gathering and measuring information (Hawn Nelson et al. 2020) that may help child welfare agencies and their partners deliver needed services, manage programs, and conduct research and evaluation.

Nearly 15% of the data practices identified in the environmental scan related to data collection. Emerging practices associated with data collection commonly include (1) considering how to collect disaggregated data, (2) practicing sensitivity and cultural competency during data collection, and (3) developing or adapting data collection instruments for the collection of data intended to guide equitable service delivery and placements.

## Considering how to collect disaggregated data

When deciding which data to collect, agencies might consider which data will accurately represent their community's unique characteristics and nuances. To that end, they must determine the specific subcategories of data (known as disaggregated data) to collect. For example, many racial or ethnic groups can be further disaggregated into more specific racial or ethnic subpopulations (OIAA 2021). Collecting disaggregated demographic data, such as SOGIE and specific race or ethnicity data, is crucial for helping child welfare agencies understand the communities that have been marginalized (Annie E. Casey Foundation 2016a; Esposito et al. 2021; Dorsey et al. 2014; Vega Perez et al. 2022). Agencies may then determine how to use the disaggregated data to best meet community needs, such as evaluating the impact of services for various groups of children, youth, and families to reveal disparities between specific subcategories of child and family demographic data (Child Welfare Information Gateway 2021). When determining whether to collect disaggregated data, agencies may consider the potential tradeoffs related to new data collection, such as the additional costs, the burden on staff, and the need to have data collection policies in place that ensure data privacy and security (Data Quality Campaign 2017, Gourdine 2019). Examples found in the literature include:

- / Encouraging the systematic collection of more detailed race and ethnicity information beyond the standard categories of American Indian or Alaska Native, Asian, Black, Hispanic, Native Hawaiian or Pacific Islander, or White; including multiracial and multiethnic as category options in data collection; and including specific races or ethnicities, especially those in the community populations the agency is

likely to serve (Martin and Connelly 2018; Dorsey et al. 2014; OIAA 2021; Vega Perez et al. 2022)

- / Including narrative data entry fields that allow child welfare workers to document how and why decisions were made, especially for cases where collecting sensitive information may raise legal or ethical concerns, as decision-making (and subsequently what is captured in child welfare administrative data) can be influenced by personal values and biases (Tajima et al. 2022)
- / Ensuring the collection of reliable data by using precise terminology that accurately portray the intended constructs. For example, sex and gender are separate constructs but some data collection instruments conflate the two by using a single measure to assess them (National Academies of Sciences, Engineering, and Medicine 2022)



### Data practices in action: Mandating standardized data collection

Oregon passed a bill in 2013 mandating the standardized collection of race, ethnicity, and language data by all programs within the Department of Human Services and Oregon Health Authority. The policy aims to promote equity among racial and ethnic groups, demonstrate progress in reducing disparities, and increase transparency in reporting indicators. Oregon also collects child welfare data on children who are Indian Child Welfare Act (ICWA) eligible, allowing for the assessment of ICWA compliance and a better understanding of this child welfare population (Martin and Connelly 2015).

## Practicing sensitivity and cultural competency during data collection

Practicing cultural competency and thoughtfulness when addressing potentially sensitive topics during data collection and ensuring that staff undergo training in the same practices may improve the integrity of data collection and support enhanced equity in the child welfare system (GAO 2022).

Examples from the literature include:

- / Determining how their collection of demographic data, such as SOGIE data, allows for fluidity in responses, adopts practices and policies that respect the privacy of youth and families, and ensures that

data collection staff are trained to be allies for youth (Tan-McGrory et al. 2018)

- / Involving youth and families in collecting demographic data to ensure an accurate reflection of their personal identities by allowing for the self-reports of race, ethnicity, and language data through written or electronic forms, thus preventing potential discomfort in verbally disclosing such information during oral questioning (Conrick et al. 2022; National Academies of Sciences, Engineering, and Medicine 2022)

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Rather than collecting data only for surveillance purposes or collecting unactionable data that reinforce bias, such as collecting race data to understand racial disparities without considering structural racism as a root cause (Hawn Nelson et al. 2020), examples from the literature highlighted the ways data collection efforts can be grounded with a focus on equity by:



- Adding an educational component to training sessions to address common staff misconceptions about the role of race and ethnicity (Vega Perez et al. 2022)
  - Using training opportunities and discussions with frontline staff to emphasize staff members' role in improving data quality and accuracy and addressing disparities (Vega Perez et al. 2022)
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### **Developing or adapting data collection instruments for the collection of data intended to improve equitable service delivery and placements**

By developing or adapting both *qualitative* data collection instruments (for example, interviews and case notes) and *quantitative* data collection instruments (for example, intake forms, surveys, questionnaires, administrative records, and other numeric data sources) to capture certain data, child welfare agencies may use the data to reduce disparities and advance equity in service provision (Martin and Connelly 2015; Hawn Nelson et al. 2020; Cooper et al. 2017). For example, agencies may ensure that foster children are placed in safe and accepting homes by establishing a system to track affirming homes for LGBTQ youth and including statements about providing affirming care, regardless of a youth's SOGIE, in the forms that foster parents sign when they

agree to accept a young person into their home (GAO 2022). Examples from the literature include:

- / Collecting data on cultural practices, beliefs, and behaviors and using the information to locate and match children to relevant services in the community. For example, agencies may use cultural self-assessments, community resource assessments, and may develop outreach protocols that identify cultural and faith-based community organizations (Gourdine 2019)
- / Collecting feedback on services from families by asking about parents' experiences and how the agency can make improvements and using that feedback to inform future service delivery (Capacity Building Center for States 2021)

### **Data access, management, and linking**

The third stage in the data life cycle involves data access, management, and linking. Data access determines who "can securely obtain, view, or use data; when it can be used; and for what purpose" (Hawn Nelson et al. 2020). Data linking refers to the practices of connecting and sharing data between entities or systems, while data management involves securing, organizing, and storing data and the oversight of these processes. Even though data management embraces these distinct practices, together the practices ensure the availability, quality, and protection of the data that may be used to understand equity. This stage may include data use agreements, administrative data linkages, requirements for access to restricted data, or data sharing across service systems.

Slightly more than 10% of data practices in the environmental scan discussed data access, management, or linking. Emerging data practices in this stage focus on (1) ensuring data transparency and accessibility, (2) establishing policies and oversight to ensure data security, (3) sharing and linking data across agencies, and (4) maintaining quality data.



## Ensuring data are transparent and readily accessible

Many of the data practices in this stage of the data life cycle are related to embedding equity in data access processes, both between agencies and for the public, as well as ensuring that agencies are transparent about how data is collected and any biases that may exist (Hawn Nelson et al. 2020). Examples from the literature to promote and achieve transparency include:

- / Maintaining clear data release schedules and providing specific information regarding the processes on where and how to request data and access data once released (Hawn Nelson et al. 2020)
- / Creating, using, and sharing high-quality metadata to let requesters know what data are available (Hawn Nelson et al. 2020)
- / Clearly describing how data is collected, such as from intake paperwork or through self-reported surveys, and outlining how potential biases during data collection may impact the data (Hawn Nelson et al. 2020)



### Data practices in action: Data accessibility

The California Child Welfare Indicators Project (CCWIP), a collaboration between the University of California at Berkeley and the California Department of Social Services (CDSS), offers a comprehensive and publicly available source of child welfare administrative data. By developing an interagency data sharing agreement with the CDSS, CCWIP obtains quarterly administrative data updates from California's child welfare data system. The CCWIP provides customizable information on California's entire child welfare system, allowing users to examine performance measures over time, across counties, and by demographic groups. The data can be stratified by age, ethnicity, gender, and other subcategories to customize inquiries on areas of system performance (Martin and Connelly 2015).

Rather than limiting data access to child welfare agencies or researchers, examples found in the literature note that agencies may consider publicly releasing summary data reports or creating websites with query tools to depict disaggregated categories of characteristics to the most detailed extent possible while protecting confidentiality (Hawn Nelson et al. 2020). If, however, data are unavailable because of privacy or security concerns, agencies could consider clearly documenting the reason that data are unavailable (Hawn Nelson et al. 2020).



## Establishing policies and oversight to ensure data security

Developing guidelines and protocols to ensure data security and privacy are especially important given equity-related data can include confidential data or personal identifiable information. Developing explicit data security protocols that (1) align with any federal and state data privacy laws, and (2) are consistent across all agencies that have access to the data are crucial to ensuring that this sensitive data is kept secure (Data Quality Campaign 2017). Examples from the literature include:

- / Embedding privacy protocols in the tools and systems for collecting, storing, and accessing caregiver and child demographic information, including clear protocols for employee access to information and adherence to privacy regulations (Tan-McGrory et al. 2018)
- / Adhering to data management best practices, such as securing data as they are collected and, specifically, granting only carefully considered, role-based access to sensitive data (Hawn Nelson et al. 2020)

## Sharing and linking data across agencies

Cross-agency data sharing may help provide more comprehensive information about individuals and families. Such information could include medical and education records, which may provide a more complete understanding of potential inequities in children's services and outcomes and help agencies address complex research questions, identify systematic problems, create needed policies or focused interventions, and track the progress and

efficacy of interventions over time (Capacity Building Center for States 2018; Esposito et al. 2021; Data Quality Campaign 2017; Wilson et al. 2014). In particular, data linkages may help agencies better understand risk and protective factors by offering a more complete picture of a child's living environment and how families interact with several support systems (Soneson et al. 2022; Esposito et al. 2021). Examples found in the literature include:

- / Developing a unique, statewide child identifier that is assigned to and remains with a child throughout the child's participation in programs and services so that use of the identifier across key databases improves data linkage across systems, alleviates redundant data entry, and improves confidentiality (King 2017)
- / Using pre-existing templates, such as those developed by the National Information Exchange Model (NIEM), to structure data exchanges between state and county agencies to reduce the burden of building a data exchange infrastructure (Capacity Building Center for States 2018). The NIEM provides a shared vocabulary, core elements, standardized procedures for developing and implementing data sharing models, and a set of mandatory data requirements which assists agencies with building compatible data-sharing platforms (Capacity Building Center for States 2018)

## Maintaining quality data

Maintaining high-quality data is imperative for data integrity. Problems with data quality may lead to inaccurate estimates of need, biased results, or exacerbated inequalities (Soneson et al. 2022). Additionally, administrative data may be limited or outdated or even embody integrity issues. This could potentially lead to a "garbage in, garbage out" situation, meaning poor quality data can lead to inaccurate results (Russell 2015). Examples from the literature include:

- / Implementing strong data documentation standards, including capturing information related to the data's description, provenance, technical specifications, rights, preservation, and citation (Hawn Nelson et al. 2020)

- / Conducting periodic reviews of the data with the purpose of increasing data accuracy and identifying any missing data (Data Quality Campaign 2017)
- / For statewide information systems, developing and complying with their state's Comprehensive Child Welfare Information System Data Quality Plan to ensure data quality (Children's Bureau 2018)

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When child welfare agencies use inconsistent categories for demographic information across data sets (for example, conflating race and ethnicity), this may lead to issues with data integrity and comparability (Hawn Nelson et al. 2020). Examples from the literature noted the importance of ensuring consistency in data elements across databases and other data collection materials, clearly identifying, explaining, and documenting any data integrity concerns, and describing all potential error sources in efforts to resolve these issues (Lanier et al. 2020; Hawn Nelson et al. 2020).

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## Data analysis, metrics, and interpretation<sup>3</sup>

The fourth stage of the data life cycle involves using data, measures, and analysis to produce valid (accurate) and reliable (consistent) results. The fourth stage includes selecting appropriate data sources and applying one or more methods for analyzing the data. This stage also includes interpreting the results by drawing on community input and information relevant to the local context. Even though data sources, measurement, and analysis, and interpretation are separate practices, they each relate to the process of using data to discover trends or relationships, generate conclusions, and guide decision making. Data practices in this stage may include quantifying disparities and disproportionality, using advanced analytics, or identifying themes and disparities through qualitative and quantitative analysis.

In the environmental scan, the largest number of data practices (approximately 45%) were related to data metrics, analysis, and interpretation. The most common emerging data practices involved (1) using a variety of data sources, (2) using disaggregated data to

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<sup>3</sup> A revision was made to this subheading. [See note below.](#)

identify inequities, (3) applying innovative analysis approaches, (4) using equity-centered approaches to contextualize and interpret the data, and (5) considering how results may affect communities and determining how agencies will address inequities.

## Using a variety of data sources

Literature in the environmental scan discussed the use of several data sources to enhance analyses' integrity, accuracy, and fairness. Child welfare agencies may consider ways to incorporate supplemental data sources, such as survey data or qualitative data, in addition to administrative data when conducting analysis. Examples include the following:

- / Using a mixed-methods approach when developing analytic plans. The approach may involve purposefully seeking out qualitative data (such as data from interviews, focus groups, narratives, and surveys) in conjunction with quantitative administrative data to better understand clients' lived experiences (Hawn Nelson et al. 2020)
- / Using text mining to extract information effectively and efficiently from unstructured text data, such as case notes that can be queried, to maximize the value of existing data (Perron et al. 2019)

## Using disaggregated data to identify inequities

If child welfare agencies have disaggregated demographic data, agencies may consider analyzing these data to identify inequities and understand trends possibly obscured by aggregated data. In particular, it is important to examine child maltreatment reports, entry into foster care, service arrays, permanency and other outcomes with respect to race and ethnicity, Indian Child Welfare Act (ICWA) eligibility, and other dimensions of equity in order to understand the magnitude of inequities in the child welfare system (OIAA 2021; Child Welfare Information Gateway 2021; Gourdine 2019). Two common methods to measuring inequities between two groups are **disparity**, which refers to the unequal outcomes of one group compared with outcomes for another group, and **disproportionality**, which refers to the

underrepresentation or overrepresentation of a racial, ethnic, SOGIE, or other group when compared with its percentage in the general population (Child Welfare Information Gateway 2021)<sup>4</sup>. Examples from the literature of how to use disaggregated data to measure inequity include:

- / Choosing whether to measure disproportionality, disparity, or both based on the questions they want to answer to understand and address inequity within their communities (Johnson-Motoyama et al. 2018).
- / Measuring inequity at various points along the service continuum (for example, reports, investigations, and out-of-home placements) to reveal where disproportionalities and disparities exist or are the most prevalent, which can help determine where to focus interventions (Hawn Nelson et al. 2020).

## Applying innovative analysis approaches

The use of innovative analytic methods may increase the understanding of data patterns, relationships between key measures, and relevant factors contributing to inequities. Agencies may consider how advanced analytic methods can best answer their questions and which methods may minimize the risk of exacerbating inequities. In addition, all analysis, regardless of method, should account for individual, community, political, and historical contexts. Examples of innovative analytic data practices from the environmental scan included analysis with geographic information systems data and predictive risk modeling.

### Analysis of geographic information systems data

Agencies may use data from geographic information systems (GIS) to interpret visual data, identify patterns, and examine disparities that might not be immediately apparent from merely reviewing other data types. For instance, child welfare workers may use GIS to see where clients live in relation to the services they need or identify areas that warrant enhanced recruitment efforts because of a lack of foster parents (Capacity Building Center for States 2018).

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<sup>4</sup> Although the CW-SEED project has adopted these definitions of disparity and disproportionality, there are

multiple ways to define and operationalize these terms (McDaniel et al. 2017).



### Data practices in action: GIS

The Kirwan Institute used Opportunity Mapping<sup>5</sup> to examine infant mortality rates in Columbus, Ohio. The results of the Opportunity Mapping analysis shocked local decision and law makers. Ohio had the second-worst Black child mortality rate (in the country). In response, a task force comprising representatives of both public and private organizations convened and initiated a five-year effort to “introduce health care, housing, workforce, and other interventions into neighborhoods where disparities were the greatest” (Annie E. Casey Foundation 2016a).

### Predictive risk modeling

An emerging data analysis practice is predictive risk modeling (PRM). PRM aims to calculate the likelihood of a particular outcome for individuals, given their identifying characteristics, at key points along the child welfare service continuum. Child welfare agencies may use PRM to identify families that may be at elevated risk for future maltreatment or potential candidates for prevention services. Agencies may also use PRM to calculate the adjusted relative risk of a referral, substantiation of a report, or entry into foster care (Drake and Jonson-Reid 2018; Feely and Bosk 2021; Putnam-Hornstein 2013).

However, it should be noted that the literature did not universally support the use of PRM, with debate about its use in child welfare (Sacher 2022; Feely and Bosk 2021; Lanier et al. 2020). Some people think that PRM may enhance inequities given that it uses racially biased administrative data, meaning data can over-represent certain populations that are more likely to come to the attention of child welfare agencies (Lanier et al. 2020). Others see PRM as a method that helps reduce inequities. It may help identify where disparities may exist along the child welfare services continuum. In addition, when used cautiously as a tool along with caseworker judgment, it may help reduce bias in decision making (Cahan et al. 2019; Drake and Jonson-Reid 2018; Drake et al. 2020; Chouldechova et al. 2018).

If a child welfare agency is interested in using PRM, it should be cautious when developing analytic models.

It is important to consider the implications of using administrative data that may include racial biases in risk factors associated with child maltreatment, which may affect the validity of the PRM results (Cahan et al. 2019). Even when analytic models do not explicitly include race, research suggests that other related variables may have elevated levels of collinearity with race, potentially leading to inadvertent racial proxies (Sacher 2022; Capatosto 2017).

The environmental scan identified the following examples that may help mitigate risks and improve the usefulness of PRM:

- / Evaluating performance by using equity criteria, such as the proportions of each demographic group assigned to a treatment or the distribution of false negatives (negative predictions that should have been identified as positive) and false positives (positive predictions that were incorrectly identified and should have been negative) among different demographic groups, to identify where inequities exist within the child welfare agency’s decision-making process (Cahan et al. 2019; Cuccaro-Alamin et al. 2017; Drake and Jonson-Reid 2018; Russell 2015; Schwartz et al. 2017)
- / Engaging community partners affected by decisions based on PRM tools and ensuring their participation in designing, implementing, and improving the models (Cheng et al. 2021; Drake et al. 2020)

### Using equity-centered approaches to contextualize and interpret data

Several documents reviewed in the environmental scan recommend the cautious interpretation of results. They encourage data interpretation that adopts equity-centered, mindful approaches. Such approaches contextualize findings by acknowledging existing inequities and explicit and implicit bias. For example, rather than making default comparisons to White individuals—such comparisons assume that outcomes for White individuals are the norm—child welfare agencies may consider selection of a reference population that provides the relevant comparison population for a given metric (Hawn Nelson et al.

<sup>5</sup> Opportunity Mapping gathers and disaggregates data on topics such as education, health, and housing and overlays

the data onto maps, placing challenges and differences into a geographic context (Annie E. Casey Foundation 2016a).

2020). Common comparison groups for calculating disparities include (1) two demographic groups of interest and (2) one demographic group compared to all others (for example, comparing reporting rates of American Indian/Alaskan Native children compared to reporting rates of all other populations) (Johnson-Motoyama et al. 2018; Kim and Garcia 2016; Greenstein 2021). To ensure that agencies do not disregard individual or community contexts and historical policies when analyzing data and interpreting results, examples from the literature highlighted:

- / Acknowledging that data may embed structural racism or other harms to communities (Hawn Nelson et al. 2020)
- / Adopting a structural risk perspective that explicitly accounts for the role of structural socioeconomic conditions in shaping disproportionate child protective services involvement as well as individual explicit and implicit bias (Feely and Bosk 2021)
- / Including qualitative stories and appropriate comparison groups to contextualize quantitative data and findings when interpreting results and developing reports (Hawn Nelson et al. 2020)

Rather than analyzing data without a clear idea of how the findings could affect individuals or communities, examples from the literature noted the importance of making plans to identify the most prominent inequities where intervention is feasible, creating plans to address those inequities, and developing focused, data-informed rules for decision making (Children's Bureau 2021; Correia et al. n.d.; Hawn Nelson et al. 2020).



### Considering how results may affect communities and determining how agencies will use results to address inequities

During data analysis and data interpretation, it is critical to (1) minimize adverse consequences by continuously considering and preparing for the ways that results could impact specific populations and (2) consider how results can be applied to further advance equity. Examples from the literature include:

- / Using racial impact assessments, such as the Racial Equity Impact Assessment, to examine systematically

how a proposed action or decision will likely affect different racial and ethnic groups and then using the assessment to minimize unexpected adverse consequences and identify unrealized positive benefits (Annie E. Casey Foundation 2016b)

- / Establishing common criteria for determining which group-based differences (racial or ethnic) should be prioritized for an agency's response (OIAA 2021)



### Data practices in action: Race equity review

In 2005, Michigan's legislature mandated the Department of Human Services to convene a task force and study the disproportionate representation of Black and other children of color in the child welfare and juvenile justice systems. The legislature also required the task force to make service-related recommendations aimed at reducing disparities and improving long-term outcomes. The Michigan Department of Human Services conducted a Race Equity Review, identifying five areas that contribute to elevated levels of inequality. It set forth nine recommendations to address these areas and strengthen equity efforts (Martin and Connelly 2015).

## Reporting and dissemination

During the last stage of the data life cycle, agencies report and distribute analytic findings within their agencies, throughout communities, or to the public. In the environmental scan, more than 10% of the data practices pertained to the reporting and dissemination phase of the data life cycle. The emerging data practices identified in this stage were (1) developing actionable products, (2) ensuring transparency, and (3) making materials accessible to and interpretable for all audiences.

### Developing actionable products

The environmental scan highlighted the importance of developing products or reports that (1) are actionable to inform clear recommendations for policy or practice, (2) guide the development of equity-focused interventions, and (3) support continuous quality improvement. Examples from the literature include:

- / Developing a data brief, such as [Equity Spotlight](#), that identifies and summarizes inequities and important contextual information for broad distribution to program staff, community members, and diverse perspectives to guide the development



of equity-focused interventions that could be implemented through continuous quality improvement projects (Correia et al. n.d.)

- / Developing reports that maintain a consistent focus on the key dimension(s) of equity (for example, how race factors into case decision making and the design of program services) (Johnson-Motoyama et al. 2018)



### **Data practices in action: Developing actionable products**

In 2010, the Supreme Court of Texas convened the Education Committee to improve education outcomes for children and youth in the state's foster care system. Over 18 months, the committee led discussions with more than 100 high-level court, education, and child welfare leaders, culminating in the creation of the Texas Blueprint: Transforming Education Outcomes for Children and Youth in Foster Care. An implementation task force then convened to prioritize and implement the blueprint's recommendations for improving school experiences for children in foster care. "According to the Texas Blueprint Implementation Task Force Final, 82% of the 130 recommendations are now either complete or are well under way" (Data Quality Campaign 2017).

## **Ensuring transparency**

If analysis relied on analytic models, it is imperative that any reported findings include a clear description of the models. Highly interpretable and transparent analytic models make modeling decisions explicit, allowing other experts to evaluate the underlying model, identify and assess the validity of model assumptions, and project and correct failures (Ibrahim et al. 2020). Examples from the literature include:

- / Providing clear documentation of the data analysis process along with analytic files so that others may reproduce the results (Hawn Nelson et al. 2020)
- / Clearly reporting how the analytic model makes predictions or decisions so that experts can look at the underlying model and its assumptions, determine whether those assumptions are valid, and project and correct any errors that may not have been considered (Ibrahim et al. 2020)

Rather than not sharing the analytic approach by, for example, relying on a black box model or proprietary models that undercut



transparency and limit reproducibility, an example from the literature noted that child welfare agencies may consider providing an easy-to-understand and transparent description of the data used in analytic models (Hawn Nelson et al. 2020). Such an approach permits an assessment of the representativeness of the sample population and any systemic biases that might impact analytic results (Ibrahim et al. 2020; Hawn Nelson et al. 2020).

## **Making materials accessible and interpretable for all audiences**

Numerous documents from the environmental scan cited the importance of disseminating materials equitably and ensuring accessibility for all audiences. Examples of disseminating findings from the literature include:

- / Developing differentiated messages for various audiences that feature the appropriate level of detail, technical terms, language, length, and format (Hawn Nelson et al. 2020)
- / Developing equity dashboards to visually identify the disparities in different dimensions of equity, such as race, ethnicity, age, gender, geographic region, and language (Vega Perez et al. 2022)
- / Making the results of advanced analytic models publicly available in plain language (Lanier et al. 2020)

Rather than creating a single product for dissemination that is inaccessible to general audiences—such as a 100-page report that uses technical language—examples from the literature highlighted the importance of presenting data in a way that is easily understood, such as by using accessible language and easy-to-interpret graphics and figures (Capacity Building Center for States 2018; Martin and Connelly 2015; Hawn Nelson et al. 2020)





### Data practices in action: Making materials accessible

Asheville, North Carolina, has experienced significant growth in population, tourism, and economic activity, but this growth has led to gentrification and displacement for Black and Hispanic residents with low incomes. The City of Asheville Office of Equity and Inclusion is working to redistribute power and improve community conditions. It has partnered with the city's GIS office to create a story map titled "Mapping Equity in Asheville." By linking racial demographics to location and making the results available in an easy-to-read format, the story map has provided valuable information for both policy development and resource allocation (Hawn Nelson et al. 2020).

## Conclusion

The environmental scan for the CW-SEED project helped identify the many ways that child welfare agencies and their partners use data practices to measure, understand, and address equity in child welfare. These data practices span the entirety of the

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- data life cycle, and they offer emerging ways that child welfare agencies may understand the unique inequities and strengths in their communities and implement tailored approaches and policies to advance equity.
- Disparity and disproportionality within the child welfare system are multifaceted and complex issues. However, child welfare agencies seeking to promote equity may consider the implementation of equity-driven data practices across the entirety of the data life cycle to address inequities and improve the experiences of marginalized families and children.
- To learn more about equity-focused data practices related to data collection and measurement, please see the related brief that discusses how data may be collected and used to identify and address disparities. It is titled "The What, Why, and How of Collecting and Analyzing Data to Improve Equity in Child Welfare" and available on the project web page: <https://www.acf.hhs.gov/opre/project/child-welfare-study-enhance-equity-data-cw-seed>.

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