Temporary Assistance for Needy Families (TANF) is a federal program that provides block grants to 54 U.S. states and territories to operate cash assistance programs and provide other services for eligible families with low incomes. TANF leaders, policymakers, and researchers all recognize the need for TANF agencies to use the data they collect to better understand how well their programs are working and how to improve them, given the impact on the families they serve. It is often difficult, however, for agencies already stretched to capacity to prioritize and execute data use and analytics. State TANF leaders are seeking roadmaps for how to transform their organizations and become data-driven.

Some conceptual frameworks have been created to guide such data-driven practices and to help build analytic capacity, but they are often theoretical in nature. In general, these frameworks have focused on the importance of striving for accountability, establishing data governance structures, and creating transparent and sustainable processes for data analytics.

This brief reports findings from an analysis of patterns of data use within state TANF agencies, an effort to move beyond theoretical frameworks to understand empirically what characterizes the most successful data users. Some of the findings match the expectations of established frameworks and recommendations, such as the importance of transparency in communication and data sharing practices. In particular, TANF agencies that stood out for exemplary data use relied on strong collaboration and communication among teams, with other state agencies, and with external partners. Staff capabilities were also a component of exemplary data use, though the association was not as strong as conventional wisdom might suggest. Technical characteristics (in particular, the age of a state's
primary TANF data system) appeared to have no relationship with the quality of analytic data use. It may strike some as counterintuitive to think that data infrastructure is not associated with data use, but the innovative thinking necessary to overcome technical challenges may also be what is needed to practice good data use. Without a developed, data-driven and collaborative culture, states may reap limited benefits from discrete investments in information technology infrastructure or by hiring data scientists who work in silos.

This analysis stems from an in-depth needs assessment of state TANF agencies’ data use sponsored by the U.S. Department of Health and Human Services Administration of Children and Families (ACF). ACF launched the TANF Data Innovation (TDI) project in 2017 to strengthen agencies’ use of TANF, employment, and other administrative data to better inform policy, manage programs, and improve services. (Box 1 presents an overview of the TDI project.) TDI is being led by MDRC in partnership with Chapin Hall at the University of Chicago, Actionable Intelligence for Social Policy at the University of Pennsylvania, and the Coleridge Initiative.

Box 1. TANF Data Innovation Project

The TDI Needs Assessment was initiated to inform the design of technical assistance activities for the project. The research team, led by Chapin Hall, used a combination of methods including a national survey of TANF agencies, a series of stakeholder interviews, and a systematic review of public documents (as described in Box 2). Previously published findings from the same needs assessment examined the national landscape of TANF data use.
Defining Exemplary Data Use

The essential task underpinning the current analysis was to define exemplary data use in state TANF agencies. The research team found that most TANF departments say that they can produce data and regularly report aggregate statistics. However, the creation of evidence-based policy requires not only routine reports for internal consumption but also robust, rigorous, and widely disseminated analyses. Building exemplary data use in all states is critical to the evidence-based policy agenda.

The team’s definition of exemplary data use thus includes the ability to use data and produce analytic findings that can inform program improvement. Analytic findings must
be more than descriptive (as in reporting aggregate counts). They should be evaluative, answering key questions of program design and management. Exemplary data use also includes being transparent and forthcoming with data and findings by sharing results publicly—be it through internal channels or external partnerships. This definition of exemplary data use is consistent with findings about the characteristics of impactful data use.\textsuperscript{11}

The team operationalized this concept using three indicators from the review of publicly available reports and analyses conducted with state TANF data as well as two self-reported survey items from the needs assessment. Indicators from the public document review included:

- any recent (five years prior to data collection) publication that used TANF administrative data and was authored by the TANF agency

- any recent publication that used TANF administrative data, was authored by the TANF agency, and included some interpretation or analysis\textsuperscript{12}

- any recent publication authored by an external partner (for example, a university, research organization, or other government entity) that used TANF administrative data from the state

The two indicators derived from the survey data included:

- a TANF director rating the agency as moderately or very effective in at least six of nine data activities\textsuperscript{13}

- agency reports completing an evaluation in the last five years

Each of the five components of the score is equally weighted, with one point for where the element of data use is present and zero where it is not. The resulting score ranges from 0 to 5 points, with a higher score indicating stronger data use.

Based on the initial distribution of state scores, the team identified three categories of data use: basic, advanced, and exemplary data users. Basic data users had score values of 0 to 2, demonstrating limited evidence of exemplary data use. These data users are labeled “basic” because the needs assessment found that most of them performed basic reporting functions. Advanced data users had score values of 3, demonstrating some evidence of exemplary data use. Finally, exemplary data users had score values of 4 to 5, demonstrating strong evidence of exemplary data use. Fifty-one percent of states were classified as basic data users, 21 percent were classified as advanced data users, and 28 percent were classified as exemplary data users under this methodology.

To receive a score, a state needed complete information on all five components of the score, resulting in a sample of 43 states out of 54 for this analysis. Some states were excluded from the analysis because they did not participate in the needs assessment survey or did not respond to one of the questions used in this score. In a few cases, a state’s
score could be inferred: For example, if a state had a score of 4 but was missing information on one component, it was included in the analyses as an exemplary data user because either a yes or a no on the missing item would yield a score equivalent to exemplary data use.

Characteristics of States Demonstrating Exemplary Data Use

The team compared a range of state-level TANF agency characteristics to each state’s data use score in order to understand which characteristics seem to be associated with stronger data use. Results of these analyses are discussed below in terms of practices, people, and infrastructure.

Practices. Exemplary data users were most distinguished by their survey responses around communication and collaboration. Exemplary data users reported more communication across all levels of the TANF program, as well as increased collaboration within the state and with external partners.

As shown in Figure 1, states scoring higher on data use were more likely to report frequent communication between frontline staff members and other data users. Similarly but not shown in the figures, agencies classified as exemplary data users communicated with other state entities as well, such as unemployment insurance offices or child welfare teams. Ninety-two percent of exemplary data users said they communicated with other entities in the state “a lot” or “a great deal,” compared with 33 percent of advanced data users and 35 percent of basic data users.

Figure 1. Percentage of TANF Agencies Reporting Communication Between Frontline Staff and Other Users, by Frequency

<table>
<thead>
<tr>
<th>Data Use Level</th>
<th>Frequently (%)</th>
<th>Sometimes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exemplary</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Advanced</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Basic</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

SOURCE: Calculations using data from the TANF agency survey. Sample size = 43.

NOTES: Question text was: “How frequently do frontline staff collecting data communicate with other data users about the quality of the data?” The answer options were “never or rarely,” “sometimes,” and “frequently.”
States scoring higher on data use also accessed diverse integrated data, which may represent greater collaboration across state agencies (also not shown in the figures): Eighty-three percent of exemplary data users had access to more than five data sources integrated with TANF data; this rate was also high for advanced data users (100 percent), while the corresponding rate for basic data users was only 48 percent. The use of integrated data allows for analyses of TANF families’ experiences that includes their interactions with programs outside of TANF (for example, child support and Supplemental Security Income). The greater access to integrated data for exemplary and advanced data users suggests these states both acknowledged the importance of linking across data sources to fully describe families’ experiences and successfully addressed legal, technical, and political barriers to data integration.

Additionally, exemplary data users were more likely to share data and engage in external partnerships with academic researchers, research firms, or other external partners. Fifty-eight percent of exemplary data users reported the existence of a data sharing agreement with an external partner, compared with 56 percent of advanced data users and just 23 percent of basic data users. Exemplary data users also communicated more frequently with their external partners, with 66 percent of exemplary data users reporting a moderate or great amount of communication, followed by 55 percent of advanced data users and 35 percent of basic data users. As shown in Figure 2, exemplary data users were also more likely to find those external partnerships highly useful. The existence of a publication by an external partner using a state’s data was a component of the outcome score, so it is not surprising that exemplary states had more productive partnerships. These partnerships provide states with additional capacity and expertise so they can execute and publish rigorous analyses with implications for program improvement.

**People.** Staff expertise in a variety of data and analytic skills was high in states that demonstrated exemplary data use. Table 1 shows staff expertise in two areas (data manipulation and program evaluation) that were intended to represent a breadth of necessary analytic skills. However, states across the data use spectrum reported having staff members with these two areas of expertise. The lack of variation suggests that staff skills and knowledge alone were insufficient to create exemplary data use. Additionally, because the team had only self-reported information with a relatively subjective scale for this measure, it may be that the depth of knowledge in the two areas varied in ways that were not captured by it.

**Infrastructure.** Exemplary data users were not characterized by their technical or data infrastructure. The team examined the relationship between the age of a state’s data system and its data use score. The age of a data system had an almost inverse relationship with the data use score, as shown in Figure 3. Additionally, there was no clear evidence that exemplary data users had more access to their data (for example, flexibility in querying and extracting data) across staff roles. These findings align with analyses of data use in the private sector, which emphasize that investments in technology infrastructure alone are insufficient to advance data use if the agency’s culture and priorities are not aligned with excellent data use.14
This analysis also found no indication that states with higher data use scores had better data documentation or data quality practices. However, the previous analysis noted that all states struggle with data documentation and quality.

**Implications for Understanding and Fostering Exemplary Data Use**

This analysis is the first of its kind to empirically explore the characteristics of strong data use in state human service agencies. Using a combination of self-reported data and information gleaned from published records, the team identified patterns that challenge intuitive strategies for strengthening analytic capacity, such as investing in data system upgrades. The analysis did not attempt to establish causality. But it suggests new ways of thinking about what it means to use data well and how to foster data use by looking at practices more broadly, rather than by concentrating only on case studies from high performers.

When examining state characteristics in relation to data use, clear patterns emerged that highlight areas that states might consider focusing on to improve their data use. Communication and collaboration across departments, staff, and partners were all strengths of...
Current and high-quality external partnerships were highly correlated with increased data use scores. This is not surprising, since a publication with an external partner was part of the data use score. External partnerships present opportunities for a state to add capacity in order to take an analysis from research design to publication. Partnership publications included in the team’s public document review analyzed such topics as the impact of significant TANF policy changes on families’ outcomes and the effects of an employment intervention for TANF recipients. These analyses can add rigorous, impactful evidence for the field.

Finally, infrastructure and technical data capabilities were not clearly related to exemplary data use. It may be that simple technical workarounds (such as data extracts) were enough to facilitate analytic needs. In some cases, implementing a new data system may have detracted from the capacity for data analysis in the short term because of institutional knowledge lost in migrating to the new system, or because of a learning curve for staff members using it. Technical infrastructure likely matters more for operational, reporting, or audit purposes, while the currency and technical capabilities of a data system are not as important for analytic capacity.

Taken together, these findings offer evidence for the following practices and strategies to foster exemplary data use:

1. Encourage communication and collaboration at all phases of data use and analyses (for example, during question development, research design, and interpretation) and across different departments. Create opportunities for this communication, such as during regular integrated meetings, in shared reports, and as part of department-wide data literacy initiatives.

2. Cultivate useful partnerships with other state agencies and external partners to complement internal agency capacity.

<table>
<thead>
<tr>
<th></th>
<th>DATA MANIPULATION</th>
<th>PROGRAM EVALUATION</th>
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</thead>
<tbody>
<tr>
<td>Basic data users</td>
<td>72.2</td>
<td>68.4</td>
</tr>
<tr>
<td>Advanced data users</td>
<td>77.8</td>
<td>37.5</td>
</tr>
<tr>
<td>Exemplary data users</td>
<td>83.3</td>
<td>83.3</td>
</tr>
</tbody>
</table>

SOURCE: Calculations using data from the TANF agency survey. Sample size = 40.

NOTES: Question text was: “Among analytic staff in your TANF agency, please indicate the highest level of knowledge in the following areas.” Answer options included “extremely knowledgeable,” “moderately knowledgeable,” “slightly knowledgeable,” “not knowledgeable at all,” and “n/a, we don’t do this in-house.”
3 Carefully consider the necessary capabilities when recruiting and hiring new analytic staff members and program leaders. Communication skills should be considered in addition to analytic skills, for example, and the ability to foster a culture of transparency and collaboration around data use should be prioritized.

4 Support transparency and dissemination to reinforce quality, boost impact, and promote accountability.

To be sure, these strategies need to be tailored to the specific needs and situations of an individual TANF agency, and they likely do not capture the full picture of what a given state will need. For example, some recommendations may not be feasible or may need to be adjusted to suit the current political climate or the budget constraints in an agency. There are also likely agency characteristics that are associated with exemplary data use that were not well captured in the needs assessment. For example, the questions assessing staff skills and expertise are fairly general, leaving some ambiguity as to what staff skills actually look like in agencies.

Additionally, this brief represents a first attempt at operationalizing these concepts in data; while the team was able to cleanly distinguish some of the characteristics of the top performers, it was more difficult to differentiate the basic and advanced levels. The team also had data from only a single point in time, with no sense of trajectory, history of data use, aspirations for change and growth in data use, or past and future organizational barriers. As
a result, the brief does not speak to how characteristics may build on each other; some may provide the foundation for exemplary data use and others may only become critical once that foundation is established. Further research into how state agencies use data should push beyond the associations identified here and toward an empirically derived road map for agencies seeking to improve their data use. This could involve refined measures of data use, capacity, and infrastructure; longitudinal data collection to observe trends over time; and extensions to other programs (for example, SNAP, child care), where data use needs and capacities are likely similar.

Importantly, the team found that states that actively communicate about data and analyses within and across agencies and with external partners demonstrate exemplary data use. This is a finding that resonates with the experiences of the TDI project team and with findings from the needs assessment stakeholder interviews described in Box 2. It is also consistent with what other data professionals have said about improving data use. Better communication and collaboration practices can be fostered at the individual, team, and agency levels, and they do not require expensive capital investments or staff training. This is one place where state TANF agencies can pilot accessible and attainable strategies to increase the use of data and dissemination of analyses, hopefully leading to more evidence-based policymaking and program improvement for children and families participating in TANF.
Notes and References

1 This study includes 54 agencies that operate TANF in the United States: 50 states, the District of Columbia, and three territories (Guam, Puerto Rico, and the Virgin Islands). In this brief, “states” refers to both states and territories. Federally recognized tribes also operate tribal TANF programs, but tribal TANF agencies were not included in this study.


7 Survey respondents were guaranteed anonymity. As a result, states are not identified in this brief.


11 Allard et al. (2018).

12 This type of publication included some form of analysis that answered a research, policy, or programmatic question, therefore moving beyond just descriptive reporting of caseload statistics.

13 Different portions of the survey were intended for individuals in different roles. This question came from a module that was intended for completion by “someone in agency executive leadership (that is, TANF director),” although in some states the respondent may not have been the TANF director. Data activities include federal reporting, other regular reports, program integrity, performance management, quality improvement, data visualization, record linkage/data integration, program evaluation, and predictive analytics.


Acknowledgments

We would like to express our sincerest appreciation to the individuals and agencies who responded to the TANF Data Innovation (TDI) project’s needs assessment survey. We want to thank the TANF regional offices for facilitating the administration of the needs assessment survey. Their assistance was critical in helping us achieve such a high response rate. We would also like to thank our pilot testers: David Butler, Julie Kerksick, Don Winstead, Sonali Patel, Erin Dalton, Richard Foltz, John McGraw, Dave Gruenenfelder, Barbara Hollister, Gina Roberts, Carrie Senseman, Kate Parr, Candice Dias, Brian Clapier, Drew M. Anderson, Joel O’Donnell, and Mary Farrell. This group provided incredibly valuable feedback and suggestions to help us improve the survey, which produced better quality data.

Additionally, we would like to thank Aida Pacheco-Applegate, Tracey Lockaby, Jenna Chapman, and Julia Dennis for their assistance with data collection and analysis. The full TDI team informed research and analysis design and supported the development of this brief. Particular thanks go to Richard Hendra, Erika Lundquist, Caroline Morris, and David Navarro of MDRC, and Nicole Deterding, Girley Wright, Bethanne Barnes, and Lauren Frohlich of ACF, for reviewing and supporting this brief. The team thanks Jill Kirschenbaum for editing, and Ann Kottner for preparing the brief for publication.

The Authors
The TANF Data Innovation (TDI) project is funded by the Office of Family Assistance (OFA) and the Office of Planning, Research, and Evaluation (OPRE) within the Administration for Children and Families (ACF). MDRC and subcontractors Actionable Insights for Social Policy at University of Pennsylvania, Chapin Hall at University of Chicago, and Coleridge Initiative are conducting the Promoting and Supporting Innovation in TANF Data project for the Department of Health and Human Services (HHS) under a contract with the Administration for Children and Families, funded by HHS under a competitive award, Contract No. HHS- HHSP233201500059I. The project officers are Nicole Deterding and Girley Wright.

Dissemination of MDRC publications is supported by the following organizations and individuals that help finance MDRC’s public policy outreach and expanding efforts to communicate the results and implications of our work to policymakers, practitioners, and others: The Annie E. Casey Foundation, Arnold Ventures, Charles and Lynn Schusterman Family Foundation, The Edna McConnell Clark Foundation, Ford Foundation, The George Gund Foundation, Daniel and Corinne Goldman, The Harry and Jeanette Weinberg Foundation, Inc., The JPB Foundation, The Joyce Foundation, The Kresge Foundation, and Sandler Foundation.


The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

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