RESEARCH QUESTIONS. The pilot team at the OTDA sought to understand three questions for an entry cohort of TA participants: (1) the characteristics associated with a TA participant’s leaving or returning to receive public assistance, (2) subgroups who are more likely to leave or return, and (3) factors that are likely to be associated with long-term receipt of TA benefits. The team plans to use this information to predict, at the time a TA case is opened, how long a participant will use the benefits. In this way, OTDA hopes to help districts identify early on those individuals who may become long-term TA participants. The agency aims to develop a tool to help staff members make decisions about how to serve participants who may need more services, generate evidence about the impact of interventions, and help with staffing decisions.
DATA LANDSCAPE. The pilot team used administrative data from two NYS data systems: A TA benefits reporting and tracking system, and earnings and employment data from the state Unemployment Insurance system. The team built a longitudinal spell file that included all TA participants from August 2005 through January 2020 to track their experiences with public assistance during that time, including any periods during which they started, paused or stopped, or restarted participation. The team then focused its analysis on a cohort of all adults with children (and pregnant people without children) who started receiving public assistance benefits between July 1 and September 30, 2016, in a subset of counties (excluding New York City). The pilot team’s analysis incorporated 16 years of public assistance history, two years of employment data before TA entry, and 4.5 years of employment data after TA entry to observe patterns of public assistance receipt. Key variables included a participant’s age, gender, race, highest educational degree attained, marital status, number of children, pregnancy status, shelter type, citizenship status, previous public assistance history, employability, number of employers worked for and total earnings in a two-year period before benefit started, and history of benefit sanctions.

APPROACH AND RESEARCH METHODS. The pilot team conducted survival analyses using Cox proportional hazards regression to understand how regional differences and people’s personal characteristics known at the start of their TA spell affected their probability of leaving or returning to TA. This multivariate analysis method allowed the team to examine each factor’s importance, while controlling for potential confounding factors. The team then used logistic regression to develop a model to predict who would be a long-term participant. Inputs for this predictive model included the variables listed above, indicators of county size, and county unemployment rates. The team also cross-validated the model to test whether it could discriminate reliably between long-term participants and short-term participants, and whether predictions aligned with actual outcomes.

INITIAL FINDINGS AND NEXT STEPS. Key findings from the pilot team’s initial analyses included the following:

- Earning history and a previous history of receiving cash assistance at the start of TA participation were the best predictors of the timing of a participant leaving or returning to TA. Working patterns or earnings two years before entry were especially important.

<table>
<thead>
<tr>
<th>New York State TANF Snapshot</th>
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<tbody>
<tr>
<td><strong>State Supervised</strong></td>
</tr>
<tr>
<td>Number of TANF participants (November 2020)</td>
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<tr>
<td><strong>County Administered</strong></td>
</tr>
<tr>
<td>Number of TANF* participants (November 2020)</td>
</tr>
</tbody>
</table>

* TANF is a part of the state’s Temporary Assistance program

**Maximum Monthly Earnings Threshold for Family of 3 (July 2020)**

**$789**

**Monthly Cash Benefit for Family of 3 with No Income (July 2020)**

**$789**

**TANF and State Maintenance-of-Effort Spending (FY 2020)**

**$5.2b**

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(a) Congressional Research Service, The Temporary Assistance for Needy Families (TANF) Block Grant: Responses to Frequently Asked Questions  
(b) Urban Institute, Welfare Rules Database, Table I.E.3. Standards for Determining Eligibility, July 2020  
(c) Urban Institute, Welfare Rules Database, Table II.A.4. Maximum Monthly Benefit for a Family with No Income, July 2020  
(d) Office of Family Assistance, TANF and MOE Spending and Transfers by Activity, FY 2020
Regional differences and many personal characteristics were also good predictors of the timing of leaving, returning, or both.

The model performed well in predicting individuals whose chance of becoming long-term participants was low, but it underestimated when predicting for those with a high chance of becoming long-term participants. More powerful predictors may be needed to further improve the performance of the model.

Looking ahead, the team will refine the model by identifying and removing sources of bias (that is, whether the model avoided predictions that correlate with protected characteristics including race, gender, age, citizenship, and disability status) and by engaging a working group of local district TA staff members to review the model and explore how OTDA and the districts might use the model’s results fairly to improve program decisions. To that end, the team has established an expert working group of local staff members to discuss the model and its ethical use.