



The P.S. Program: Using predictive analytics in
program implementation



WISCONSIN DEPARTMENT OF
CHILDREN AND FAMILIES



Post-Reunification Support (P.S.) Program Overview

“Helping Families Stay Together”
Wisconsin’s Waiver Demonstration Project

- Developed to address Wisconsin’s high re-entry rate into out of home care, which was 21% in 2013.
- Provides enhanced case management, family-centered services, and bolsters natural community-based supports.
- Designed to also produce changes in the family’s short-term, intermediate, and long-term outcomes.

Why Use a Predictive Risk Model?

The decision to use a predictive risk model arose to:

- Target limited resources to the children who are most at risk of experiencing a re-entry into out of home care
- Systematically determine the allocation of slots
- Learn more about what works to help high risk children and families



By targeting those most at risk of re-entry we hope to:



Address Unmet Family Needs and Stressors

Decrease the Trauma Associated with Reentry

Make a Smart Investment in order to Reinvest Savings and Help More Families

Risk Model Development

As part of the early waiver evaluation activities, the Children and Family Research Center (University of Illinois) began to develop a risk model to identify which reunified children were at highest risk of re-entering substitute care within 12 months. Work on the model began in July 2013.

Data that was available for use in the model development included:

- AFCARS elements
- Family demographics
- Placement characteristics
- Maltreatment history
- Child and Adolescent Needs and Strengths (CANS)



Risk Model Development: Sample

The sample used in the analysis consisted of children who were reunified from substitute care during state fiscal year 2012 (July 1, 2011 – June 30, 2012). Children excluded from the sample included:

- Reunified children in Milwaukee County (BMCW)
- Children with juvenile justice only cases (joint JJ/CW cases were included)

This resulted in a sample of 1,844 reunified children. This sample was then split in half; the first half (n=922) was used to develop the risk model and the second half (n=922) was used to validate the sample.



Risk Model Development: Factor Combination

All relevant variables were tested for statistical significance in correlation to re-entry into OHC within 12 months of reunification. Variables tested included:

- Child/family: gender, race, child and caretaker age, disability, family structure
- Placement history: number of placements during most recent spell, last placement type prior to reunification, duration of placement, ever placed in shelter, residential treatment, or institution



Risk Model Development: Factor Selection

Variables tested in the model development process included:

- CANS domains: adjustment to trauma, behavioral or emotional needs, risk behaviors, family acculturation, school/daycare, child/youth strengths, life functioning, identified permanent resource strengths/needs
- Maltreatment report: case type, relationship to perpetrator, substantiation, number of prior referrals or service reports, reason for removal

Risk Model Development: Factor Selection

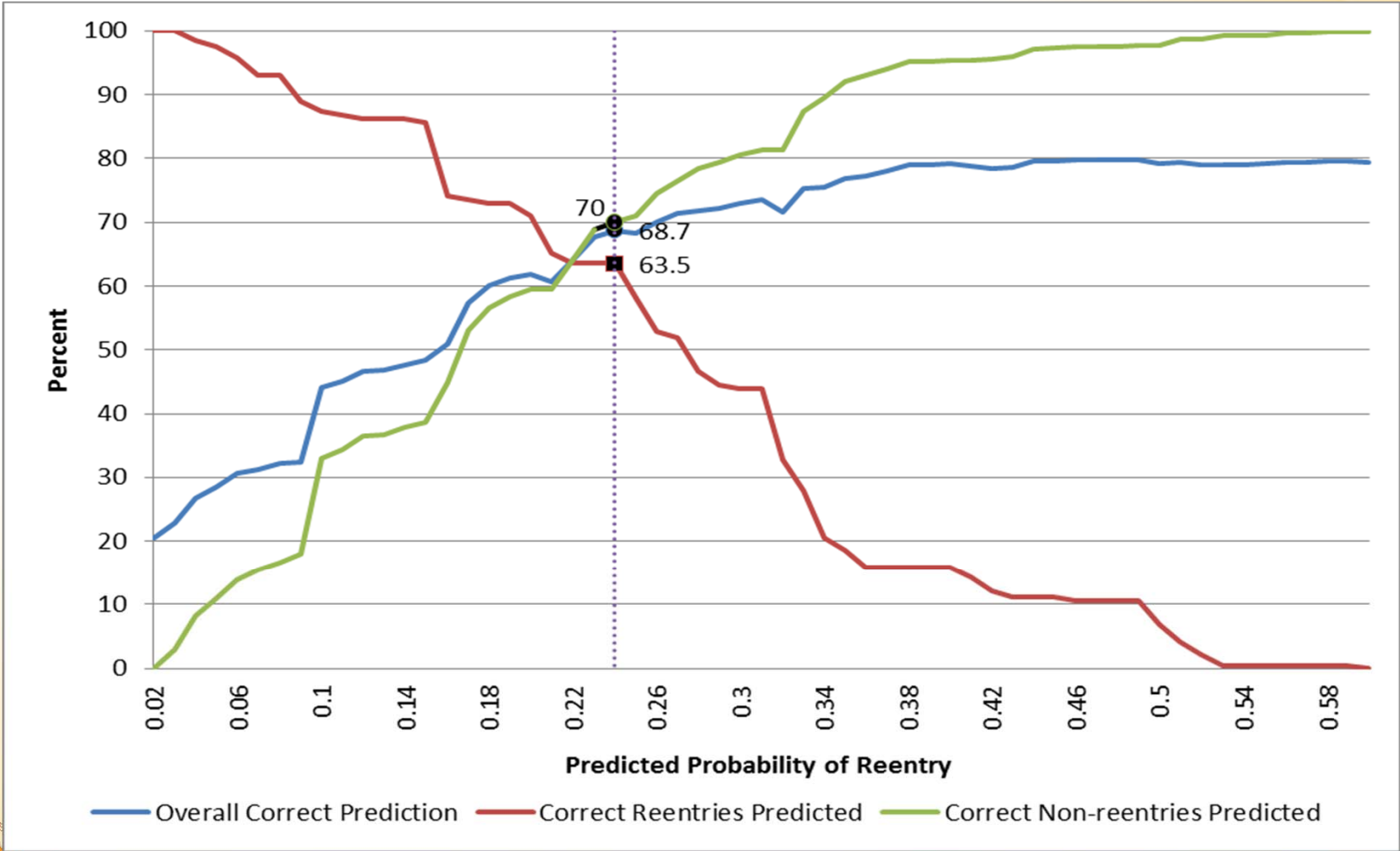
All variables that were related to re-entry at the bivariate level were tested in the model. Stepwise logistic regression was used to find the best combination of factors that predicted re-entry into OHC within 12 months of reunification.

The final model contained 4 variables:

- Child disability
- Single-parent family
- Length of time in care prior to reunification
- Number of service reports prior to most recent entry into care



Determining Eligibility Cut-Off Score



Program Implementation

Use of the Re-entry Prevention Model (RPM) in the P.S. Program

After the RPM was created, a report in eWisacwis was designed to allow counties to find youth in OHC who were eligible.

- The report runs automatically to determine a current RPM score for all kids in care, and a score for all kids if they discharge to reunification in 60 days.
- The report also allows counties to specify any number of days until a planned reunification, and provides a score on demand.



Initial County Concerns:

- A lower number of children were eligible for the program than originally projected
- The need to run and meaningfully use a report on a frequent basis
- An understanding of what accurate data entry into eWisacwis meant for child eligibility
- Variations in county practice affect presence of factors
- Anticipated factors were absent from the model

Program Implementation

Wisconsin took the following steps to facilitate use of the RPM during the first six months of implementation:

- Addressing lower than anticipated enrollment:
 - Lowered the eligibility threshold to allow more children in the program
 - Held one-on-one (county to state) meetings to walk through the model, local county data profiles, and other questions regarding the RPM and enrollment process
 - Allowed counties to lock in eligible RPM scores on referrals for planned reunification dates with up to a 30 day variance on the actual reunification date
 - Allowed counties to lock in eligible RPM scores for children who are in a trial reunification



Retooling for Year Two: RPM 2.0

- Developing RPM 2.0 with a new and larger slice of data, with the following alterations:
 - Increased and varied pull of data for dataset
 - Tiered aspects of the RPM to allow for cohorts of eligible youth
 - Clear delineation of how case and child IDs are structured county practice



Year 1 Lessons Learned

- Four categories of lessons learned:
 1. Data
 2. Timing
 3. Outreach
 4. Implementation

Lessons Learned: Data

1. Think carefully about data availability and quality

- Statistical significance is not synonymous with data quality
- Key indicators of risk learned from field experience may not be documented
- The availability of data may not be specific or reliable enough to capture the nuance of emerging risk factors

2. Have a full understanding of the internal data used in model

- Is data indicative of actual practice in the field?
- Has all the possible sources of data been used?



Lessons Learned: Timing

3. Determine a timeline for development, testing, and outreach communication

- Allow enough time for internal understanding, as the use of predictive analytics is a dynamic process
- Create a cushion of time for stakeholder and counties to react and ask questions prior to finalizing the model and implementation
- Carefully plan messaging and outreach communication

Lessons Learned: Outreach

4. Consider variables with colleagues from other sections/bureaus

- Ask about any potential variance in local agency practice related to each data item
- Understand any possible changes in policy or practice related to each data item
- Consider any unintended consequences to policy, standards, or other programs that may stem from utilization of the variables

5. Communicate clearly about model development prior to implementation

- Transparency on how the model is created is crucial for buy-in
- Predictive analytics will capture historic data patterns but may not indicate emerging changes in practice



Lessons Learned: Implementing

6. Expect resistance

- Understanding and using predictive analytics may not come naturally to many social service professionals
- Many social service professionals will prefer to serve clients with high needs rather than those who are high risk
- Even an exceptionally well developed risk model will not identify every case with legitimate risk

7. Be adaptable

- After initial implementation unforeseen situations or scenarios may come to light
- Some degree of flexibility will allow program staff to meet the needs of stakeholders and the population served



Six months into program implementation:

- Continued adaptability of both the RPM and the referral process have resulted in enhanced engagement with participating counties.
- As the program has evolved, so has our understanding of the model and our understanding of the statewide and local data.
- County partners have also grown into using the model and are collaborating with us for retooling RPM 2.0.

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