

Combining Administrative Data, Predictive Analytics, and Rapid-Cycle Evaluation for Program Design

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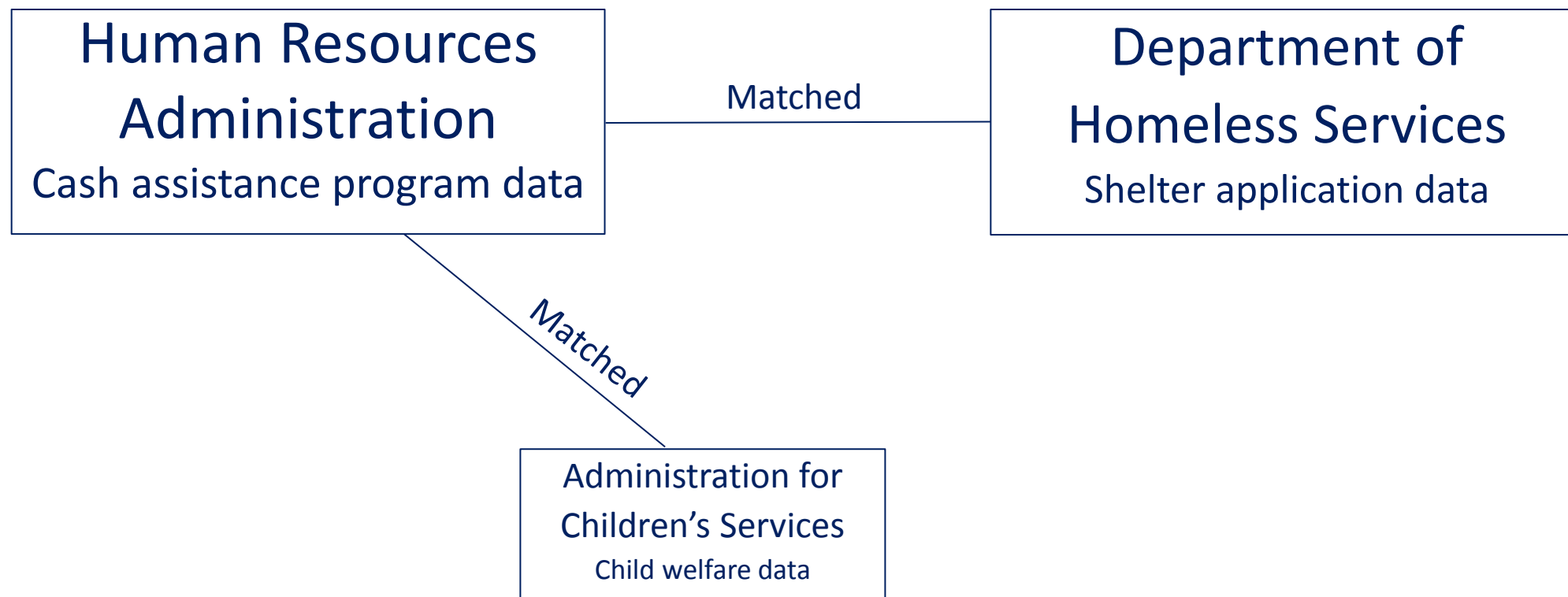
Summary

- Central question: How can the NYC social service agency prevent its clients—and specifically families receiving cash assistance—from entering homeless shelters?
- Combined predictive analytics and rapid-cycle process & impact evaluations to quickly inform program design.
 - Data analytics used to inform development of the **Neighborhood Homelessness Prevention Outreach (NHPO)** pilot, implemented by the agency's Homelessness Prevention Administration.
 - Rapid-cycle evaluation led to a redesigned initiative aiming to improve on client response and service receipt, and ultimately prevent shelter applications.

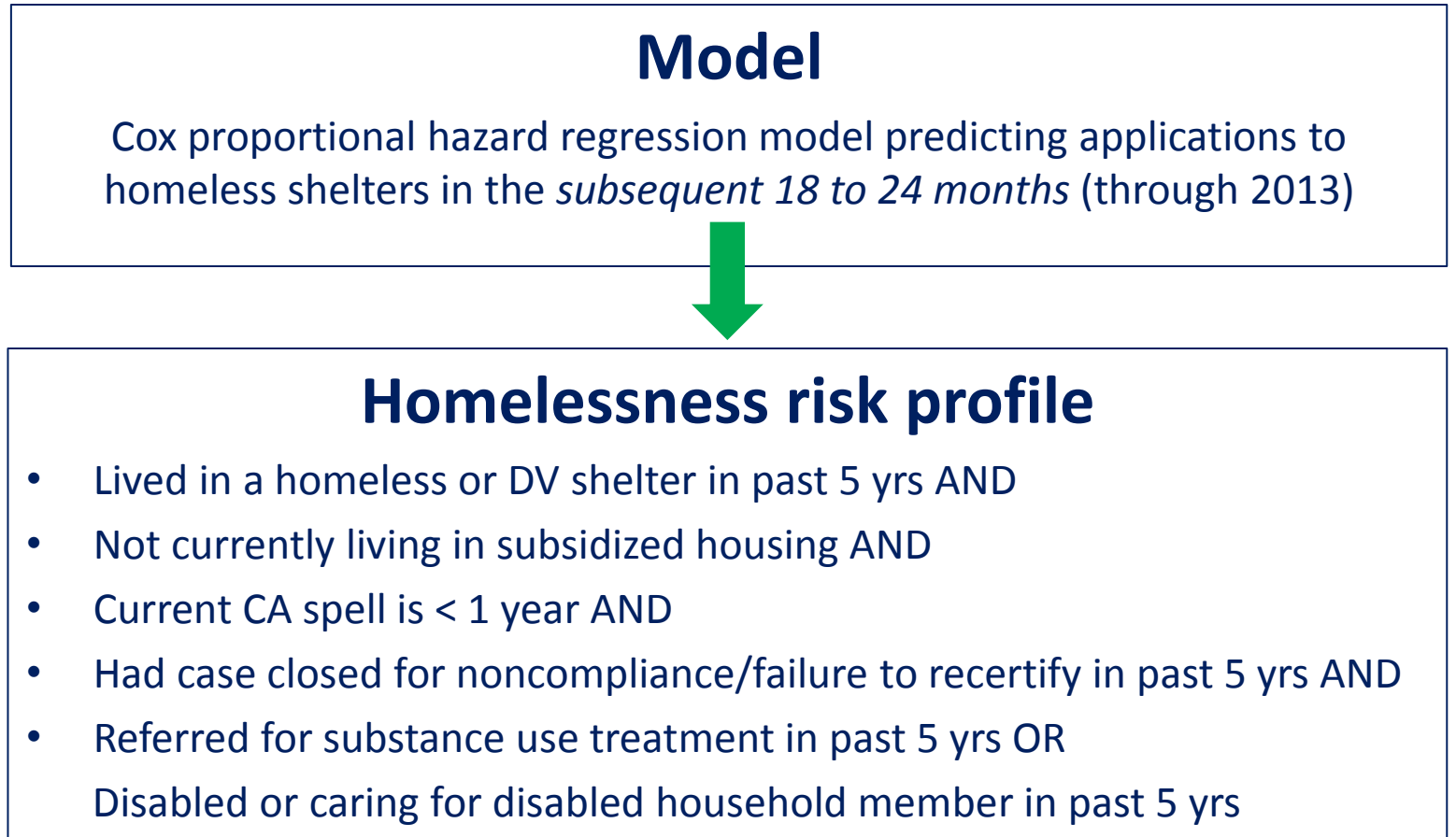
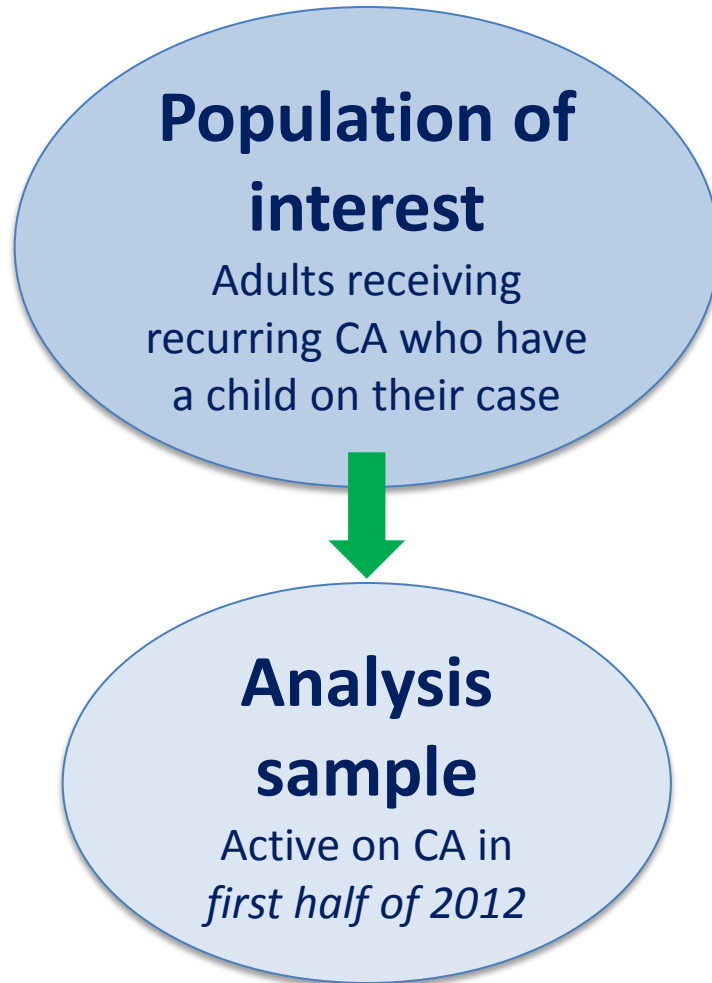
Aim of research:

Among New Yorkers receiving cash assistance,
identify the factors associated with a higher risk
of entering homeless shelters

Administrative Data



Predictive Analytics



Cox Proportional Hazard Regression Results

Table 1 Distribution of Predictor Variables and Cox Proportional Hazard Results

Risk Factor	Percent	Hazard ratio (hazard of applying to homeless shelter)
Housing		
Experienced homelessness in past 5 yrs	28.6	4.48***
Currently living in subsidized housing	15.0	.37***
Received a housing grant in past 2 yrs	23.8	.93**
Received a utility grant in past 2 yrs	40.1	1.18***
Cash Assistance (CA)		
Current CA spell at least 1 year long	29.4	.68***
CA case closed for noncompliance in past 5 yrs	62.2	1.51***
Health		
Disabled/caring for disabled hh member in past 5 yrs	42.7	1.12***
Substance use treatment referral in past 5 yrs	4.5	1.64***

Source: NYC HRA & DHS matched administrative data, 2005–2013.

Note: N=66,459; sample of family cash assistance clients active in the first half of 2012, at risk of applying to live in a homeless shelter in 2012 or 2013. “Current” variables are as of most recent active spell in the first half of 2012.

- Additional control variables: male, young adult (age 18 to 24), number of children, work exempt, & SSI/SSDI receipt.
- Alternative models added child welfare & domestic violence predictors
- Simplified risk profile in order to operationalize the program

Aim of pilot program:

Reduce the number of family cash assistance clients applying to enter homeless shelters

Program Design

- Risk profile applied to *June 2015* CA caseload → identified target pop. of ~1,800 clients citywide (excluded clients currently in shelter)
- Quasi-experiment: divided clients into **TREATMENT** and **COMPARISON** groups based on ZIP code
 - Controlled ZIP code pairings
- Rolled out in 4 cohorts, 1 month apart;
 - Started in late June 2015, completed in December 2015
 - High risk ZIP codes in Cohorts 1-3; remaining ZIP codes in Cohort 4
- Treatment group received outreach and a risk assessment to determine *current* risk of losing housing (all had a history of homelessness)
- Staff offered referrals based on assessment answers

Rapid Cycle Evaluation

- Interim process evaluation assessed outcomes through November 2015
 - Are we reaching clients?
 - Are clients facing housing insecurity?
 - Are clients accepting referrals?
 - What barriers do clients face in following up on referrals?
- Impact evaluation: service outcomes during 90-day period after pilot; 6-month and 12-month shelter applications
- Data sources: HRA and DHS administrative data; qualitative data from telephone interviews with clients who completed assessment

Process Evaluation Results

- ✓ Good “hit rate”: 62.1% contacted
 - 94.2% agreed to be assessed
- ✓ Many clients were housing insecure
 - Nearly every assessed client (92.3%) had at least 1 of the 10 housing issues
 - 46.0% had no lease or signed contract (likely an underestimate)
 - 1/3 of those assessed were either evicted or asked by landlord to leave in past 3 mo
 - Over 1/3 were behind on rent payments
- ✓ Many clients received referrals for housing assistance
 - About 1/4 were referred for rent or utility arrears through the PA Center
 - About 2 in 10 assessed clients were referred to Homebase, NYC’s homelessness prevention program
 - Nearly all clients who were offered a housing-related referral “accepted” it (i.e., indicated they would follow up)

Impact Evaluation Results: Services

	Rental Issuance		Applied to Homebase	
	Treatment	Comparison	Treatment	Comparison
Cohorts 1–3	12.0%	11.1%	6.8%	5.3%
Cohort 4	9.9%**	4.9%	6.9%*	3.8%

** $p \leq .05$

* $p \leq .10$

- Suggests that the effect of this “Phase I” outreach on service receipt was limited, leading to recommendations for enhanced “Phase II” outreach
- Systematic differences within the T group between clients who were (1) assessed and referred, (2) assessed but not referred, and (3) not assessed

Impact Evaluation Results: Shelter Applications

	Shelter Applications after Pilot	
Cohorts 1–3	Treatment	Comparison
6-month period after pilot	10.4%	9.8%
12-month period after pilot	15.8%	17.0%
Cohort 4		
6-month period after pilot	6.9%	6.6%
12-month period after pilot	12.3%	12.2%

No statistically significant differences found

- No difference between T & C 6 months or 12 months out

Key Takeaways

- Data analytics successfully identified a target population at risk of entering homeless shelter system.
 - We tripled the efficiency of our targeting: 14.9% of NHPO target pop. applied to shelter at 12 mo vs. 4.1% of October 2015 cohort
- **Geographic location was important in understanding housing risk** among clients who fit the high risk profile.
- NHPO staff achieved **high rates of client contact, assessment, and referrals** for housing-related assistance.

Key Takeaways (cont.)

- However, among those referred for housing-related assistance, **only a minority sought and thereby received services.**
- Impact analyses suggest minimal pilot impact and potential “Phase II” enhancements.

Implications

- “Phase I” impact may have been limited by the 42% of clients *not assessed* – “Phase II” will need to address client follow through.
 - Referrals were “soft”—clients may have lacked the capacity or agency to follow through.
 - Available services in “Phase I” may not have been sufficient to prevent homelessness.
- Informed by these findings, “Phase II” will test a new approach.

Next Steps: Phase II

Model: Behaviorally-informed outreach *developed in collaboration with ideas42*, using a low-touch outreach approach (mailer) to target a broader group of at-risk clients randomly assigned to receive newly designed outreach letter vs. agency standard outreach letter, coupled with enhanced efforts to ensure that those clients who respond to the mailer are connected to services.

Phase II will address the following questions:

- *Could behavioral insights further improve outreach efforts and produce a greater impact?*
- *Could impact be enhanced by targeting a larger and broader at-risk group?*
- *Could the follow-through rate be improved with enhanced referrals?*