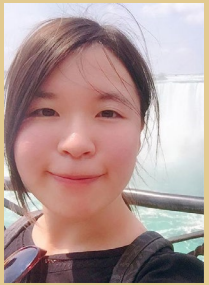
UW MS Capstone Project

HUD HEARS Study

Hantong Hu, Taylor Keating, Zichen Liu, Niki Petrakos | UW Biostatistics
Danny Colombara, Alastair Matheson | Public Health - Seattle King County

BE BOUNDLESS

Meet the Team


Hantong Hu


Taylor Keating


Zichen Liu


Niki Petrakos


Danny Colombara, PhD


Alastair Matheson, PhD


Patrick Heagerty, PhD

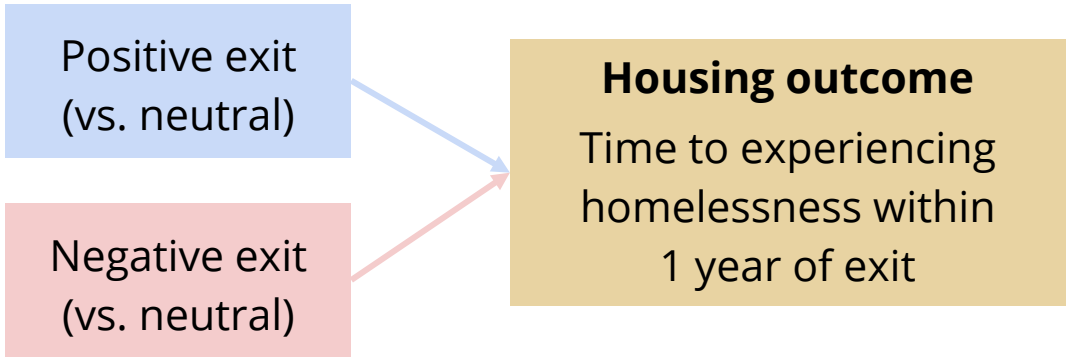

Lloyd Mancl, PhD

Background

- Housing is a **social determinant of health**
- Lack of affordable housing is a **public health issue** but affordable housing is a **limited resource**
- US Department of HUD wants to help people exit from affordable housing with **long-term benefits**
- Problem: **existing literature is sparse** in
  - Defining +/- exits
  - Exploring factors associated with +/- exits
  - Examining long-term outcomes from different +/- exits

Primary Objective

To determine if there is an association between positive/negative **exit types and long-term outcomes**



Study Population

Seattle Housing Authority

(2012 to 2019)

King County Housing Authority

(2016 to 2019)

Populations receiving **federal housing assistance**

1. Public housing (hard-unit)
2. Receiving a Housing Choice Voucher (soft-unit)

Renton Housing Authority

EXCLUDED

Other housing assistance

EXCLUDED

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Data Sources

Public Housing (HUD Form 50058 MTW)

Housing status, individual characteristics, household characteristics

Date of experiencing housing insecurity

1. Medicaid (Apple Health)
2. Behavioral Health Recovery Division
3. Homeless Management Information System
4. Health Care for Homeless Network

Puget Sound Regional Council Opportunity Mapping

Neighborhood quality/opportunity

Merged via census tract

Merged via SSN, name, DOB, gender

Variables

Individual	Household	Neighborhood	Clustering by
Age at exit	SHA or KCHA	Opportunity area index	**Household ID**
Gender	Program type		
Race/ethnicity	Single caregiver		
Time to homelessness	Household size		
	HoH has disability		
	Duration before exit		
	Exit type		

Time to Homelessness

Days to **first instance** of homelessness **within the first year** of exiting public housing

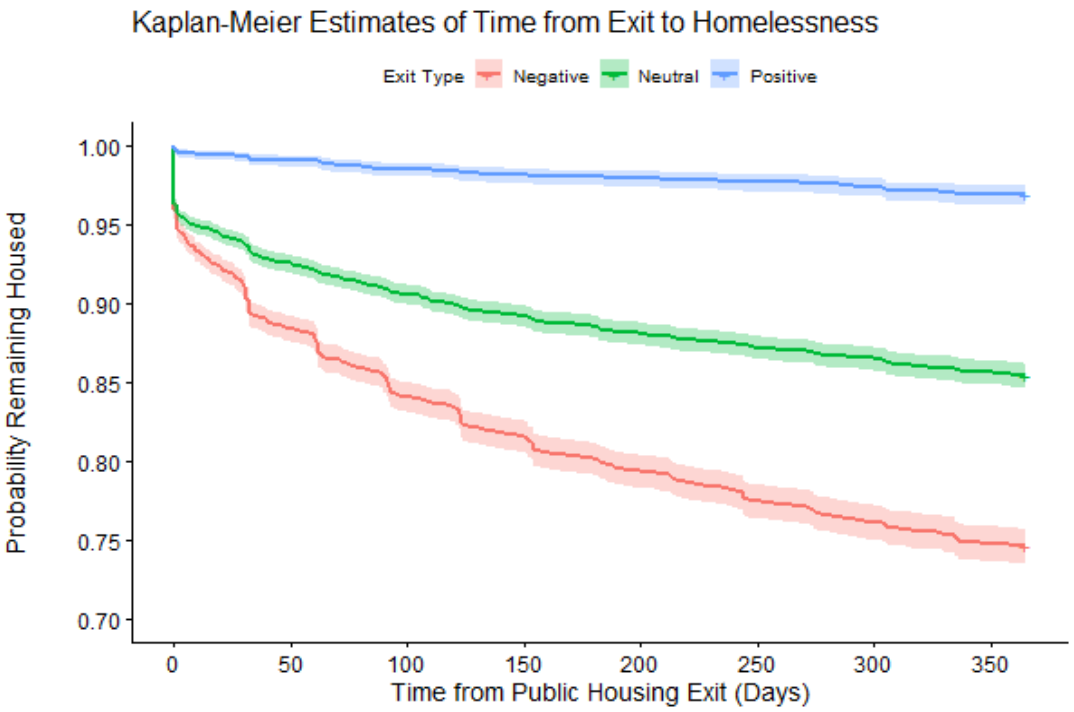
Outcome

1. Start date later than exit date
   - > Homelessness within 30 days prior to exit date is counted
2. Status ≠ “homeless” → 365 days
3. > 365 days → censored at 365 days
4. Get the earliest occurrence of homelessness, or censoring, per ID

Descriptive Statistics Summary

- Sample size: **17,224 (1 exit per person)**
- Events: 2,794 (**16%**) experienced homelessness within 1 year of exit
- Missingness
  - Opportunity score: 3% missing
  - Other covariates: less than 2%

Kaplan - Meier Curves



- **Distinct survival curves**
- Largest drop from **0 - 50 days**
- **Probability remaining housed**

  at 1-year after exit:

  - Positive: 97%
  - Neutral: 85%
  - Negative: 75%

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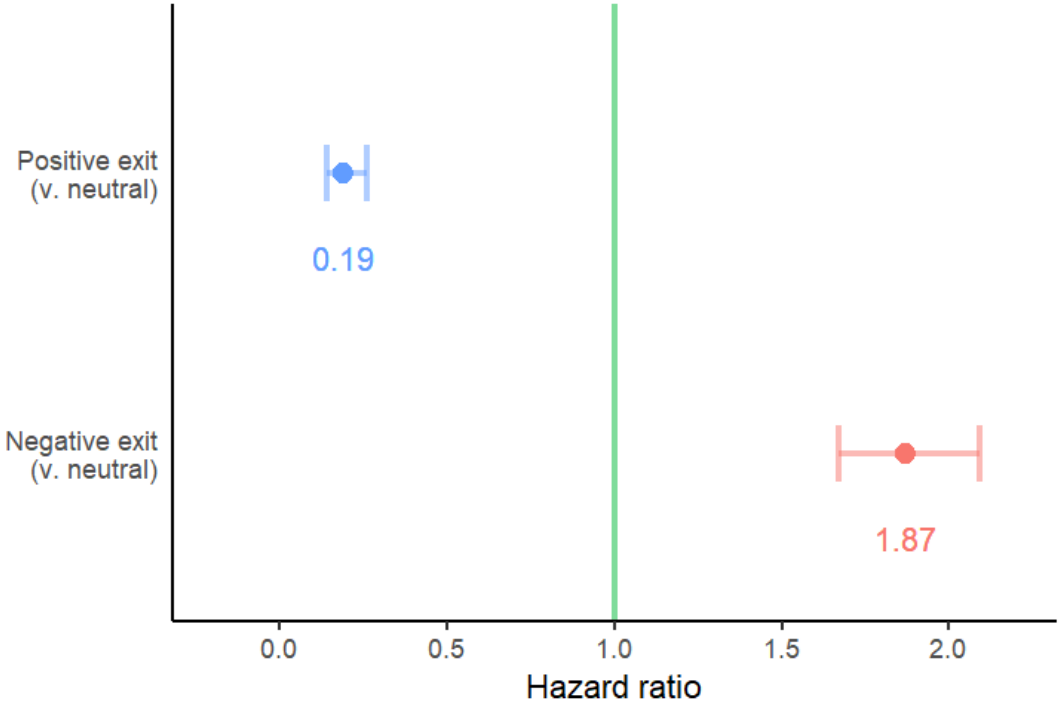
Regression Methods

Step 1	Step 2	Step 3
Derive propensity scores *Multinomial logistic regression with GEE (clustering by household)* log P(exit_type|covs) exit_type = POS, NEG, NEU	**Calculate weight for each observation** *Inverse probability treatment weighting* One of: $1/PS_{NEG}$ $1/PS_{NEU}$ $1/PS_{POS}$	**Housing outcome** *Weighted Cox PH model* $h_{homeless}(t) \sim h_0(t)e^{POS + NEG}$ *Clustering by household (robust sandwich estimator)*

Regression Results



> **Positive exits 81% less likely** to experience homelessness than neutral exits

> **Negative exits 87% more likely** to experience homelessness than neutral exits

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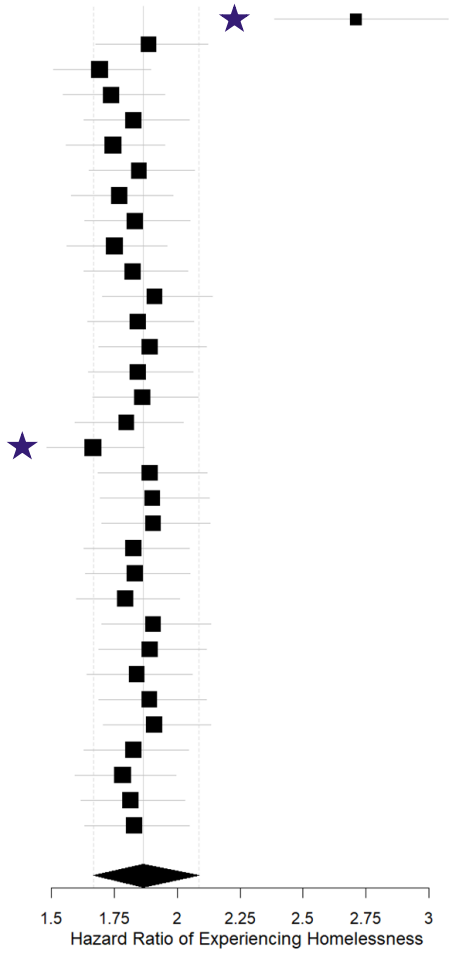
Sensitivity Analysis

Do the results of the primary analyses differ after **exit reasons are removed one at a time**?

exit reason 1	exit reason 1	exit reason 1	exit reason 1
exit reason 2	~~exit reason 2~~	exit reason 2	exit reason 2
exit reason 3	exit reason 3	exit reason 3	exit reason 3
exit reason 4	exit reason 4	~~exit reason 4~~	exit reason 4
exit reason 5	exit reason 5	exit reason 5	exit reason 5
exit reason 6	exit reason 6	exit reason 6	~~exit reason 6~~

Negative vs. Neutral Exit

Exit Reason Omitted	Number Omitted	Exit Category
PB/MR moved out location unknown	1520	Neutral
Vacated PB/MR Unit	1105	Neutral
Voluntary Self-Termination	868	Neutral
Moved in w/Family/Friends	762	Neutral
Client would not disclose reason	661	Neutral
Other	472	Neutral
PB/MR moved to non-time limited subsidized housing	456	Neutral
Health	428	Neutral
S8 Incoming Portability Move Out	406	Neutral
PB/MR moved to hospital/assisted living	317	Neutral
Other subsidized HSG/HCV	189	Neutral
PB/MR moved to temporary housing (family,friends)	181	Neutral
S8 Absorption	147	Neutral
Moved - Changed Subsidy Program Type	125	Neutral
Moved to Non-KCHA Subsidized Rental	120	Neutral
Moved - Needed a Higher Level of Services	120	Neutral
Voucher Expired	1414	Negative
Landlord Eviction	427	Negative
Failure to Complete Re-examination	333	Negative
Client Location Unknown/Abandoned Unit	302	Negative
Location	289	Negative
Eviction - judgement/physical - other	210	Negative
Other Violation of Participant Obligations	197	Negative
Serious/Repeated Lease Violations (Non-criminal)	194	Negative
Noncompliance - Paperwork Violation	191	Negative
Subsidy in Jeopardy Client Choice	180	Negative
180 Days Away From Assisted Unit	173	Negative
More than 60 days absent from the unit	161	Negative
Noncompliance - Payment Plan/Debt to SHA	138	Negative
Failure to Complete HQS Inspection	128	Negative
Inspection/Damages	115	Negative
Eviction - judgement/physical	113	Negative
Noncompliance - Criminal Activity	111	Negative
Full Data	**0**	**Full Data**



Interpretation:

- > **A lower HR estimate** (closer to 1) leads to negative and neutral exits being more similar
- > **A higher HR estimate** (further from 1) leads to negative and neutral exits being less similar

Findings:

- ★ **Overall**, results support conclusions from primary analysis
- ★ **Landlord evictions** appear to have greatest impact on homelessness among negative exit reasons
- ★ **PB/MR moved out location unknown** potentially more similar to negative exit reasons than neutral

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Positive vs. Neutral Exit

Exit Reason Omitted	Number Omitted	Exit Category
PB/MR moved out location unknown	1520	Neutral
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Voluntary Self-Termination	868	Neutral
Moved in w/Family/Friends	762	Neutral
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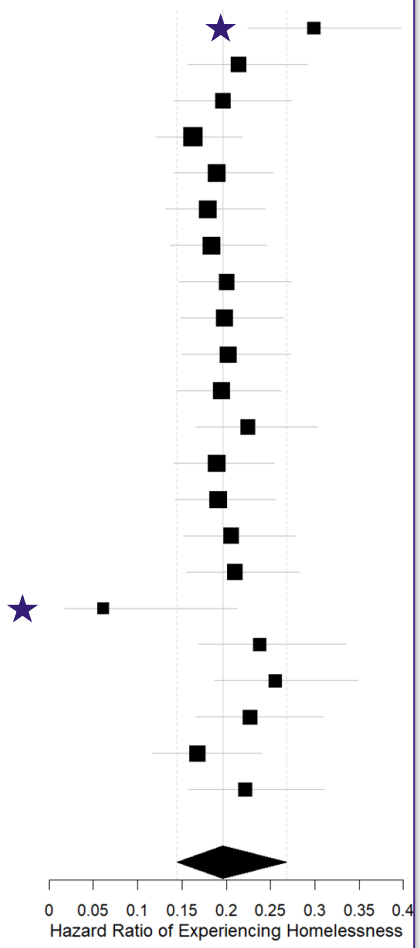
S8 Absorption	147	Neutral
Moved - Changed Subsidy Program Type	125	Neutral
Moved to Non-KCHA Subsidized Rental	120	Neutral
Moved - Needed a Higher Level of Services	120	Neutral
Moved to Non-Subsidized Rental	849	Positive
S8 Over Income	683	Positive
Homeownership	480	Positive
180 days $50 or less HAP	412	Positive
PB/MR moved to non-time limited market rate	313	Positive
180 days Zero HAP	237	Positive
Full Data	**0**	**Full Data**



Interpretation:

- > **A lower HR estimate** (further from 1) leads to positive and neutral exits being less similar
- > **A higher HR estimate** (closer to 1) leads to positive and neutral exits being more similar

Findings:

- ★ **Overall**, results support conclusions from primary analysis
- ★ **Moved to Non-Subsidized Rental** appears to have greatest impact on homelessness among positive exit reasons
- ★ **PB/MR moved out location unknown** potentially more similar to negative exit reasons than neutral

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Conclusions & Next Steps

Conclusions	Impact	Next Steps
Positive exits associated with **lower probability** of experiencing homlessness **Negative exits** associated with **higher probability** of experiencing homlessness	Further evidence for PHAs to allocate resources towards **achieving positive exits** and **avoiding negative exits** from public housing	Investigate other long-term outcomes, such as **change in income** Further study on impact of **specific exit reasons** on long-term outcomes

Acknowledgements

Danny and Alastair
Annie and Tyler
Amy and Megan
Patrick and Lloyd
Minh Vo
Our Capstone Cohort :)

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Thanks for listening!

Questions?