

INDIANA HEALTH & HOUSING DATA SHARING PROJECT

Linking Local Health & Homelessness Data to
Inform Practice & Policy



COALITION FOR HOMELESSNESS
INTERVENTION & PREVENTION



Acknowledgements

Many longstanding and trusted partners

Indiana Family and Social Services Administration

Regenstrief Institute

Indiana University Health, the Riley Children's Foundation and the Jean and Jerry Bepko Chair Endowment Fund

CHIP data team (Sam Clark and Abe Roll)

Indiana CTSI/IUSM **FairHealth Collective team** (Elaine Cuevas, Sami Gharbi, Ryan Healey, Tammie McCaskill, and Unai Miguel Andres)

AGENDA

- **Introductions and project overview**
- **Project partners and exemplar interviews**
- **Data analysis and results**
- **Implications**
- **Next steps discussion and Q&A**

SPEAKERS

INTRO



Dr. Chelsea Haring-Cozzi

Coalition for Homelessness
Intervention & Prevention
(CHIP Indy)



Dr. Sarah Wiehe

Indiana Clinical & Translational
Sciences Institute
(CTSI)

“We are strongest when we see the most vulnerable in our society, bear witness to their struggles, and then work to create systems to make it better.”

Stacy Abrams, Our Time is Now: Power, Purpose, and the Fight for a Fair America



Data on our minds.



Humans in our hearts.

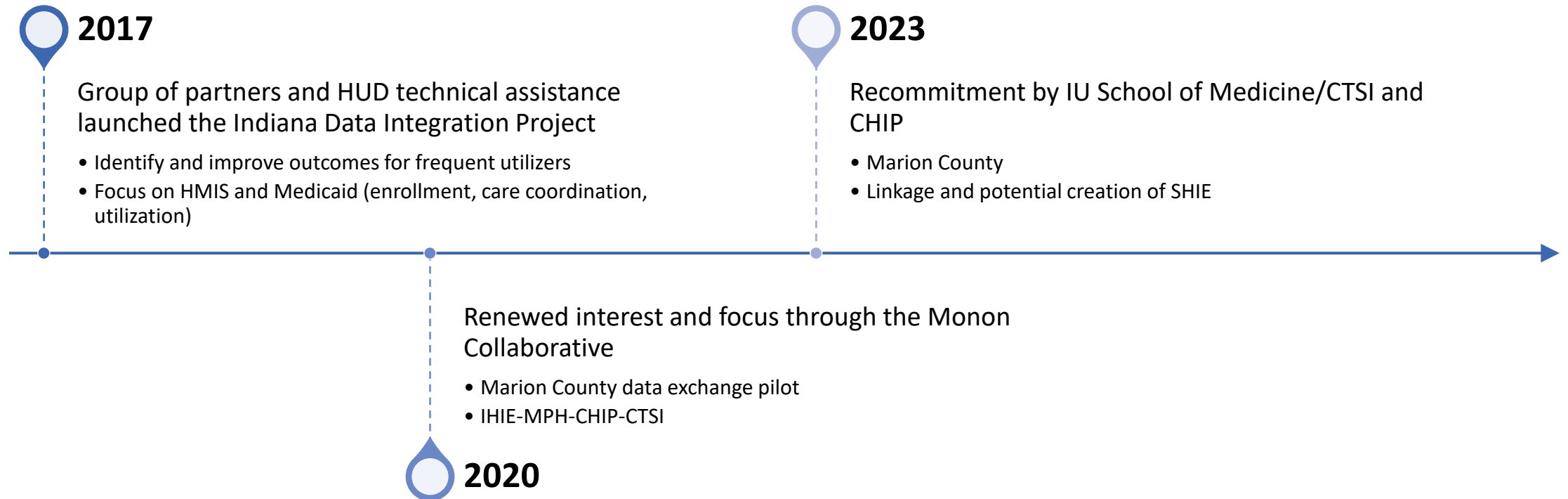
Audience Questions

Who here has worked with someone you knew was interacting with another system, but you couldn't see that data? (show of hands)

How many think a better data connection could have changed the outcome? (show of hands)

What decisions would change if housing and health care data revealed a more holistic journey of a person?

The Background

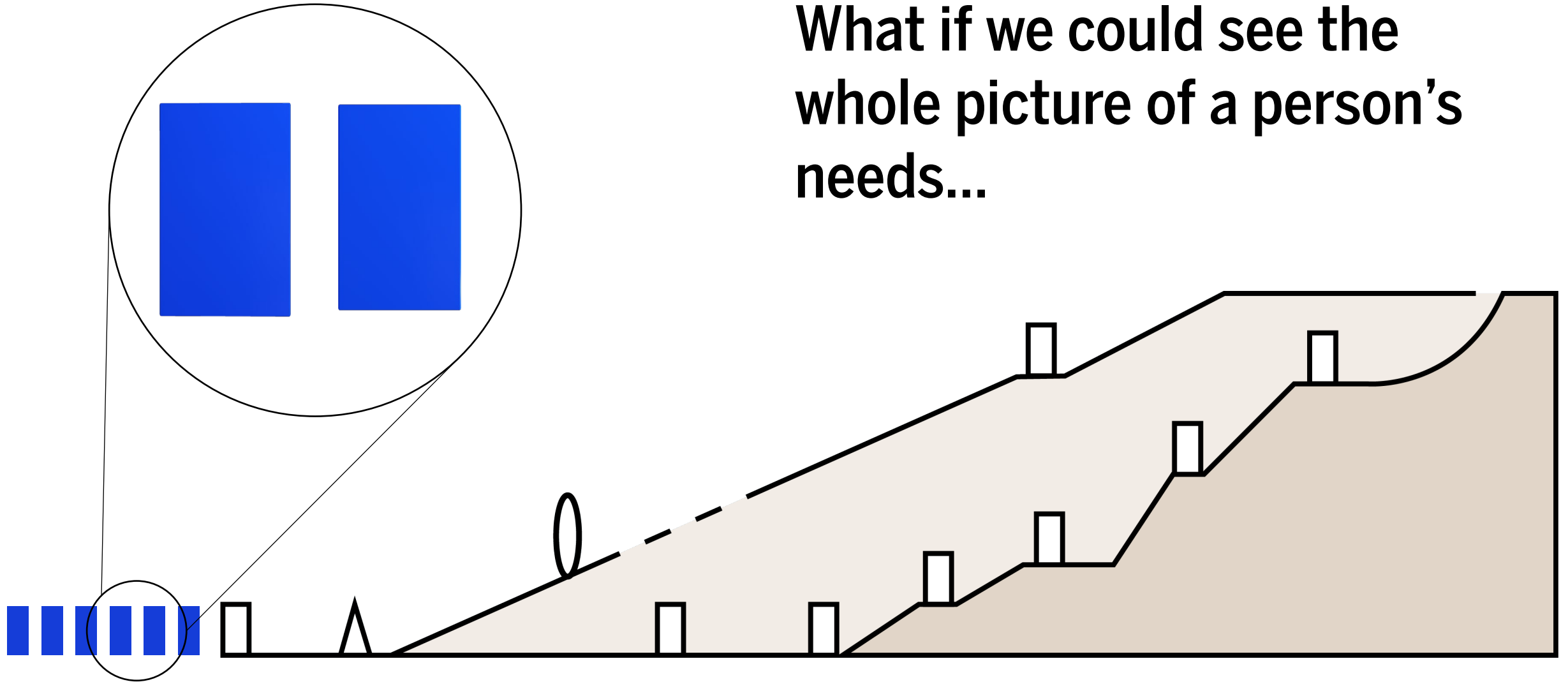


The Why?

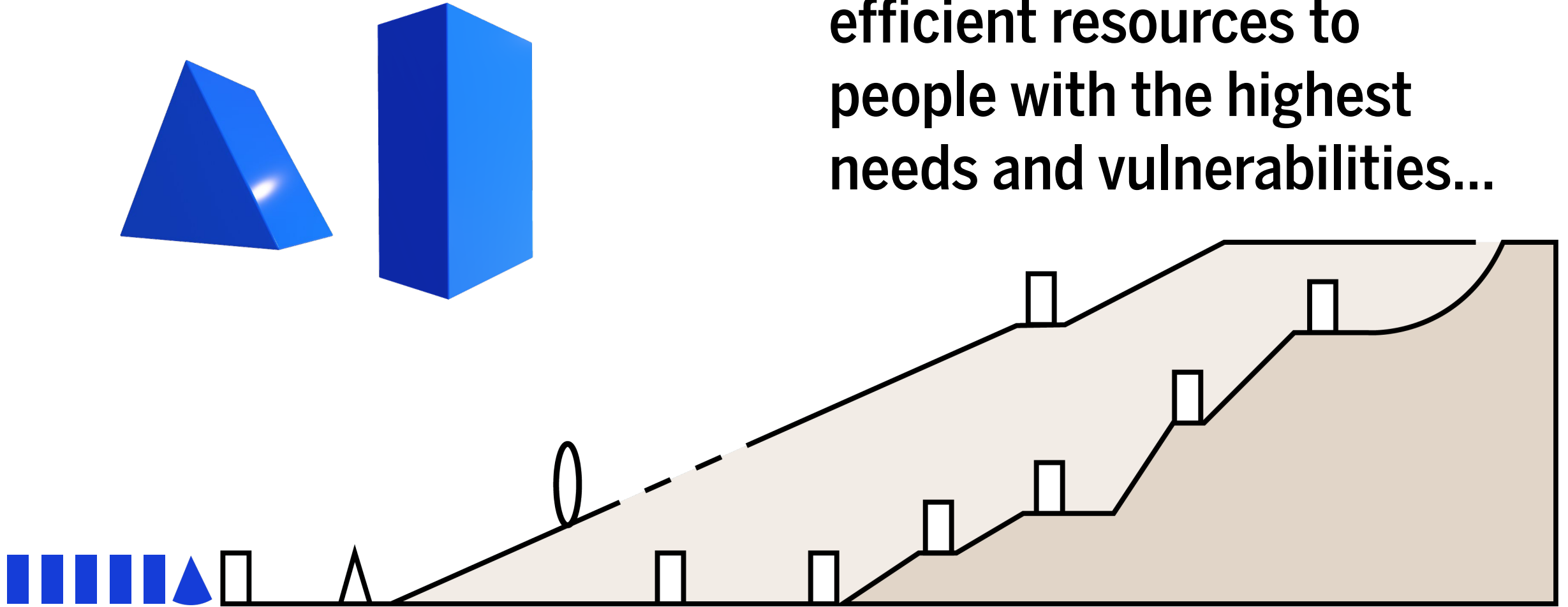
- Importance of seeing the whole picture of a person's needs
- Effective and efficient allocation of resources to people with high-needs and vulnerabilities
- Care coordination across fragmented systems
- Reduction of barriers
- Earlier intervention and more effective referrals
- More proactive, person-centered solutions to promote stability, dignity, and long-term well-being



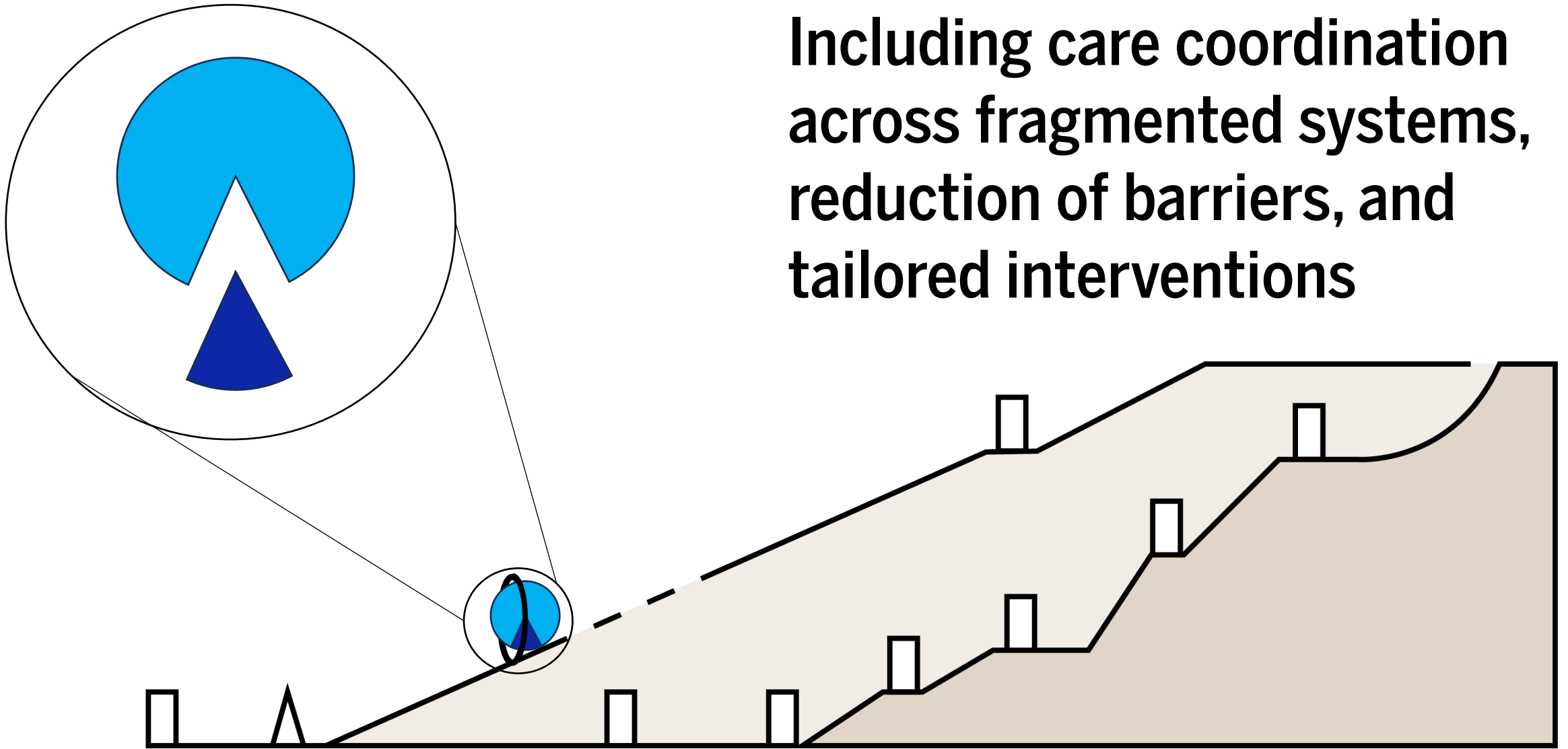
What if we could see the
whole picture of a person's
needs...



Offering effective and
efficient resources to
people with the highest
needs and vulnerabilities...



**Including care coordination
across fragmented systems,
reduction of barriers, and
tailored interventions**



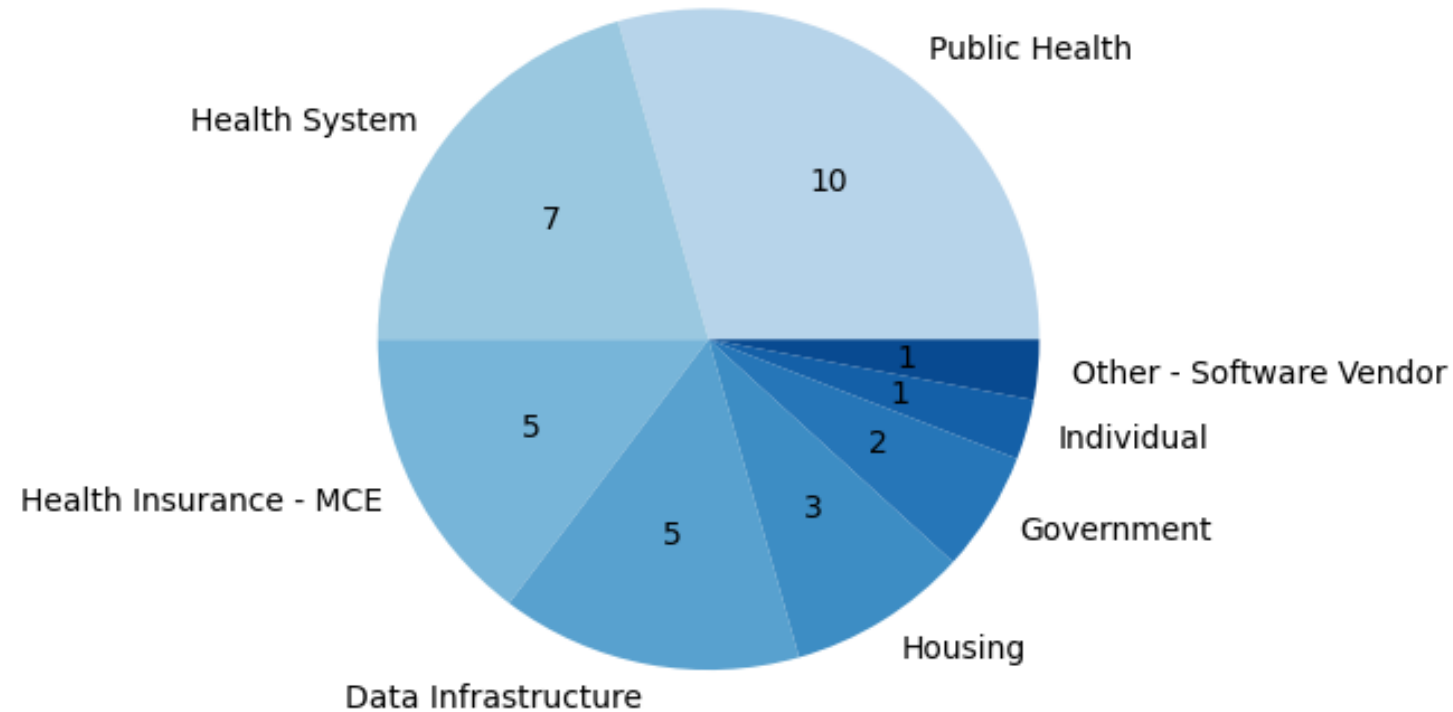
Project Aims | Hypotheses

- Aim 1 - Establish an individual-level record linkage algorithm
- Aim 2 - Investigate healthcare utilization patterns among people experiencing homelessness
- Aim 3 - Engage partners to address legal and governance challenges to (potentially) establish a social health information exchange

Engage partners to address legal and governance challenges to (potentially) establish a real-time social health information exchange

Gathering thought leaders & project partners

THE PLAN



Naming challenges and concerns

What is your biggest concern about this project's implementation?



Which challenges do you think will take the most effort to solve?



1st - Data privacy & legal barriers



2nd - Long-term sustainability & funding



3rd - Competing priorities among organizations



4th - Technical complexity of real-time record linkage



4th - Stakeholder engagement & coordination

Partner and Peer Learning

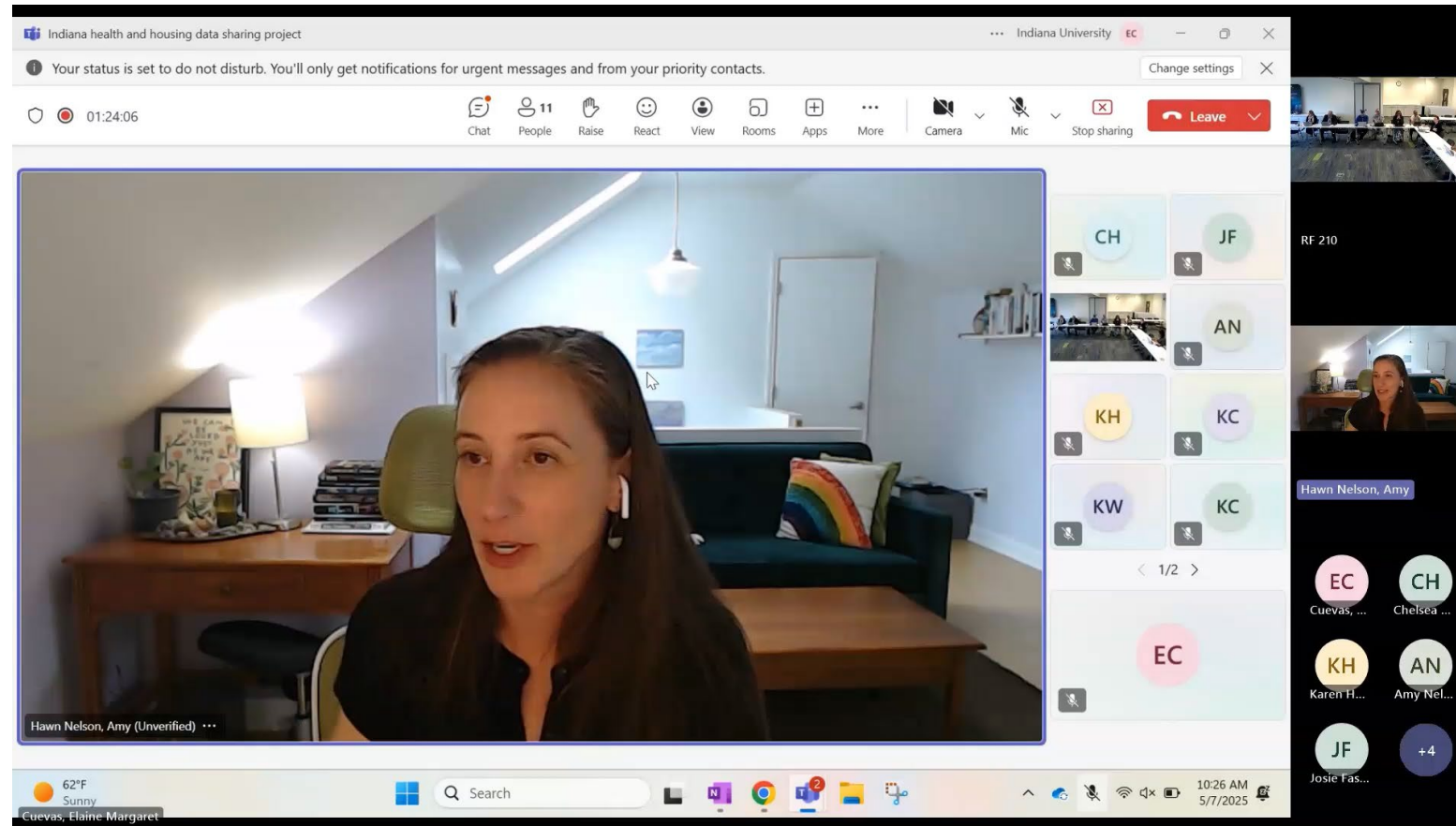
What could this group do together to overcome the challenges?

Establish	Establish Clear Goals & Focus
Define	Define Roles & Responsibilities
Identify & Address	Identify & Address Barriers
Build	Build Collective Influence & Advocacy
Foster	Foster Strategic Collaboration & Communication
Take	Take Action & Build Momentum

What areas should we focus on when identifying exemplars?

1. Specified governance structure
2. Funding sustainability
3. Mature, integrated data systems
4. Health information exchange as the honest data brokers
5. Daily or weekly linkage
6. Non-governmental organizations presenters

Words of encouragement



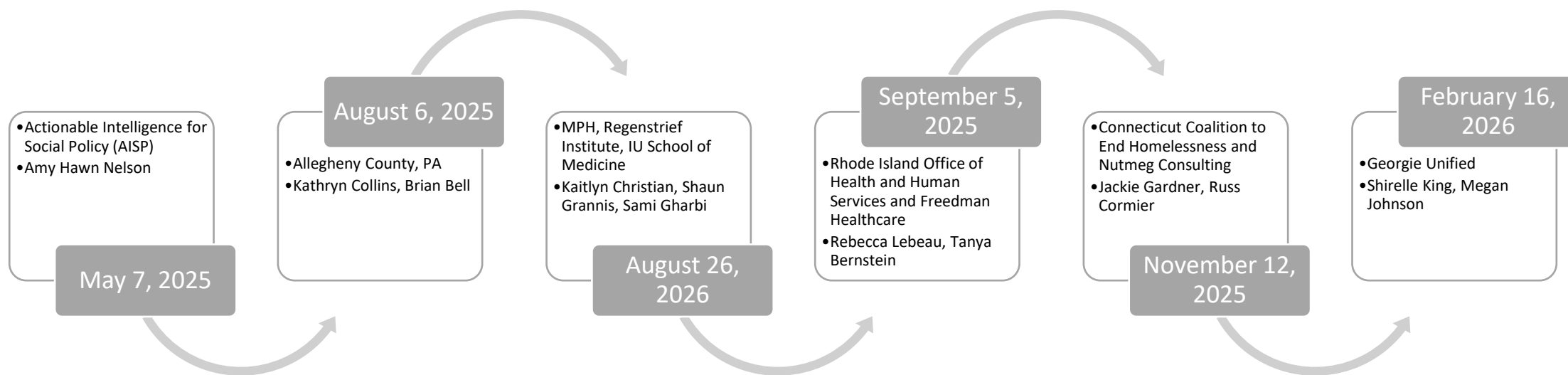
Amy Hawn Nelson, PhD, Actionable Intelligence for Social Policy - interview, May 7, 2025

Exemplar interviews

- Hybrid and virtual, semi-structured interviews and open Q&A
- Share meeting summaries and recordings via shared project site



Learning from Exemplars



Recurring Themes & Takeaways

- **Trust** and **relationships** are central to data sharing.
- Legal barriers can be addressed with **clear structure** and **defined use cases**.
- Starting with **focused pilots** supports long-term success.
- **Data quality** and matching are critical early considerations.
- Governance must evolve over time.
- Data should support **real-world decision-making**.
- Demonstrating **value** helps sustain and expand efforts.
- **Relationship-building** and **partner engagement** are ongoing needs.

Bottom Line: Start narrow. Build trust. Share strategically. Prove value. Then scale.

Investigate health care utilization patterns among people experiencing homelessness

WHAT housing services are available in Indianapolis?

DATA

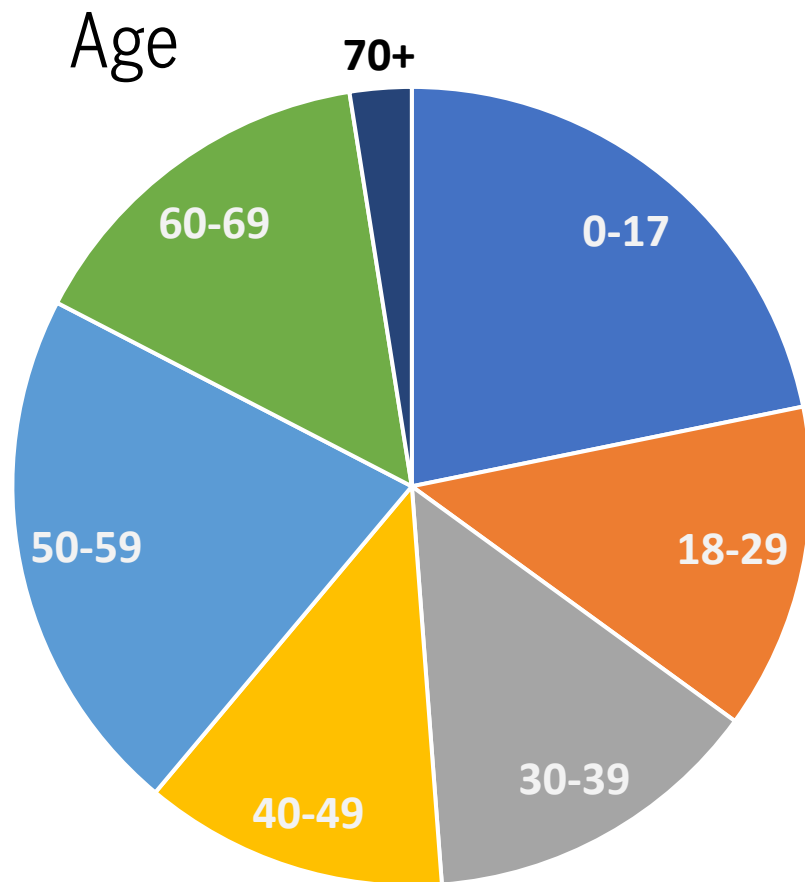
Permanent Supportive Housing (PSH)

Rapid Rehousing (RRH)

Other Permanent Housing (OPH)

Transitional Housing (TH)

WHO seeks housing services in Indianapolis?



Race/ethnicity

54% black
38% white
8% other

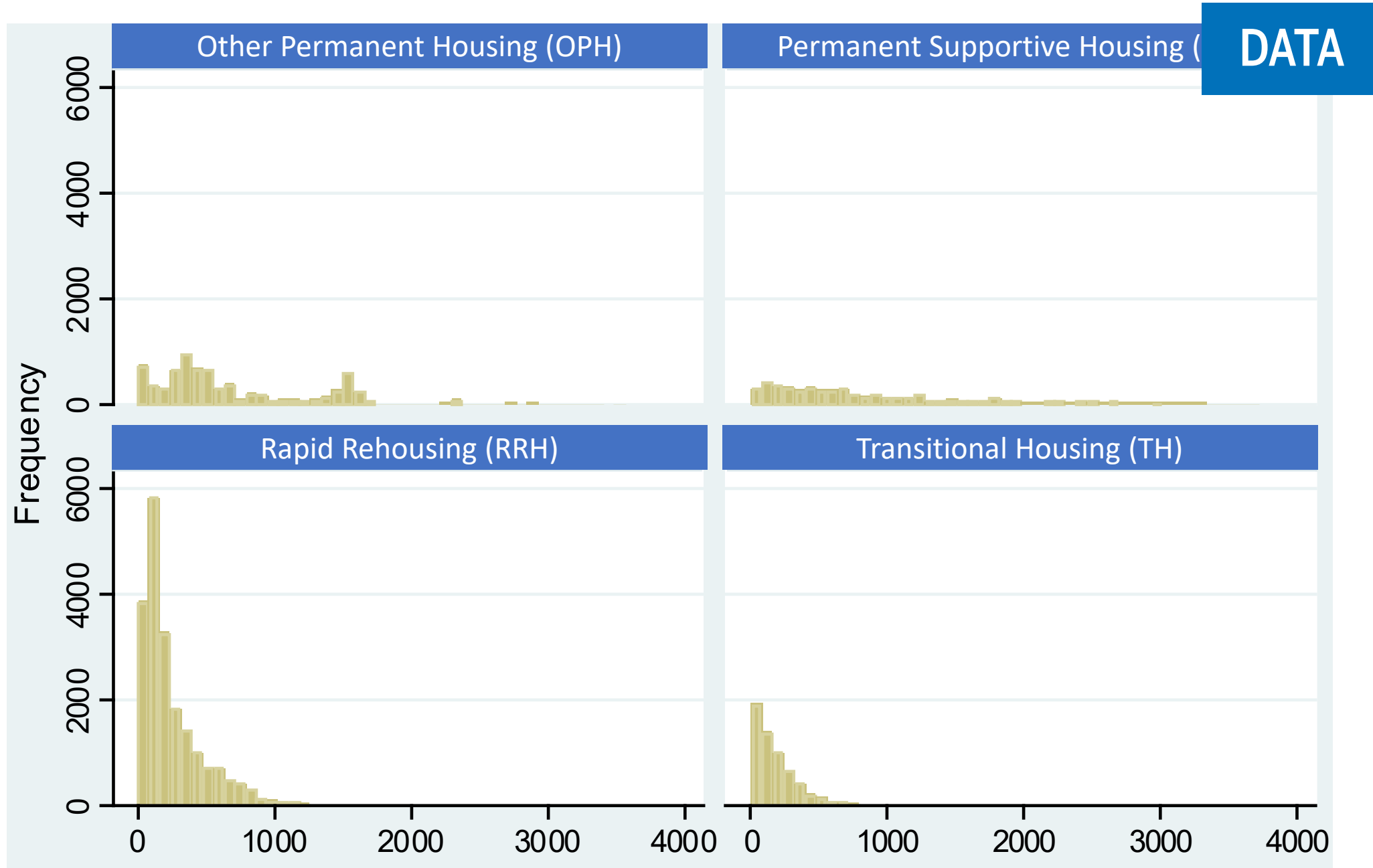
Sex/gender

65% male
29% female
2% other

Household type

66% adults only
33% adults & children
<1% other

HOW
LONG
does a
person
stay?



WHY study healthcare utilization and housing services in Indianapolis?

Percent of individuals with one or more diagnoses in a clinical record indicating a mental health, substance use disorder, or chronic disease diagnosis in the 2 years prior to program entry

	PSH	OPH	RRH	TH
Mental health diagnosis				
no	62.4	72.3	79.5	76.6
yes	37.6	27.7	20.5	23.4
Substance use disorder diagnosis				
no	78.3	87.7	90.8	87.4
yes	21.7	12.3	9.2	12.6
Charlson Comorbidity Index (CCI) score				
0	40.7	58	53.4	42.9
1-2	37.1	26	32.7	43.3
3-4	10.7	6.8	7.3	8.3
5+	11.5	9.2	6.6	5.4

60% of US adults have a CCI score of 0 and only 15% with 3+

Predictive of 1-year mortality rates and 10-year survival



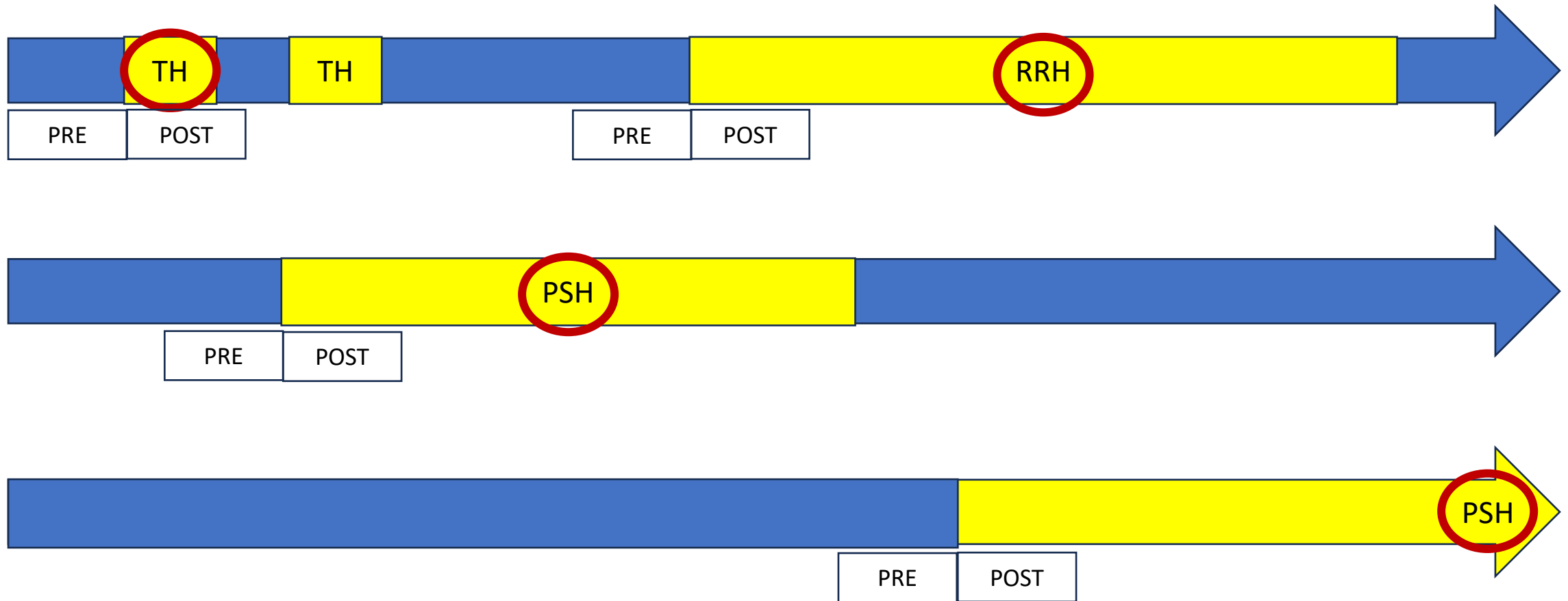
So HOW did we study this question?

- Strong partnerships allowing for data sharing
- Rich data sources allowing insights at several levels
 - HMIS: housing services data (honest data broker: CHIP)
 - INPC: clinical data from multiple healthcare systems (honest data broker: Regenstrief Institute)
 - Medicaid claims: clinical data from payers (who are partners) for whom this question was a priority to understand (FSSA)
- Data from 2016-2025 accessed and linked at an individual level

So HOW did we study this question?

- Clinical outcomes of interest – SO MANY! Starting with...
 - Outpatient visits
 - ED visits
 - Inpatient stays
- Looked at healthcare utilization over time – both before and after entry into a housing program – to assess change and whether this change was statistically and clinically significant

So HOW did we study this question?



Outpatient visit utilization by program type

	PSH		OPH		RRH		TH	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
	%	%	%	%	%	%	%	%
Outpatient visits								
0-3 months								
no	59.9		62.0	62.9	70.7	70.2	74.8	73.0
yes	40.1		38.0	37.1	29.3	29.8	25.2	27.0
4-6 months								
no	63.2		64.5	65.5	74.3	71.5	79.2	74.4
yes	36.8		35.5	34.5	25.7	28.5	20.8	25.6
7-12 months								
no	57.6		56.6	56.2	67.0	63.7	73.7	69.3
yes	42.4		43.4	43.8	33.0	36.3	26.3	30.7
13-24 months								
no	49.7		50.2	50.8	61.2	55.7	66.5	61.7
yes	50.3		49.8	49.2	38.8	44.3	33.5	38.3

85.2% of adults had a visit with a doctor or other healthcare professional in the past year (CDC, 2024)

57.9%
57.3%

ED visit utilization by program type

		PSH		OPH		RRH		TH	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
		%	%	%	%	%	%	%	%
ER visits									
0-3 months									
no		71.6	76.1	75.8	78.5	79.1	81.2	78.4	82.2
yes		28.4	23.9	24.2	21.5	20.9	18.8	21.6	17.8
4-6 months		47.2%							
no		72.2	77.8	78.9	82.2	81.9	82.6	82.3	83.7
yes	53.0%	27.8	22.2	21.1	17.8	18.1	17.4	17.7	16.3
7-12 months									
no		62.3	67.4	69.7	71.6	74.5	74.2	77.2	77.1
yes		37.7	32.6	30.3	28.4	25.5	25.8	22.8	22.9
13-24 months									
no		52.1	59.0	57.7	64.6	66.3	67.1	68.5	69.5
yes		47.9	41.0	42.3	35.4	33.7	32.9	31.5	30.5

20-22% of adults visit the ED in a 12-month period (Muacevic et al. Cureus, 2024)

Inpatient stay utilization by program type

		PSH		OPH		RRH		TH	
		PRE	POST	PRE	POST	PRE	POST	PRE	POST
		%	%	%	%	%	%	%	%
Inpatient visits									
0-3 months									
no		92.8	92.9	94.9	95.7	95.3	96.0	93.9	95.6
yes		7.2	7.1	5.1	4.3	4.7	4.0	6.1	4.4
4-6 months									
no		92.8	94.8	94.8	95.6	96.1	96.1	96.1	95.6
yes		7.2	5.2	5.2	4.4	3.9	3.9	3.9	4.4
7-12 months									
no		88.9	91.4	91.4	93.3	93.3	93.9	94.0	93.8
yes		11.1	8.6	8.6	6.7	6.7	6.1	6.0	6.2
13-24 months									
no		83.8	85.4	86.3	90.4	90.0	90.5	91.2	89.3
yes		16.2	14.6	13.7	9.6	10.0	9.5	8.8	10.7

About 8% of adults have at least one overnight hospital stay in a 12-month period (CDC, 2018 – NHIS data)

19.1%

16.6%

What TIME WINDOWS of healthcare utilization after program entry best reflect programmatic impact?

- Assessed odds of any outpatient/ED/inpatient utilization based on the time windows following program entry:
 - 0-3 months
 - 0-6 months
 - 0-12 months
 - 0-24 months
- Adjusted for demographics (age, race/ethnicity, sex/gender), Medicaid enrollment at the time of entry, calendar year, and health conditions (mental health diagnosis, substance use disorder diagnosis, Charlson Comorbidity Index score in the 2 years prior to entry)

What TIME WINDOWS of healthcare utilization after program entry best reflect programmatic impact?

- For PSH:
 - Outpatient visits – no significant change (in non-stratified models) regardless of time window
 - ED visits – equivalent odds of DECREASED utilization regardless of time window (OR 0.67 for 0-12 months, $p < 0.001$)
 - Inpatient stays – only a DECREASED odds of utilization in the 0-12 and 0-24 month time windows (OR 0.78 for 0-12 months, $p = 0.008$)
 - Nearly significant interaction between housing program effect and Medicaid enrollment at the time of entry → GREATER REDUCTION of inpatient utilization among those NOT enrolled in Medicaid at entry ($p = 0.069$)

How does healthcare utilization differ among those enrolled in Medicaid at the time of program entry?

	Medicaid: not enrolled at entry				enrolled at entry			
	Post	Pre	Difference	P-value	Post	Pre	Difference	P-value
PSH								
Outpatient	0.640	0.636	0.004	0.828	0.700	0.692	0.008	0.658
ER	0.559	0.619	-0.060	0.003	0.613	0.667	-0.054	0.006
Inpatient	0.243	0.294	-0.051	0.005	0.259	0.271	-0.012	0.489
OPH								
Outpatient	0.566	0.570	-0.004	0.830	0.710	0.725	-0.015	0.306
ER	0.472	0.514	-0.042	0.017	0.603	0.666	-0.063	0.000
Inpatient	0.164	0.218	-0.054	0.000	0.190	0.252	-0.062	0.000
RRH								
Outpatient	0.555	0.517	0.038	0.001	0.649	0.610	0.039	0.000
ER	0.466	0.481	-0.015	0.192	0.567	0.562	0.005	0.660
Inpatient	0.155	0.177	-0.022	0.009	0.185	0.202	-0.017	0.063
TH								
Outpatient	0.503	0.441	0.062	0.002	0.611	0.565	0.046	0.023
ER	0.411	0.453	-0.042	0.036	0.534	0.540	-0.006	0.771
Inpatient	0.160	0.174	-0.014	0.355	0.206	0.191	0.015	0.350

T tests assessing whether the differences between pre/post time periods is statistically significant

FOR PSH: How does healthcare utilization differ by timing of Medicaid enrollment (including after enrollment as a MEDIATING factor)?

program period	never enrolled		enrolled at entry		enrolled after entry	
	OUTPATIENT					
	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref
post	0.931	0.615	0.931	0.529	1.236	0.515
	ED					
	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref
post	0.713	0.012	0.673	0.000	0.534	0.024
	INPATIENT					
	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref
post	0.706	0.017	0.844	0.196	0.767	0.453

**adjusted for an individual's demographic and health (history of mental health diagnosis, substance use disorder diagnosis, and Charlson Comorbidity Index in the 2 years prior to program entry) characteristics and calendar year of program entry*

Which subpopulations see the greatest programmatic benefit in healthcare utilization in the 0-12 month period after PSH program entry?

program period	no SUD or MH diagnosis		SUD and/or MH diagnosis		CCI index 0		CCI index 1		CCI index 2		CCI index 3	
	OUTPATIENT											
	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref
post	1.424	0.000	0.333	0.000	1.299	0.033	0.869	0.305	0.381	0.002	0.518	0.067
	ED											
	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref
post	0.877	0.175	0.427	0.000	0.762	0.021	0.759	0.029	0.403	0.000	0.407	0.001
	INPATIENT											
	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value	OR	p-value
pre	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref	1.000	ref
post	1.083	0.599	0.647	0.000	0.787	0.168	0.988	0.938	0.811	0.394	0.544	0.002

**adjusted for an individual's demographic characteristics, calendar year, and Medicaid enrollment at entry*

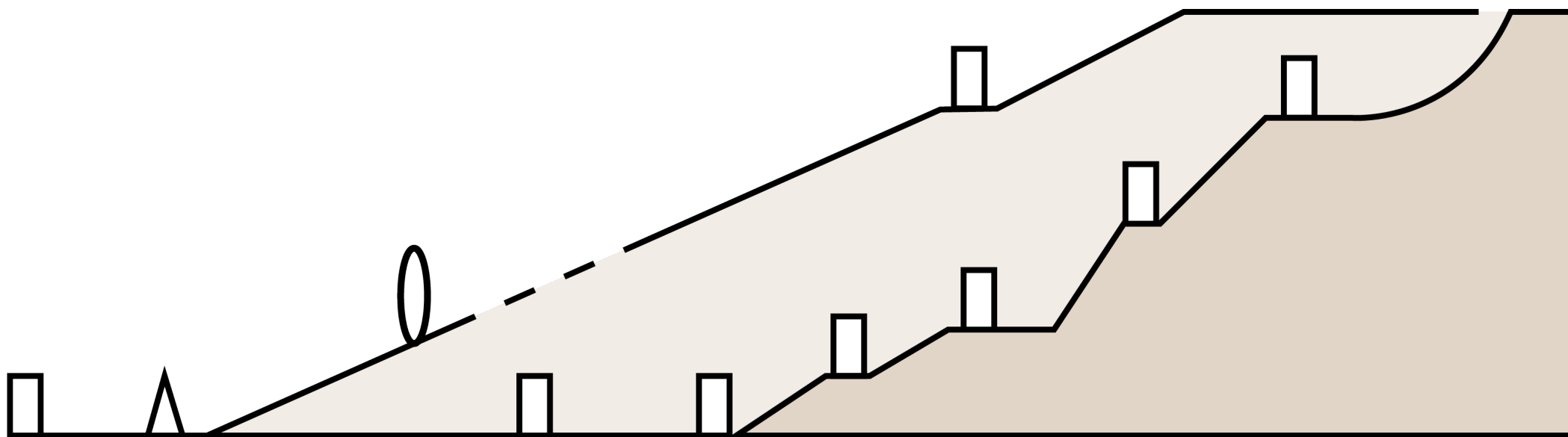
FOR PSH: Assessing differences in utilization before and after program entry among those with and without SUD/MH diagnoses

no MH or SUD diagnosis					MH and/or SUD diagnosis				
	Post	Pre	Difference	P-value		Post	Pre	Difference	P-value
PSH									
Outpatient	0.425	0.375	0.050	0.007		0.788	0.875	-0.087	0.000
ER	0.332	0.352	-0.020	0.263		0.673	0.787	-0.114	0.000
Inpatient	0.086	0.081	0.005	0.631		0.283	0.351	-0.068	0.001
OPH									
Outpatient	0.442	0.423	0.019	0.180		0.831	0.898	-0.067	0.000
ER	0.335	0.359	-0.024	0.078		0.651	0.736	-0.085	0.000
Inpatient	0.072	0.084	-0.012	0.131		0.236	0.300	-0.064	0.001
RRH									
Outpatient	0.414	0.358	0.056	0.000		0.767	0.845	-0.078	0.000
ER	0.334	0.318	0.016	0.069		0.645	0.727	-0.081	0.000
Inpatient	0.076	0.069	0.006	0.180		0.226	0.317	-0.092	0.000
TH									
Outpatient	0.357	0.265	0.091	0.000		0.714	0.776	-0.062	0.012
ER	0.271	0.261	0.010	0.491		0.625	0.762	-0.137	0.000
Inpatient	0.064	0.054	0.009	0.251		0.254	0.337	-0.083	0.001

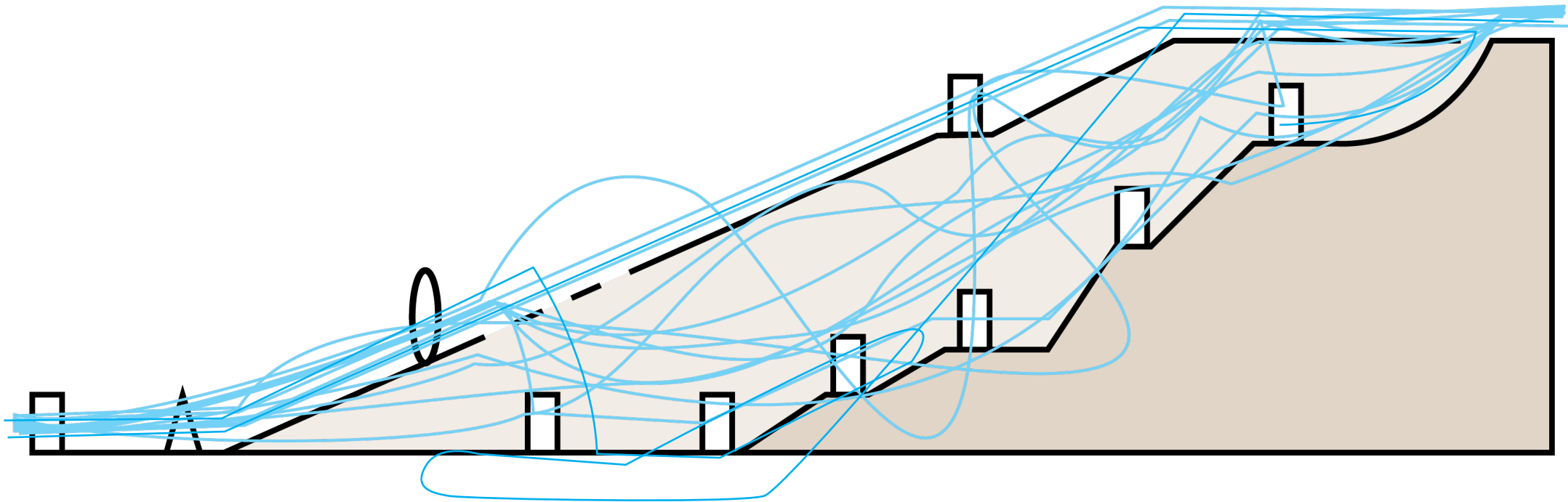
To wrap up

- No archetypic persona but overall population seeking homelessness services much sicker than the general population
- Housing programs → decreased ED utilization and inpatient care utilization, with effect modification among those with/without SUD and MH diagnoses
- Individuals with SUD/MH diagnoses → decreased outpatient care; those without SUD/MH diagnoses → increased outpatient care
- Opportunities for policy/intervention are MANY (as discussed in the implications...)

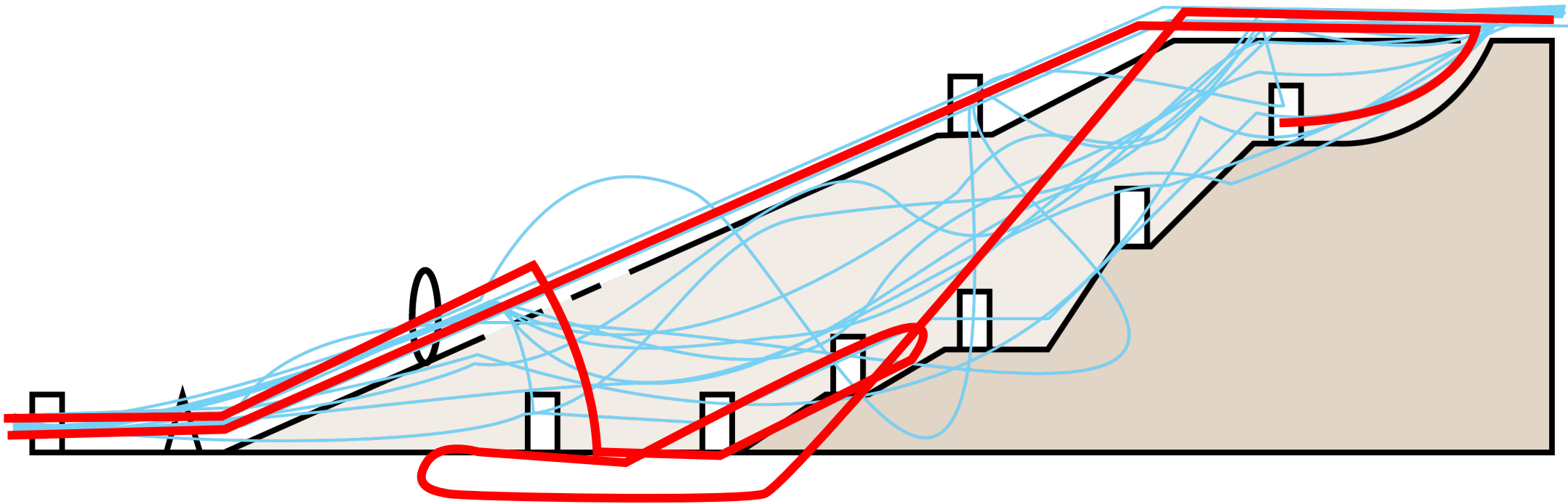
A complete picture



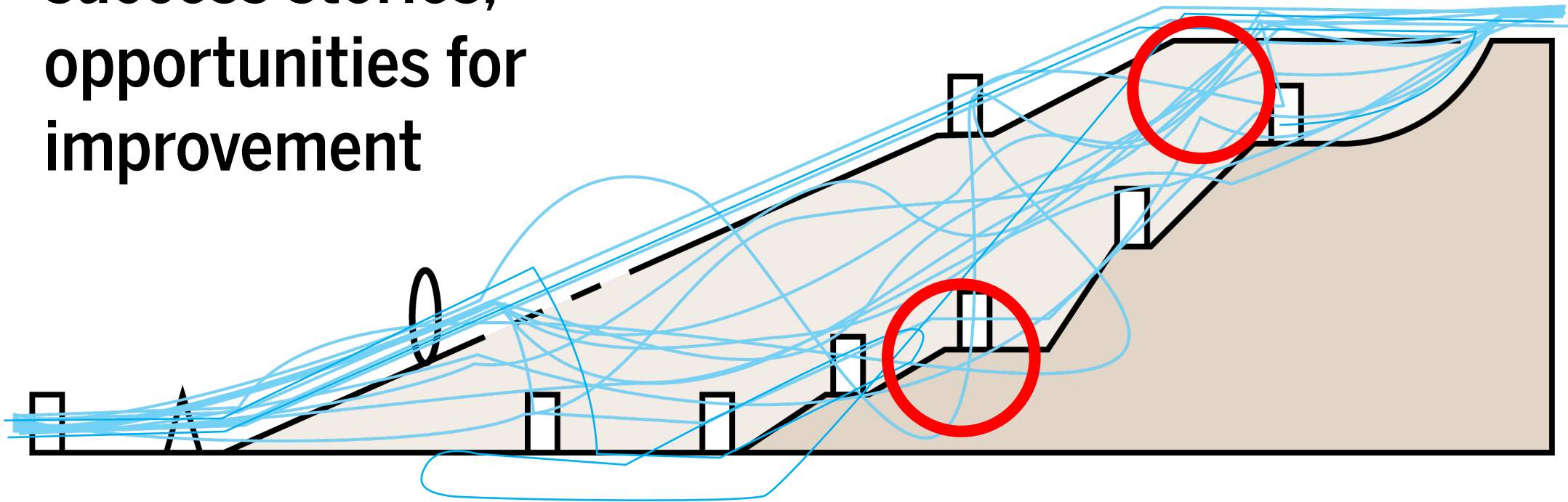
A complete data picture



Looking at each use
case



And the population
to identify patterns,
success stories,
opportunities for
improvement



Implications of having a Social Health Information Exchange

- For **housing service providers**: Efficient access to key health-related data (perhaps in aggregated or risk indicator form) to help prioritize services to those who qualify or have greatest need
- For **clinical service providers**: Help to inform clinical care and additional wrap-around services for those recently experiencing homelessness
- For **Medicaid payers**: Identify individuals enrolled in Medicaid who are experiencing homelessness to assist with care coordination and offer outreach to those not enrolled but who might qualify (both which might decrease overall costs)
- For **policy makers**: Identify and evaluate health, homelessness, and economic outcomes for policies and resource allocation relevant to individuals experiencing homelessness

- Complete analyses (including cost analysis) and disseminate findings locally and nationally
- Operationalize real-time linkage of HMIS-INPC/IHIE (and possibly other) data
- Collaboratively develop a governance and regulatory model to support a pilot study using these linked data to inform homelessness services and/or healthcare and/or MCE outreach, enrollment, and care coordination

Thank you for listening!



Let's Partner!

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