



What's new in homeless health care? A no-jargon summary of the latest research

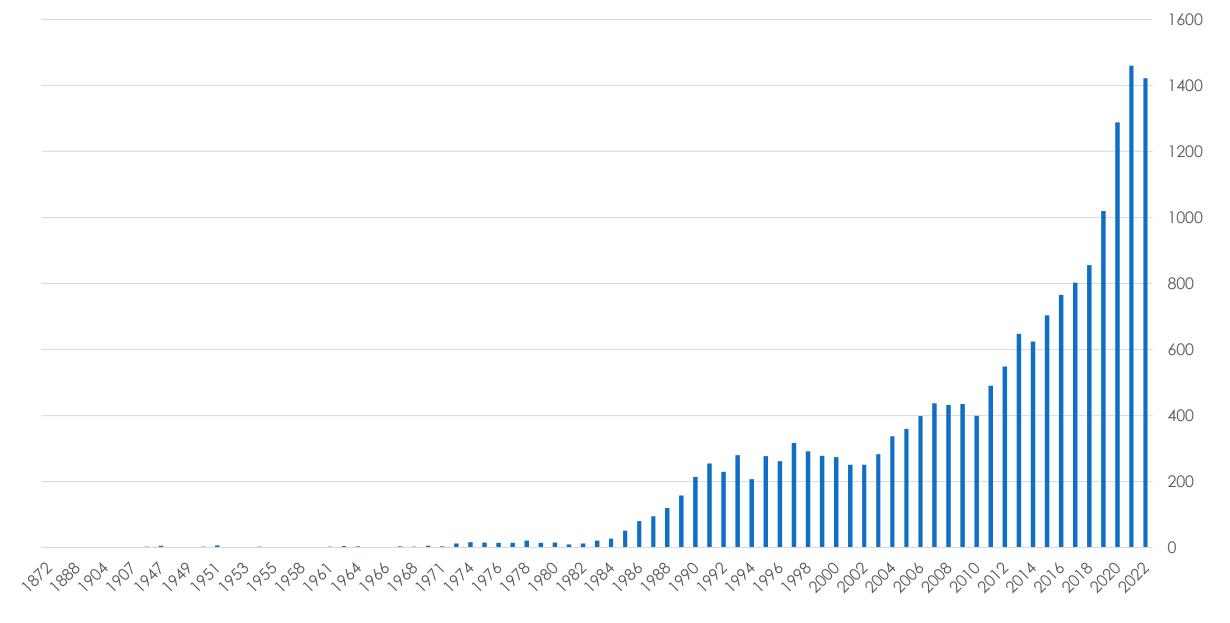
May 17, 2023

Travis Baggett, Kate Diaz Vickery, Alaina Boyer & Stefan Kertesz



- Dr. Baggett: UpToDate royalties
- Others: None

PubMed search results for "homeless"



Why we're here

- Staying up-to-date on the latest research presents considerable challenges
 - Identifying and prioritizing what to read
 - Accessing articles themselves
 - Making sense of obscure methods
- Objective: To present a plain-language summary of the latest research related to homelessness and health

Literature search strategy

- Search conducted in PubMed only
- Initial literature search (02/03/23)
 - Search terms "Ill Housed Persons" [MeSH] OR homeless
 - Date limits: 01/01/2022 12/31/2022
 - Language: English
- Result: 1,386 articles

Literature search strategy (cont.)

- Reviewed titles & abstracts to weed out:
 - Articles not primarily concerned with homelessness (n=342)
 - Articles that did not present new data or a new systematic review and synthesis of existing data (n=272)
 - Articles not focusing on or including North American homeless populations (n=236)
- Result: 536 articles remained

Literature search strategy (cont.)

- Categorized these 536 papers into the following domains:
 - Health status: Studies that describe the incidence, prevalence, and/or burden of health conditions, health behaviors, and/or mortality (n=216)
 - Health care delivery: Studies that examine health care access, barriers, utilization, and/or delivery (n=122)
 - Interventions: Studies that test medical, behavioral, and/or public health interventions (except housing) and assess associated health outcomes (n=59)
 - Housing: Studies that utilize any methodology to examine the impact of housing on the health or well-being of people experiencing homelessness (n=59)
 - Other: Articles not fitting into any of the above domains; not considered further (n=80)

Literature search strategy (cont.)

- Each of us reviewed papers in one domain and identified "top 5" based on rigor, impact, and novelty
 - Health status: Baggett
 - Health care delivery: Vickery
 - Interventions: Boyer
 - **Housing:** Kertesz
- All 20 papers are presented in an annotated bibliography available at end of session
 - Concise summary of results
 - Brief explanation of "why we chose this paper"
- We will review 12 papers (3 per category) today



Some comments & disclaimers

We tried to be meticulous

- But we may have missed something!
- If you published a paper on homelessness this year
 - **Thank you for your contribution!**
 - If we didn't include it here, don't assume we didn't like it! (we had to make some difficult choices)
- If you don't like the methods or results of a particular paper
 - We are (in most cases) merely the messengers!



"COVID knocked me straight into the dirt": perspectives from people experiencing homelessness on the impacts of the COVID-19 pandemic

Rodriguez et al. *BMC Public Health* 2022;22(1):1327

We want you to participate!

- Phone-based audience response system
- □ To join:
 - Text travisbagget991 to 22333
 - OR
 - Go to https://PollEv.com/travisbagget991 if you're on Wifi

Health status

Travis P. Baggett, MD, MPH Associate Professor, Harvard Medical School Director of Research, BHCHP

Factors Associated with Mortality Among Homeless Older Adults in California: The HOPE HOME Study

Brown RT, Evans JL, Valle K, Guzman D, Chen YH, Kushel MB

JAMA Intern Med 2022;182(10):1052-1060

Methods What did they do?

 Assessed mortality rates and causes of death in a community-based cohort of 450 older homeless adults in Oakland, CA

Median age 58 yrs, 76% male, 80% black

Examined risk factors for death

- Sociodemographic factors, social support, housing status, incarceration history, chronic medical conditions, substance use, and mental health problems
- Assessed at baseline and updated every 6 months

Results What did they find?

- □ 117 (26%) died over a median follow-up of 55 months (~4.5 yrs)
 - **3.5-fold higher** age-adjusted mortality rate than Oakland general population
 - Leading causes: heart disease (14.5%), cancer (14.5%), drug overdose (12.0%), chronic lower respiratory diseases (9.4%), and chronic liver disease (6.8%)

Risk factors for death:

- First homeless episode at ≥50 yrs old
- Current homelessness or institutionalization (SNF/jail/prison) at follow-up
- Fair/poor self-rated health
- Diabetes

Implications Why is this important?

- Relatively little is known about mortality and risk factors for death among older homeless adults
- Notable methodologic strengths
 - Community-based sample
 - Longitudinal Q6-monthly assessments of numerous social and health status measures, especially housing status
- Findings emphasize the importance of:
 - Preventing homelessness, especially later in life
 - Permanent supportive housing
 - Tailored chronic disease and end-of-life care

City streetscapes and neighborhood characteristics of fatal opioid overdoses among people experiencing homelessness who use drugs in New York City, 2017-2019

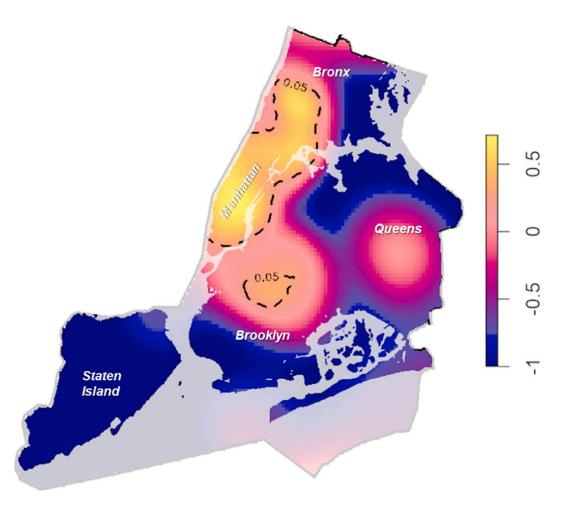
Nesoff ED, Wiebe DJ, Martins SS

Int J Drug Policy 2022;110:103904

Methods What did they do?

- Used NYC medical examiner data to identify 3276 people who died of accidental opioid overdose between Feb 2017 – Dec 2019
 - Identified homelessness at time of death based on 'home' address
 - Recorded street address where overdose occurred
- Used Google Street View to conduct systematic social observations of overdose locations (using images time-stamped w/in 6 mos of death)
 - Neighborhood Inventory for Environmental Typology (NIFETy)
 - E.g. vacant lots, loitering, graffiti, construction, number of bars/restaurants, etc
- Used statistical tests to compare built/social environments where fatal overdoses involving homeless vs. non-homeless people occurred

Results What did they find?



Homeless overdoses more likely

- Construction
- Graffiti
- Police presence
- Adults loitering, standing, sitting outside
- High neighborhood deprivation
- Homeless overdoses less likely
 - Game courts
 - Public benches (not for bus stop or park)
 - Traffic calming features
 - Security alarm signs
 - Adults doing yard work
 - Higher proportions of residential structures

Implications Why is this important?

- This innovative study combines rigorous observational methods with geospatial epidemiology
- Sheds light on the built and social environment as it relates to opioid overdose deaths among people experiencing homelessness
- Mechanisms of influence aren't clear, but...
- Could have implications for targeting harm reduction and treatment outreach interventions
 - Individual level
 - Neighborhood level

The contribution of unstable housing to HIV and hepatitis C virus transmission among people who inject drugs globally, regionally, and at country level: a modelling study

Stone J, Artenie A, Hickman M, Martin NK, Degenhardt L, Fraser H, Vickerman P

Lancet Public Health 2022;7(2):e136-e145

Methods What did they do?

- Developed computer simulation models to estimate the proportion of HIV and HCV transmission attributable to unstable housing among people who inject drugs
 - 58 countries (accounting for 2/3 of world population of PWID)
 - Global and country-specific projections for 2020-2029
- Models used existing data from published literature to simulate PWID moving through states of IDU, HIV/HCV infection, and housing status
 - Unstable housing: ↑ transmission 39% for HIV, 64% for HCV
- Ran models with and without accounting for this housing-related risk
 - Difference = transmission proportion attributable to unstable housing

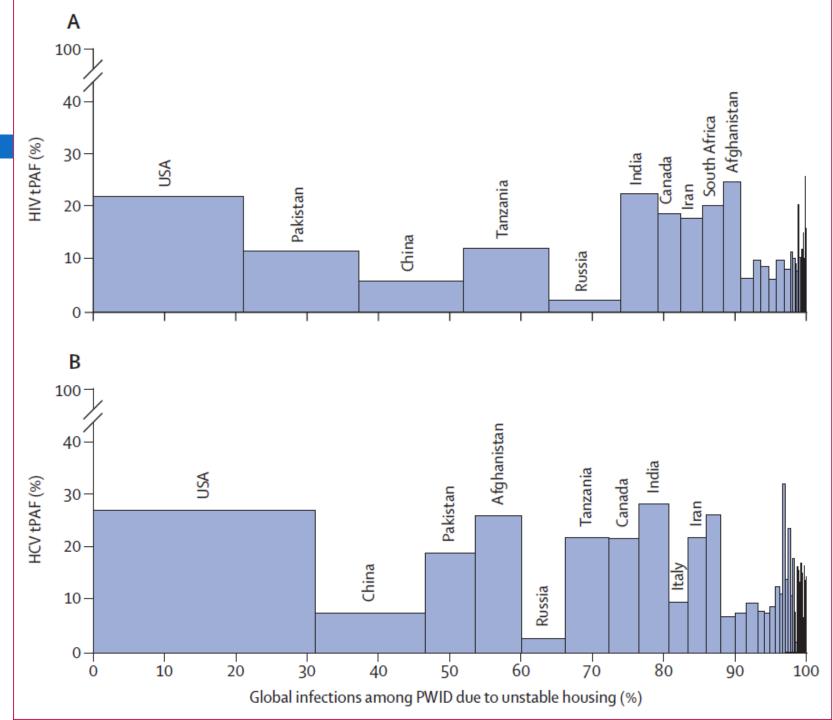
Results What did they find?

HIV in USA

- 22% attributable
- 22% of global infxns

HCV in USA

27% attributable32% of global infxns



Implications Why is this important?

- Use of rigorous dynamic transmission modeling methods
- First global and country-specific projections of HIV/HCV transmission attributable to housing instability
- Findings underscore importance of addressing housing and homelessness

"In settings where unstable housing and other structural factors contribute considerably to transmission (eg, USA and UK), HIV and HCV elimination targets will be missed unless the effect of these structural drivers are mitigated."

Health care delivery

Kate Diaz Vickery, MD, MSc Assistant Professor, University of Minnesota Co-Director of Health, Homelessness, and Criminal Justice Lab COVID-19 vaccine coverage and factors associated with vaccine uptake among 23 247 adults with a recent history of homelessness in Ontario, Canada: a population-based cohort study

Shariff SZ, Richard L, Hwang SW, Kwong JC, Forchuk C, Dosani N, Booth R.

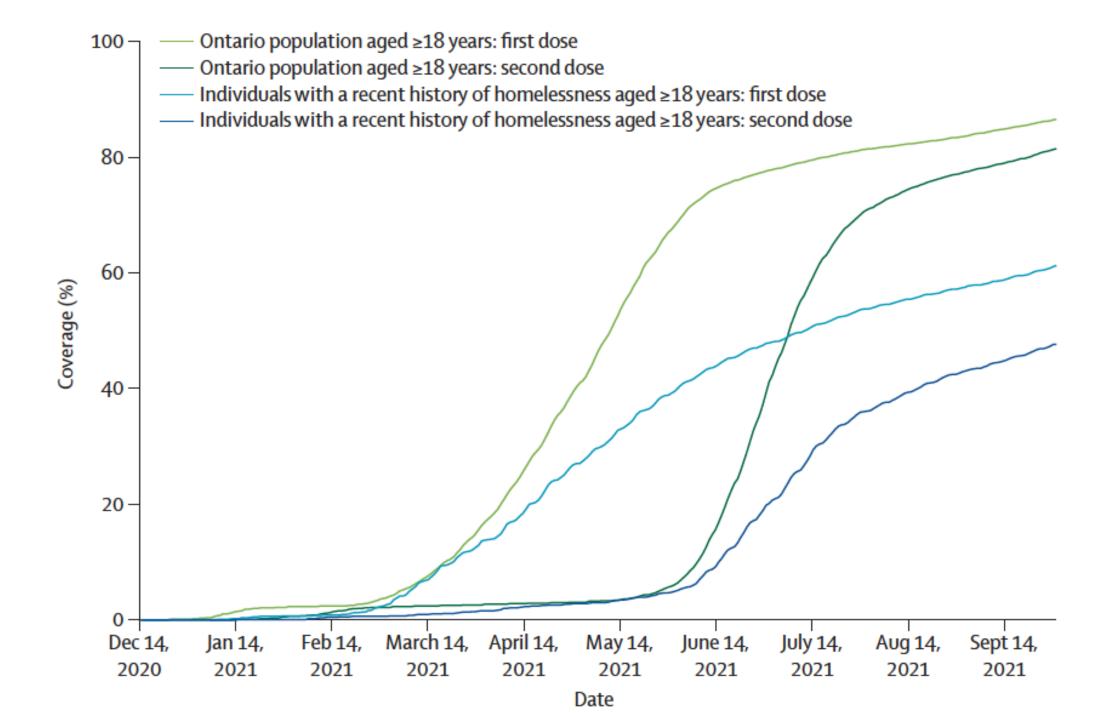
Lancet Public Health 2022;7(4):e366-e377

Methods What did they do?

- Retrospective cohort study of adults in Ontario with recent homelessness from 6/2020-6/2021
- Follow-up period from 12/2020-9/2021 to determine if they got a COVID-19 vaccine (1 or 2 doses)
- Described vaccine coverage overall and within subgroups
- Examined sociodemographic, health care, and clinical factors associated with vaccination (using Poisson regression)

Results What did they find?

- \square Sample = 23,247 adults
 - Majority male (63.5%), <40 yrs. (49.6%), lived in large metro. area (52.2%)
 Majority had an in-person PCP visit during observation period (78.4%)!
- Vaccination rates among adults with a recent experience of homelessness lagged by 25% for one vaccine and 34% for two
- Predictors of increased vaccine uptake:
 - Outpatient PCP visits and mental health visit
 - H/o influenza vaccine
 - Older
 - Chronic conditions
- Predictors of decreased vaccine uptake: Rurality



Implications Why is this important?

- Largest vaccine study, validated population-based cohort
- Canada has amazing integrated data!
- Strong data to support gaps in vaccine uptake.
- Conclusions support the need for tailored/targeted outreach interventions possibly using:
 - Trusted health and service organizations
 - Mobile vaccination clinics
 - Improved access to outpatient clinics

A longitudinal cross-sectional analysis of substance use treatment trends for individuals experiencing homelessness, criminal justice involvement, both, or neither - United States, 2006-2018

Shearer RD, Shippee ND, Vickery KD, Stevens MA, Winkelman TNA

Lancet Reg Health Am 2022;7:100174

Methods What did they do?

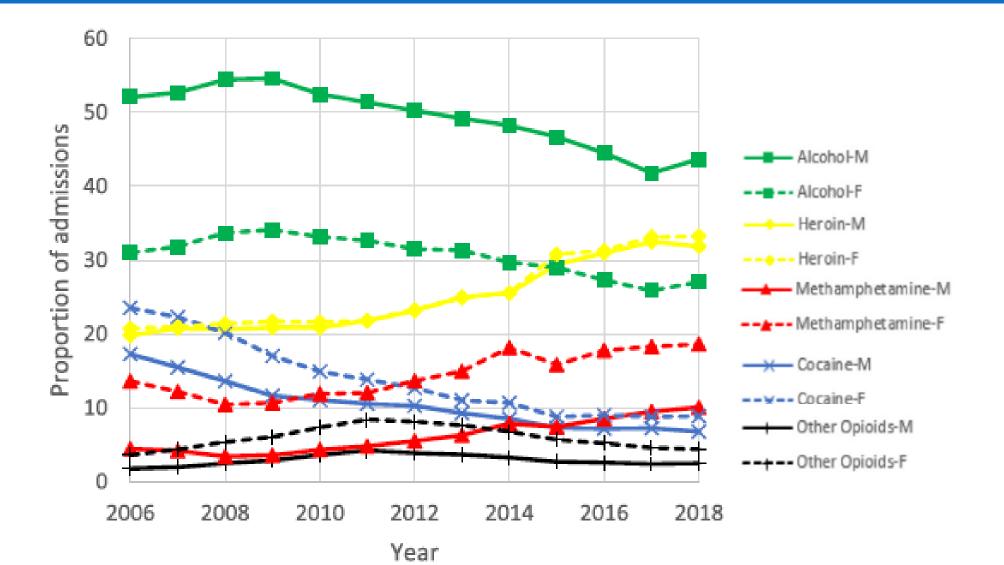
- Using data from the Treatment Episode Dataset for all publicly funded admissions from 2006-2018 to describe substance use trends among:
 - Treatment admissions for people who experienced homelessness
 - Treatment admissions for people who exp. criminal justice involvement
 - Both
 - Neither
- Examined trends and demographic differences across groups using multivariable logistic regression

Results What did they find?

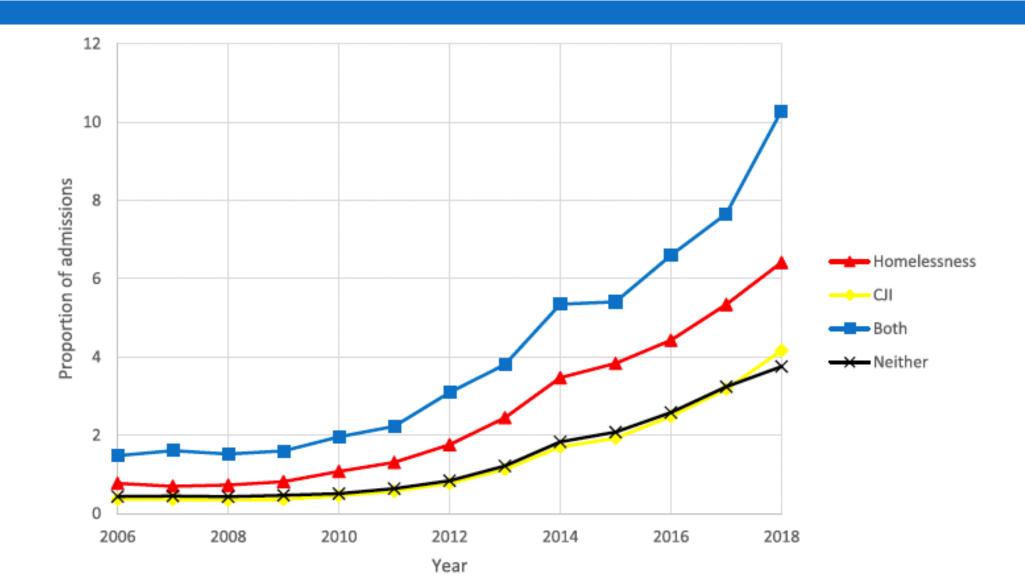
□ Sample:

- People who experienced homelessness = 2,524,413
- People who experienced criminal justice involvement = 4,764,750
- Both = 509,902
- Neither = 8,950,797
- Increasing use of heroin across all groups from 2006-2018
- Increasing methamphetamine use especially in homeless, criminal justice involved, and both groups
- People who experienced homelessness, criminal justice involvement, or both received LOWER QUALITY treatment:
 - More detoxification, less ambulatory care
 - Less likely to receive Medication for Opioid Use Disorder:
 - 36.4% Neither < 29.5% Homeless only < 10.6% CJI < 8.3% Homeless + CJI</p>

Substance use treatment admissions among people experiencing homelessness by gender



Proportion of admissions for both methamphetamine and heroin use by year and group



- Concentration of methamphetamine / opioid co-use occurring in people who have experienced homelessness, criminal justice involvement
- More access to high quality substance use treatment among people experiencing homelessness and criminal justice involvement is needed especially that includes medication for opiate use disorder

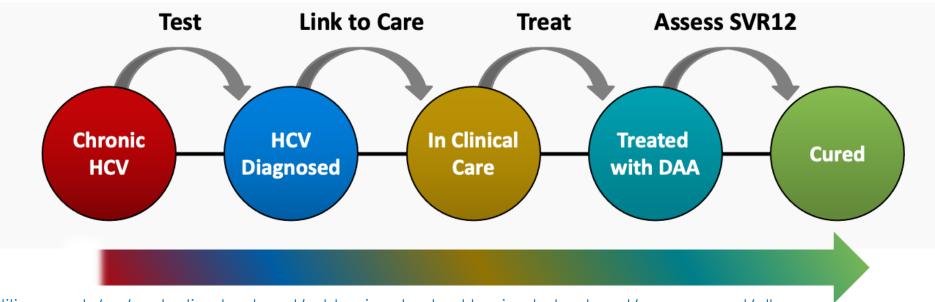
Factors Associated with Sustained Virologic Response to Hepatitis C Treatment in a Homeless-Experienced Cohort in Boston

Beiser ME, Shaw LC, Wilson GA, Muse KO, Shores SK, Baggett TP.

J Gen Intern Med 2023;38(4):865-872

Methods What did they do?

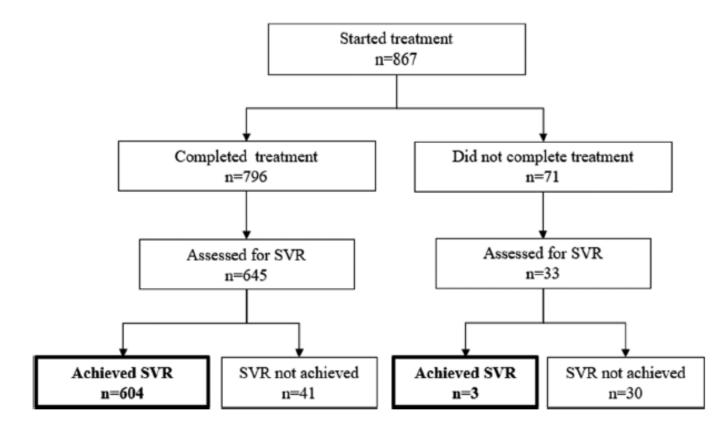
- Retrospective cohort study of all patients who initiated treatment for Hepatitis C Virus at Boston HCH from Jan. 2014-March 2020.
- Care to Cure HCV treatment team
 - Only requirement = HCV diagnosis
 - Referral in from shelters, agencies, street outreach, county jail
- Examined treatment cascade:



https://www.hepatitisc.uw.edu/go/evaluation-treatment/addressing-structural-barriers-to-treatment/core-concept/all

Results What did they find?

- □ Sample = 867
 - Majority male (80.7%)
 - Majority ≥ 45 yrs. (52.6%)
 - Majority homeless/. unstably housed (84.1%)
 - Majority White (57.9%), Non-Hispanic (70.1%)
 - Heavy alcohol use (15.7%)
 - Illicit drug use, past 6 mo. (45.2%)
 - Opioid use: treated (51.0%), untreated (17.4%)



Factors Associated with Sustained Virologic Response in Multivariable Analysis (N=864)

	Adjusted odds ratio (95% CI)
Age	
< 45 years	Ref
\geq 45 years	1.53 (1.04-2.26)
Housing status	
Homeless or unstably housed	Ref
Stably housed	3.83 (1.85-7.90)
Recent drug use, past year	
No	Ref
Yes	0.63 (0.41-0.95)
Unknown	1.17 (0.62-2.21)
Heavy alcohol use, past 6 months	
Ňo	Ref
Yes	2.27 (1.40-4.00)
Unknown	1.52 (0.94-2.43)
Referral source	
Internal	Ref
Counseling and testing	0.50 (0.34-0.75)
External/self-referred	0.27 (0.14-0.53)

All statistically significant numbers are bolded

- Acute HCV rose 124% from 2013-2020, new treatments are available but delivery to those most in need can be challenging: HCV treatment is feasible and successful within HCH programs
- More work is needed to engage, build trust with people who use drugs including possible embedded programs in trusted drop-in spaces or with syringe service providers

Consideration of future innovation:

- Evidence that SVR measurement at 4-weeks post-treatment has high concordance with 12-weeks → improved retention
- Point-of-care RNA testing is available (not yet in N. America)
- Pairing HCV treatment with housing supports sustained virologic response and should be considered critical

Interventions

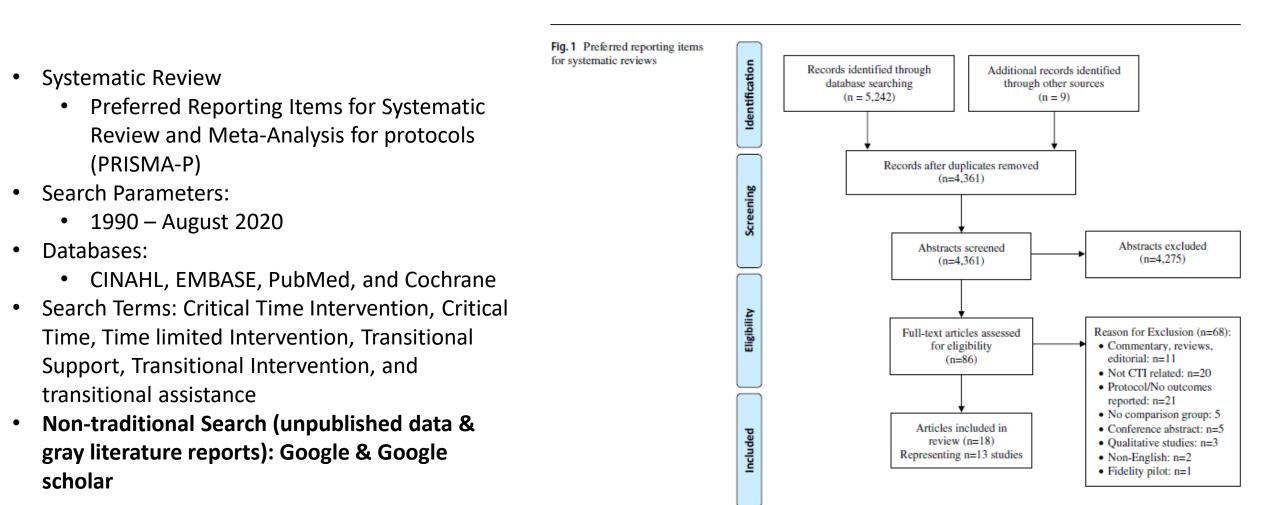
Alaina Boyer, PhD Director of Implementation Research National Health Care for the Homeless Council

Supporting Vulnerable People During Challenging Transitions: A Systematic Review of Critical Time Intervention

Jennifer I. Manuel, Megan Nizza, Daniel B. Herman, Sarah Conover, Laura Esquivel, Yeqing Yuan, Ezra Susser

Administration and Policy in Mental Health and Mental Health Services Research 2023;50:100–113

Methods What did they do?



Results What did they find?

More evidence-based critical time interventions are needed

	Positive	Mixed	Negative	No Effect
Housing (6)	5	-	-	1
Service Engagement (7)	5	-	-	2
Hospitalization/Emerge ncy Services (5)	2	1		2
Mental Health (8)	2	3		3
Substance Use (3)	1			2
Family Support (5)	2			3
Social Support (4)	1			3
Quality of Life (4)		2		2

- Consistent positive impact on homelessness and increased service engagement
- CTI is effective but needs more evidence to understand specific mechanism leading to these positive impacts
 - Guided by implementation science to ensure contextual factors
 - Consistency across evaluated outcomes
 - Enhanced standardization of measurements
- Implications for practice, policy, and research

MIRRORS program: Helping Pregnant and Postpartum Women and Families with Substance Use Problems

James H. Bray, PhD, Brittany Zaring-Hinkle, MA, Nadine Scamp, LMSW, Kelsee Tucker, PhD, and Meghan K. Cain, PhD

Substance Abuse 2022;43(1):792-800

Methods What did they do?

- 215 pregnant & post-partum women (with minor children include n= 495)
- Pregnant or postpartum up to 12 months
- Setting: Residential treatment service in Houston, TX

Cohort

Outcome Measures for Discretionary Programs (CSAT

GPRA)

 Family Assessment Device (FAD)

Center for Substance Abuse

Treatment GPRA Client

Assessments

- Recovery Capital Scale (RCS)
- Adult Adolescent Parenting Inventory-2 (AAPI-2)
- Parent's Assessment of Parental Monitoring (PAPM)
- 11 focus groups

Substance use

- housing
- Employment and education status
- Crime and criminal justice status
- Family functioning
- Recovery capital
- Parenting risk

Outcomes

Enhanced Services

• Seeking Safety

Multidisciplinary Team Approach

- Celebrating Families
- Nurturing Parenting
- Prochaska & DiClemente's Transtheoretical Model Stages of Change
- Motivational Interviewing
- Trauma Focused Cognitive Behavioral Therapy (TF-CBT)

Intake Discharge (1-12 months Follow-up (6-16 months after intake) after discharge)

Care Team: Family Care Coordinator, Family Coach, and Recovery Coach

Results What did they find?

Descriptive

- Healthier family functioning
- Improved Capital for Recovery
- Improved parental monitoring
- Medium risk of practicing behaviors attributable to child neglect and abuse

Significant changes from intake to discharge

- Significant changes: Recovery Capital Scale & in AAPI(Parental empathy towards children's needs, Children's power and independence)
- Significant change over time: Behavioral Control, Roles, Communication, Affective responsiveness, and recovery capital

Significant Changes in Outcomes (intake to follow-up)

- Less alcohol use in the past 30 days
- Less drug use in that last 30 days
- Less criminal justice involvement
- Increased in housed status
- Increase in employment status

Qualitative

- Increased family involvement, family reunification, educating family members about addiction and recovery
- Liked individual counseling and coaching with the TI lens
- Areas of improvement included: more staff, more time to visit with family ad children

- What contributed to success? What mattered?
 - Trauma Informed Care
 - Multidsicplinary care teams
 - Individualized/tailored counseling and time with team matter
- Comprehensive and continued care for active users and those in recovery improves housing status, reduces criminal justice involvement, and improves overall wellbeing

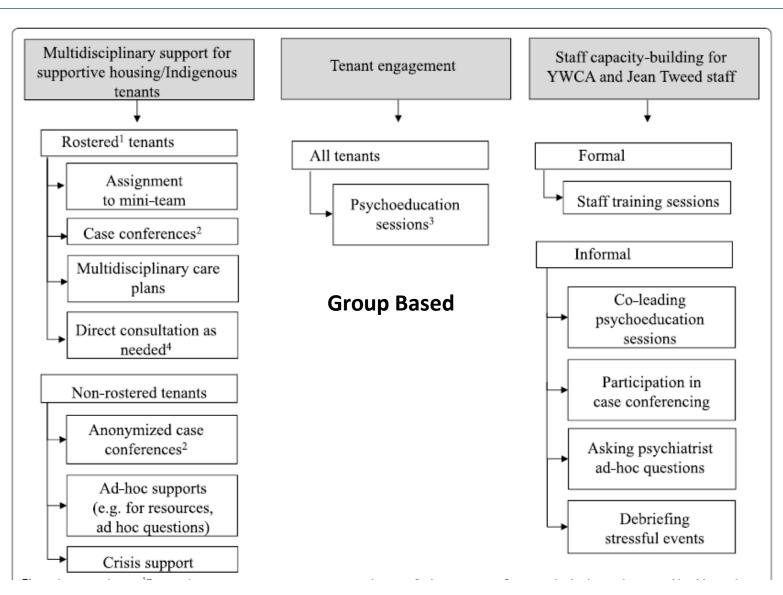
Delivering Collaborative Mental Health Care Within Supportive Housing: Implementation Evaluation of a Community-Hospital Partnership

Lucy C. Barker, Janet Lee-Evoy, Aysha Butt, Sheila Wijayasinghe, Danielle Nakouz, Tammy Hutcheson, Kaela McCarney, Roopinder Kaloty and Simone N. Vigod

BMC Psychiatry 2022;22:36

Methods What did they do?

- Rostering system to identify tenants that met all 3 criteria:
 - Lived in supportive housing or Indigenous-specific units
 - Required enhanced mental health supports
 - Consented to the collaborative care
- Mini-Team:
 - YWCA community engagement worker
 - Case manager from community-based SU & mental health agency
- Implementation strategy:
 - Expert Recommendations for Implementing Change (<u>ERIC</u>)



Psychiatrist & family physician led

Expert Recommendations for Implementing Change

	Stage	Input	Task	Output
Aim 1	Stage 1	Refined compilation of discrete	Modified Delphi, 2 feedback rounds and consensus meeting	•Expert consensus on key concepts (definitions & ratings)
	Modified Delphi	implementation strategies		
	Stage 2	Post-consensus compilation of discrete implementation strategies	Sort the strategies in to subcategories; rate each strategy in terms of importance and feasibility	•Weighted and unweighted cluster maps
	Concept Mapping			•Ladder maps
				•Go-zone graphs
				•Importance and feasibility ratings for each strategy
Aim 2	Stage 3	•Discrete implementation strategies	Essential ratings are obtained for each strategy for three temporal frames given each scenario	For each practice change:
	Menu-Based Choice	Practice change narrative		•Relative Essentialness Estimates for each strategy given each scenario
		•Narratives of contextual variations of practice change scenarios		•A rank list of the most common strategy recommendation combinations
				•A summary of strategies that may serve as compliments and substitutes for each other
	Stage 4	•Menu-Based Choice data summaries for each scenario	Facilitated discussion; live polling of consensus reached during discussion	For each practice change:
	Facilitated Consensus Meeting	 Importance and feasibility ratings from the concept mapping task 		•Expert consensus regarding which discrete implementation strategies are of high importance
				•Context specific recommendations

Results What did they find?

Participation

- 13 tenants rostered
- 9 YWCA staff (some turnover
- 8 Jean Tweed Center staff
- Interactions with Psychiatrist:
- Case conferences
- Staff training
- Ad hoc support
- Focus groups (6-months):
- 3 stakeholders
- 11 staff

Program Activities (median per month)

- 3 days on site
- 7 case conferences
- 2 direct consultations
- 1 Psychoeducation session for tenants
- 1 teaching session for staff
- Valued on-site psychiatrist support, capacity building through sessions, and ability to ask as hoc questions

Tenant Psychoeducational Sessions

- Topics: Mental Wellness & Seasonal affective disorder
- All agreed they learned something new, the skills would be useful, they felt respected by the group and facilitators
- All liked the on-site location and would likely to come back to future group sessions

Qualitative

• Facilitators

- Shared lenses
- Personal characteristics of psychiatrist
- Shared time and space
- Joint meetings
- Real-time support
- Balance between structure & flexibility
- Time to build trust
- Logistical support from organizations
- Barriers
 - Top-down approach driven from leadership
- Process confusion
- Differences in workflows across partners
- Staff turnover

- Community-hospital partnerships are valuable for coordinated and continued care to individuals in supportive housing
- Wrap around services should be recommended to all supportive housing
- Relationships with established providers is important in continuity of care and maintain trust
- Continuity plans in staff turnover in intervention studies is important to maintaining trust and reducing confusion

Housing

Stefan Kertesz, MD, MSc Professor, University of Alabama Birmingham Director, Birmingham VA H-PACT

Housing interventions for women experiencing intimate partner violence: a systematic review

Yakubovich AR et al

Lancet Public Health 2022;7:e23-35

What was the question?

□ 30% of women experience Intimate Partner Violence

- Women's homelessness less visible
- Where is the systematic review of housing/shelter with evidence from both outside & inside USA?

Methods What did they do?

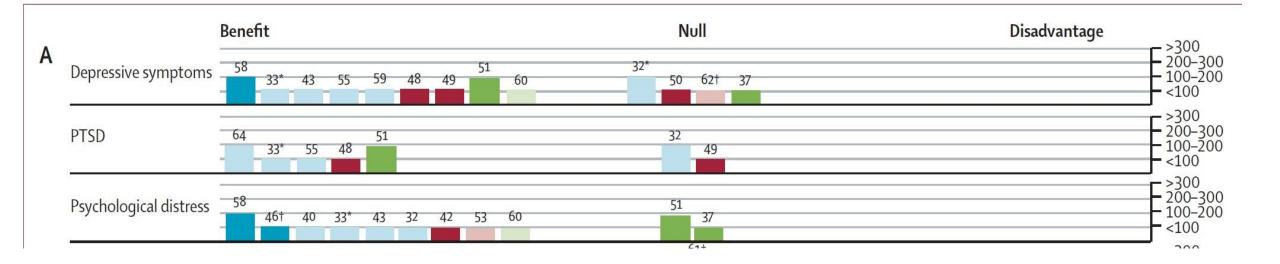
- □ Searched 15 databases → 34 articles
- Focused on interventions with a housing aspect (e.g. rapid rehousing, emergency shelter, rent help)
- Required quantitative data, with some kind of comparison (before vs after or trial)
- Outcomes had to include physical, emotional or socioeconomic well-being

Results What did they find?

- 18 "uncontrolled before-after" & 7 randomized trials. Also: nonrandomized trials, historical comparison, etc
- Interventions: sheltering (18) or shelter plus program (e.g. crisis intervention, safety planning, legal advocacy, parenting support, vocational training)
- Outcomes apparently favorable: mental health (26), abuse experience (22), intent to leave partner, safety.

• "No evidence of disadvantages" from the interventions

Each bar is a study; small & low-quality



Single group, shelter Control group, shelter



Single group, shelter-plus model Control group, shelter-plus model Single group, long-term housing Control group, long-term housing

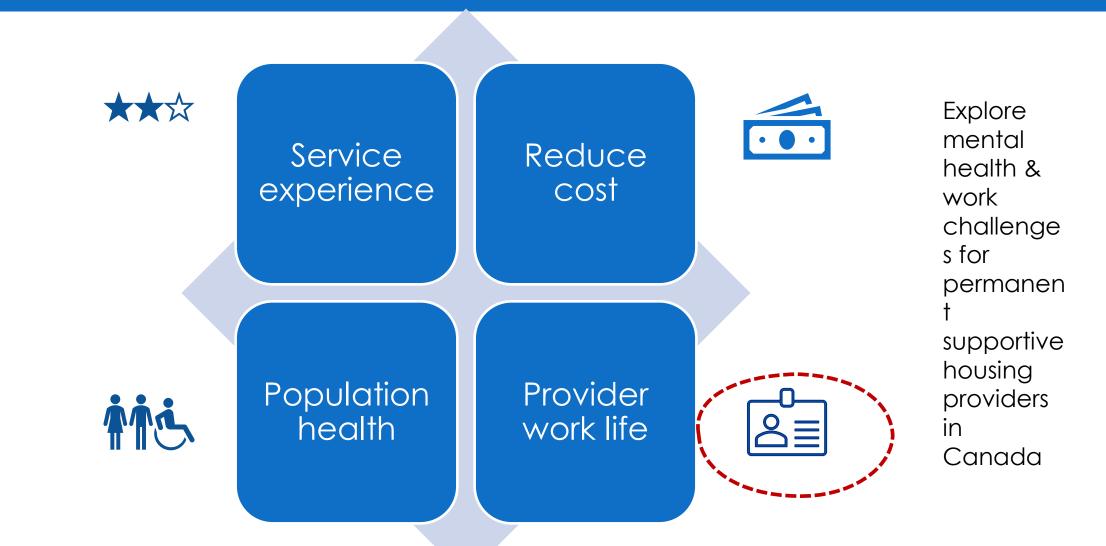
- Evidence of benefits of programs with a shelter or residential support --
 - With or without an additional services
 - Was stronger for mental health-related outcomes, intent to leave partner and perceived safety
 - In reality, it wasn't strong evidence
- Policymakers should continue to invest and innovate
- Need more research of higher quality, including long-term and short-term outcomes

Towards the Quadruple Aim in Permanent Supportive Housing: A Mixed Methods Study of Workplace Mental Health Among Service Providers

Kerman N, Goodwin JM, Tiderington E, Ecker J, Stergriopoulis V, Kidd SA

Health and Social Care in the Community 2022;e6674

Quadruple Aim

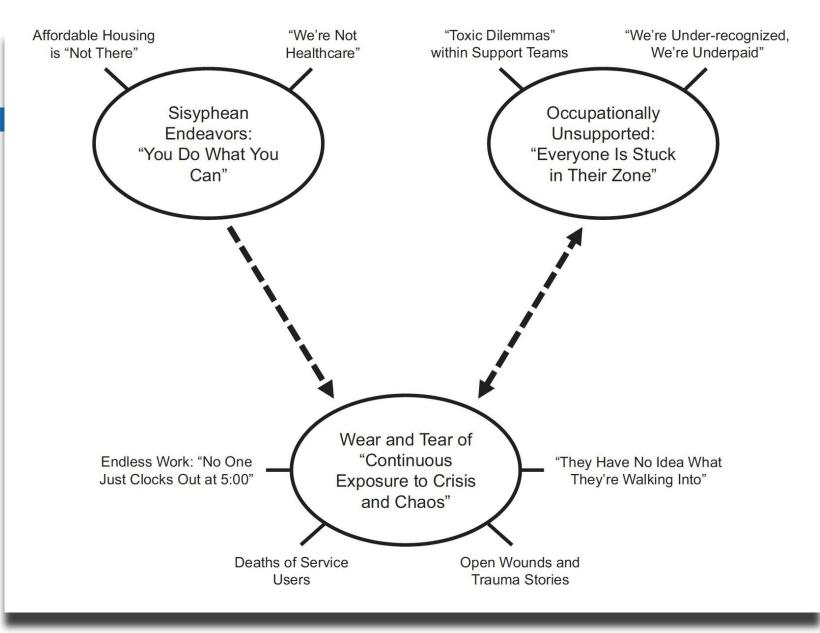


Methods What did they do?

- Email survey to Canadian supportive housing service providers
- Qualitative interviews with 18 PSH providers (14 from survey group + 4 program leaders)
- Survey: extensive, including demographics, psychological distress, occupational info, many more things
- Interview: work roles, impact on personal wellness, recommendations

Results What did they find?

- □ 130 (82% ♀) surveyed
- 23% high distress
- 15% prior homeless experience
- Social support from coworkers → lower distress (OR 0.5)
- Service user contact >75% of time -→ higher distress (OR 4.8)



Not being to help people get housing, not being able to act as health care provider. Senior management unaware of the job for CM. Crisis with lack of service, + stigma + death + trauma

- Canada, pandemic-era survey
- Survey itself not necessarily representative

Themes suggest a challenge to wellness of providers

- "Sisyphean endeavors"
- "Occupationally unsupported"
- "Wear and tear of continuous exposure to crisis and chaos"

My view: this is easily underestimated by communities

Overdose prevention and housing: a qualitative study examining drug use, overdose risk, and access to safer supply in permanent supportive housing in Vancouver, Canada

Ivsins et al

J Urban Health 2022; 99:855-864

Background & methods What did they do?

- Interest: drug use by residents of supportive housing offering safer supply & supervised consumption
- □ Some "low-barrier supportive housing" allows:
 - Prescribed "safer supply" (hydromorphone)
 - Opioid agonist therapy (methadone, fentanyl patch)
 - Supervised consumption space
 - Drug use supplies
 - Nurses, doctors, social support and more
- □ Interviewed 30 residents of the housing site (10/20-1/21)

Results What did they find?

- Using drugs in rooms vs supervised space
 - Discretion "I don't like, you know, to showcase what I'm doing"
 - Wanting to smoke products
 - Want to avoid drug-sharing
 - Several wanted to use with others in their room
- Access to Safer Supply
 - 12 of 30 received opioids onsite (delivery or pickup)
 - A number said it felt safer
 - Less hustle "It's helping me like not run around"

- A study limitation: one site, an impoverished Vancouver neighborhood, early in pandemic
- Social and structural factors (including house rules and discretion/shame) influence drug use practices
- Use "alone" is common
- Comments from Garth Mullins (Crackdown podcast):
 - "Safe injection sites should feel social, not clinical"
 - "Safe supply means replacing the street drug with the pharmaceutical version, not a different drug"



Annotated bibliography



tbaggett@mgh.harvard.edu Katherine.Vickery@hcmed.org aboyer@nhchc.org skertesz@uabmc.edu