

Background

- Hospitalizations and Emergency Department (ED) visits among people with substance use disorders (SUDs) are increasing.
- It is estimated that at least 40% of people with SUDs continue to use substances in hospital settings.
- Health care workers can request that security personnel search patients' rooms for illicit drugs or other prohibited items.
- Previous research has not described how often hospital searches result in the confiscation of illicit drugs, patient responses to searches, or their impact on clinical care.

Research Questions

- How often do hospital security searches happen, in general, and among patients with SUD diagnoses?
- What are the contexts of room searches, including who requests them and where they occur?
- What happens during searches, including what is found?
- What happens for patients after searches occur?

Methods

Study Setting: an academic hospital in Philadelphia with the following rules:

- Patients are not permitted to use tobacco products or outside medications, or to possess alcohol, illicit drugs, drug paraphernalia, or weapons.
- Security must have "good reason" to perform a search, such as, concerns about immediate danger, intoxication, or unlawful acts.

Data Sources and Population:

- Room search data were from a security electronic incident reporting system using reports between July 1, 2021, and July 1, 2023.
- We linked patient identifiers to Epic data to determine diagnosis codes and presentations consistent with SUDs.

Outcomes of interest:

- Items confiscated during searches
- Patient-directed discharges (PDDs)
- Use of restraints during searches

Data Analysis: descriptive statistics using STATA.

Results

Figure 1. Flow diagram of room search cohorts

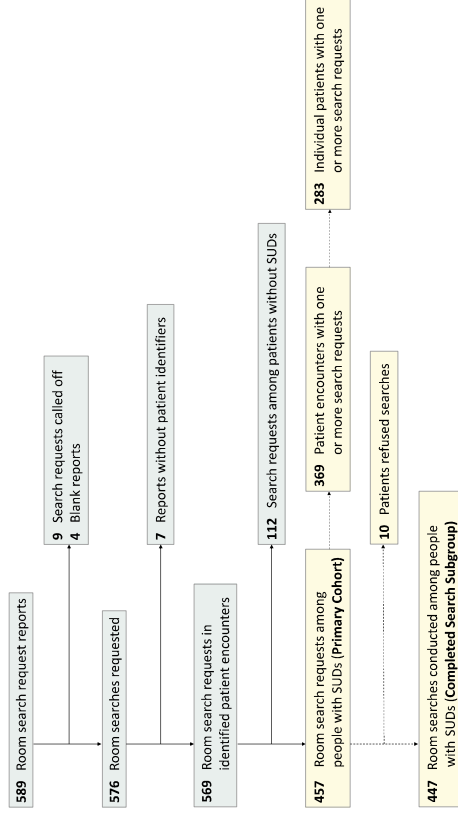


Table 1. Patient and encounter level characteristics for Primary Cohort

Characteristic	N (%)
Age, median years (IQR)	39 (14)
Gender	
Male	148 (52.3)
Female	135 (47.7)
Race	
White	180 (63.6)
Black or African American	80 (28.3)
Unknown or Other Race	23 (8.1)
Ethnicity	
Not Hispanic or Latine	267 (94.4)
Hispanic or Latine	15 (5.3)
Primary encounter diagnosis	
Infection	131 (35.5)
Substance use-related	
Opioid use	26 (7.0)
Alcohol use	8 (2.2)
Other substance use	8 (2.2)
Sedative use	7 (1.9)
Stimulant use	4 (1.1)
Wound-related	4 (1.1)
Suicide-related	4 (1.1)
Other Psych diagnoses	3 (0.8)
Not Psych nor SUD-related	174 (47.2)
Behavioral flag in encounter	
No	335 (90.8)
Yes	34 (9.2)

Figure 2. Clinical services on which search requests occur for Primary Cohort

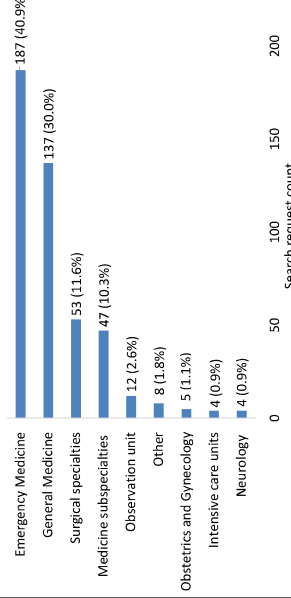
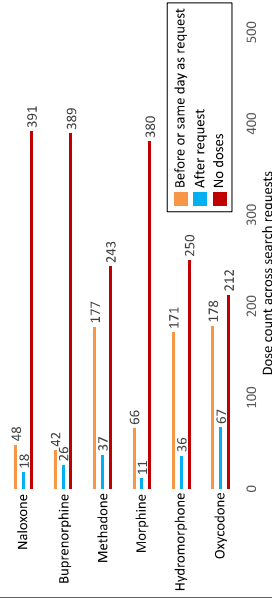


Figure 3. Initial doses of naloxone, buprenorphine, methadone, and opioids in relation to search requests for Primary Cohort

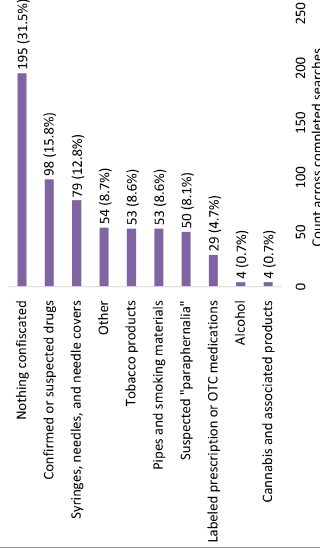


Results Continued

Role of staff members requesting searches:

Nurses requested 82.2% of room searches, attending physicians 5.7%, residents 1.8%, and advanced practice providers, nursing assistants, and security officers the remainder.

Figure 4. Items confiscated during completed room searches



Patient-directed discharges and restraints:

- There were 20 PDDs (5.4% of encounters) within 1 hour of patients undergoing or declining searches.
- Six patients (1.6% of encounters) attempted to leave the hospital during their searches, but their care teams determined that they did not have capacity to do so.
- Staff used physical restraints during three searches, in the context of agitation and patients attempting to leave.

Discussion

- This study provides new insight into security searches, highlighting that they often occur among patients with SUDs.
- Our findings align with research showing that ED and nursing staff frequently face safety concerns that prompt security involvement.
- Searches often do not result in finding illicit drugs, and patients may continue to use substances and to require naloxone after searches.
- Searches may contribute to negative patient outcomes and experiences, such as PDDs and the use of restraints.
- There is a need for clear, patient-centered protocols around hospital searches and in-hospital substance use.

Future Directions

We plan to compare outcomes for patients with SUDs who do and do not undergo searches. Future analysis should also include security data across multiple hospitals for more generalizable results.

Characterization of Young Adults Accessing Buprenorphine Telehealth in Philadelphia, PA



Center for Addiction Medicine and Policy

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INTRODUCTION

- Medications for opioid use disorder (MOUD) are under-prescribed to young adults.
- Young adults may require different types of low threshold treatment models.
- Goal: Compare characteristics of young adults to older adults seeking buprenorphine treatment via telehealth and examine retention in treatment among the young adult cohort.

METHODS

- Cross-sectional study of young adults (ages 18-29 years) to older callers who were prescribed buprenorphine via a health system-based telehealth urgent care program, CareConnect, in Philadelphia, PA from 2021-2023.
- Multivariable logistic regression model: factors associated with linkage to treatment and retention in care adjusting for age, gender, race, ethnicity, housing, recent incarceration and insurance.

RESULTS

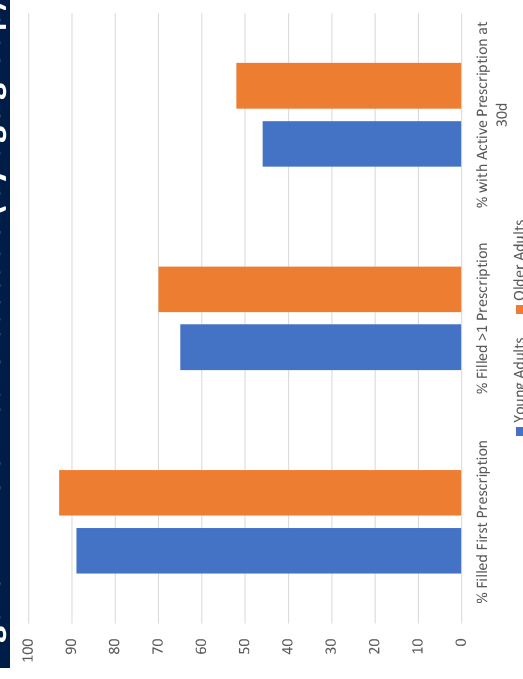
Table 1. Demographics and bivariate analysis

Caller Characteristic	Overall Sample 1023(%)	</=29 years 152(15%)	>/= 30 years 871(85%)	p-value
Gender				
Male	610 (60)	92 (61)	518 (59)	0.5
Female	403 (39)	54 (36)	349 (40)	
Trans or non-binary	10 (1)	6 (4)	4 (<1)	
Race				
Black	370 (36)	57 (38)	313 (36)	0.1
White	463 (45)	58 (38)	405 (47)	
Asian	3 (<1)	1 (1)	2 (<1)	
Other	48 (5)	9 (6)	39 (4)	
Latinx ethnicity	126 (12)	28 (19)	98 (11)	0.03
Insurance				
Medicaid/Medicare	809 (79)	116 (76)	693 (80)	0.1
Private insurance	69 (7)	15 (10)	54 (6)	
None	103 (10)	17 (11)	86 (10)	
Housing Status				
Unstable/Shelter/None	222 (22)	23 (15)	199 (23)	0.03
Recent incarceration	105 (10)	25 (17)	80 (9)	0.03
Has Narcan	450 (44)	64 (42)	386 (44)	0.8
Retained in care at 30d	520 (51)	70 (46)	450 (52)	0.2

Table 2. Multivariable regression assessing associations with retention in MOUD care at 30 days

	Odds Ratio (95% CI)
Lack of insurance among all callers	0.5 (0.3-0.8)
Young adult callers who identify as Black	0.5 (0.3-0.9)
Young adults with permanent housing and incarceration	0.2 (0.03-0.84)

Figure 1. MOUD Care Cascade (by age group)



CONCLUSION

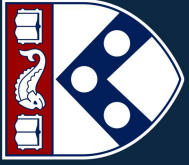
- Minimizing insurance disruptions supports continued engagement in MOUD care for all.
- Targeted interventions to ensure Black young adults are retained in care are needed.
- Prevention of incarceration with diversion programming may improve retention in care.
- Limitations: Cross-sectional data

REFERENCES

1. Baumgartner JC, Gumas EB, Cunjia MZ. Too many lives lost: overdose mortality rates and policy solutions. *The Point*. Commonwealth Fund. 2021.
2. Medication for Adolescents and Young Adults With Opioid Use Disorder. *The Society for Adolescent Health and Medicine*. J Adolesc Health. 2021.
3. Ingley SM, Schoenberger SF, Jellabutra V, Lunzer K, Barron K, Hadjilov SE, Park TW. Ambivalence and Stigma: Beliefs About Medication Treatment Among Young Adults With Opioid Use Disorder. *A Qualitative Exploration of Young Adults' Perspectives*. J Adolesc Health. 2023.

DISCLOSURES

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Crossing The Line: Access To Trauma Care Across State Borders

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Background

- In the event of traumatic injury, emergency medical service (EMS) providers are empowered to bypass closer hospitals in favor of designated trauma centers.
- Since longer prehospital times are associated with increased risk of complications and mortality, the geographic distribution of trauma centers plays a key role in patient outcomes. State policies and protocols also play a role.
- For patients living near state borders, the nearest trauma center may be out-of-state rather than in-state.
- State policies may dictate that patients be preferentially transported to trauma centers only within their state of injury.
- This can increase transport distance, leading to longer prehospital time and increased mortality.

Objective

- This study investigates the challenge posed by state borders by identifying the population, injury, and geographic scope of areas of the country where the closest trauma center is out-of-state, and by collating state EMS policies on cross-border trauma transport.

Policy Analysis

- We collected state EMS protocols and classified them into 4 categories: encourages cross-border transport, discourages cross-border transport, neutral on cross-border transport, or leaves the matter of cross-border transport to local discretion.



Geospatial Analysis

- We identified designated Level I, II, and III trauma centers using American Trauma Society data.
- Population-weighted centroids of US census block groups were determined using data from the US Census Bureau.
- ArcGIS was used to identify the nearest in-state and out-of-state designated (1) Level I or II trauma center and (2) Level I, II, or III trauma center to each census block group by drive-time distance.
- We used National Highway Traffic Safety Administration FARS data on motor vehicle crash fatalities to quantify the proportion of fatal crashes occurring in the areas of interest.
- We used data from the US Census Bureau's American Community Survey to determine demographic characteristics of affected groups.

Results

Policy Analysis:

- Of the 48 contiguous states, 30 encourage cross-border transport, 2 discourage it, 12 are neutral, and 4 leave it to local discretion.

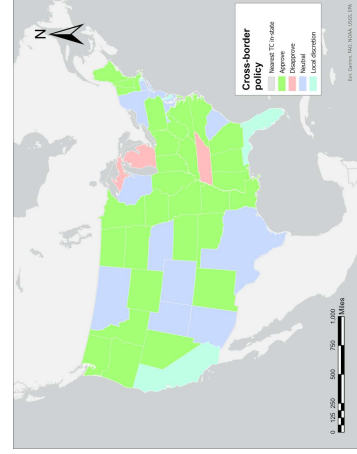


Figure 1. US states categorized by policy-state on cross-border transport.

Geospatial Analysis:

- Of 237,596 included US census block groups, 18,499 (7.8%) were closest to an out-of-state designated Level II or III trauma center.
- These census block groups accounted for 6.9% of the US population and 9.5% of all motor vehicle fatalities reported in 2020.

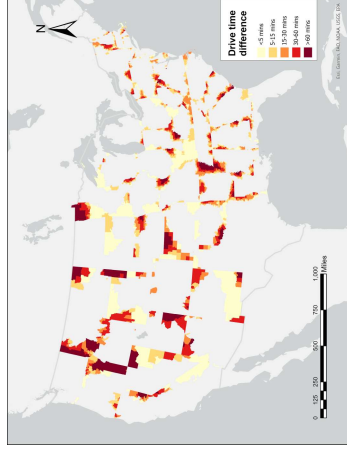


Figure 2. US census block groups classified by drive-time difference between nearest in-state and out-of-state Level I-III trauma center.

- With the inclusion of Level III trauma centers, the number of US census block groups closest to an out-of-state designated Level I, II, or III trauma center decreased to 13,690 (5.8%).
- These census block groups accounted for 5.1% of the US population and 7.1% of all motor vehicle fatalities reported in 2020.

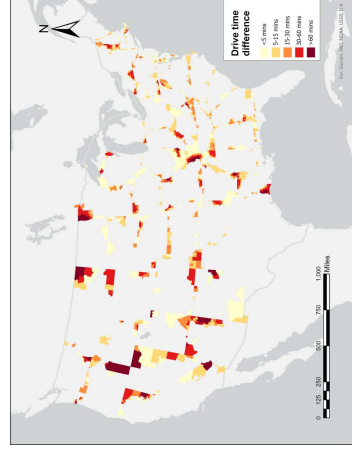


Figure 3. US census block groups classified by drive-time difference between nearest in-state and out-of-state Level I-III trauma center.

Demographic Analysis:

- We determined that US census block groups closest to an out-of-state trauma center were more likely rural and had smaller populations, lower population density, lower median household incomes, and higher rates of family poverty.

Characteristic	Variable levels	Number (n) (% of states)	Mean (s.d.)	Median (IQR)	P-value
Continent		152 (22.2%)	100 (15.0%)	50 (7.5%)	<.001
County		48,271 (15.5%)	1,318 (4.3%)	1,118 (3.7%)	<.001
Population density		20,296 (6.7%)	1,938 (6.5%)	1,038 (3.5%)	<.001
Area		3,569 (1.2%)	463 (1.6%)	343 (1.2%)	<.001
Area/population transfer (N)		11,029 (36.5%)	2,056 (7.1%)	1,058 (3.6%)	<.001
Urban/rural (N)		6,677 (22.4%)	1,007 (3.5%)	611 (2.2%)	<.001
Population density		1,991 (6.7%)	573 (2.0%)	417 (1.5%)	<.001
Median household income		158,619 (53.3%)	89,179 (30.4%)	60,179 (21.2%)	<.001
Area/population transfer (N)		691 (2.3%)	815 (2.8%)	446 (1.6%)	<.001
Area/population transfer (M)		2,109 (7.1%)	319 (1.1%)	183 (0.7%)	<.001
Area/population transfer (S)		5,193 (17.5%)	919 (3.2%)	519 (1.9%)	<.001
Area/population transfer (T)		7,111 (23.8%)	1,170 (4.1%)	711 (2.6%)	<.001
Area/population transfer (Q)		9,199 (30.8%)	1,378 (4.8%)	819 (3.0%)	<.001
Area/population transfer (R)		1,212 (4.0%)	181 (0.7%)	111 (0.4%)	<.001
Area/population transfer (P)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (O)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (N)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (M)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (L)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (K)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (J)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (I)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (H)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (G)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (F)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (E)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (D)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (C)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (B)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001
Area/population transfer (A)		1,191 (4.0%)	175 (0.6%)	111 (0.4%)	<.001

Table 1. Characteristics of US census block groups according to location of closest Level I or II trauma center

Characteristic	Variable levels	Number (n) (% of states)	Mean (s.d.)	Median (IQR)	P-value
Continent		129,369 (42.8%)	6,729 (22.8%)	3,479 (11.6%)	<.001
County		38,425 (12.6%)	1,043 (3.5%)	843 (2.9%)	<.001
Population density		1,824 (6.0%)	1,638 (5.8%)	865 (3.0%)	<.001
Area		5,041 (1.6%)	565 (2.0%)	379 (1.4%)	<.001
Area/population transfer (N)		5,462 (17.9%)	2,311 (8.2%)	1,112 (4.0%)	<.001
Urban/rural (N)		1,518 (5.0%)	219 (0.8%)	119 (0.4%)	<.001
Population density		129,369 (42.8%)	6,729 (22.8%)	3,479 (11.6%)	<.001
Area/population transfer (N)		273 (0.9%)	376 (1.4%)	202 (0.7%)	<.001
Area/population transfer (M)		874 (2.9%)	1,067 (3.8%)	510 (1.8%)	<.001
Area/population transfer (L)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (K)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (J)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (I)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (H)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (G)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (F)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (E)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (D)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (C)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (B)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001
Area/population transfer (A)		2,525 (8.4%)	406 (1.5%)	233 (0.8%)	<.001

Table 2. Characteristics of US census block groups according to location of closest Level I, II, or III trauma center

Conclusion

- 22 million US residents live closer to a Level I or II out-of-state trauma center and 16 million US residents live closer to a Level I, II, or III out-of-state trauma center.
- Cross-border transport can expedite access to care in at least 5% of US census block groups.
- While few states explicitly discourage this practice, more robust guidance can reduce delays and enhance care.

MOTIVATION

In the 2023 National Resident Matching Program (NRMP) match, there were a record 554 unfilled emergency medicine (EM) positions before the Supplemental Offer and Acceptance Program (SOAP), among 131 of 276 total programs. Historically, EM has been highly competitive filling nearly all positions. Corporatization of emergency departments and physician groups is increasing. Understanding factors for match success helps ensure stable inputs to the EM workforce.

What factors were associated with unfilled positions among: geography, program and hospital attributes, hospital ownership, and faculty physician group ownership?

GEOGRAPHY & PROGRAM

- 2/3 unfilled positions from: MI, NY, PA, OH, FL
- Unfilled programs were more likely*: smaller, previously AOA accredited, newer (median accreditation 2017), at smaller hospitals, with lower resident-bed ratios, higher income patients (less disproportionate share patients). No difference in program length.

METHODOLOGY

Observational study using publicly available data sets (NRMP, ACGME, CMS, Ivy Clinicians). Comparison of continuous variables by Wilcoxon rank sum test, categorical variables by Pearson's Chi-squared with Bonferroni post-hoc analysis for >2 groups. *Significance at $p < 0.05$.

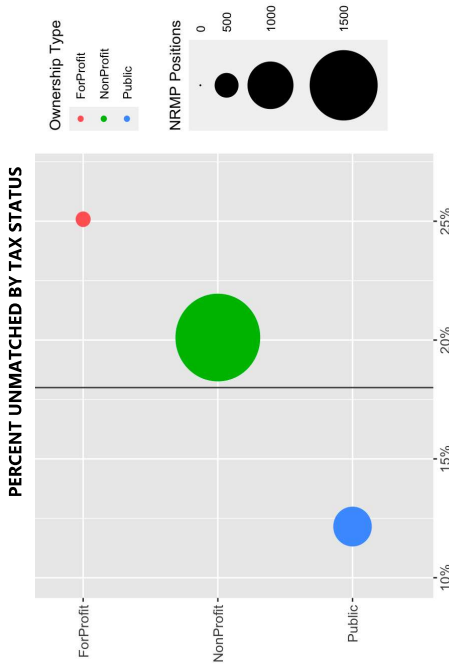
Emergency Medicine Residency Match 2023 Geographic Location and Corporate Ownership of Hospitals and Faculty Groups of Unfilled Positions



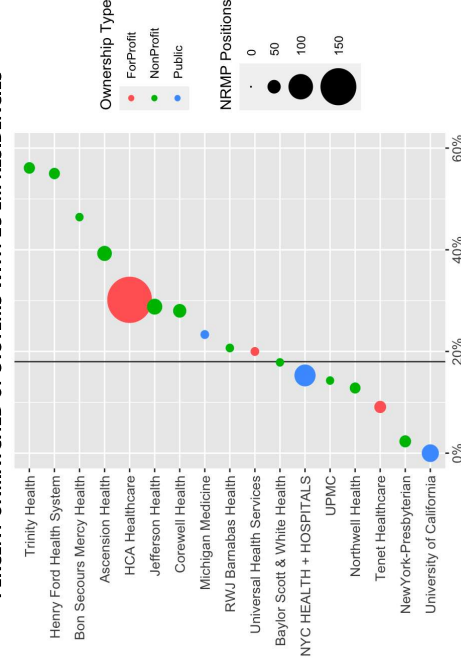
Angela G. Cai, MD, MBA • Clinical Assistant Professor • Emergency Medicine
ZJ Jarou, L. Adelman, DJ Carlborg, SP Dimeo, J Fisher, T Guth, BM Lo, L Oh, R Puttagunta, GR Schmitz

HOSPITAL OWNERSHIP

Public hospitals matched higher (88%*) versus non-profit (80%*) or versus for-profit (75%*). There was much variation within each category.

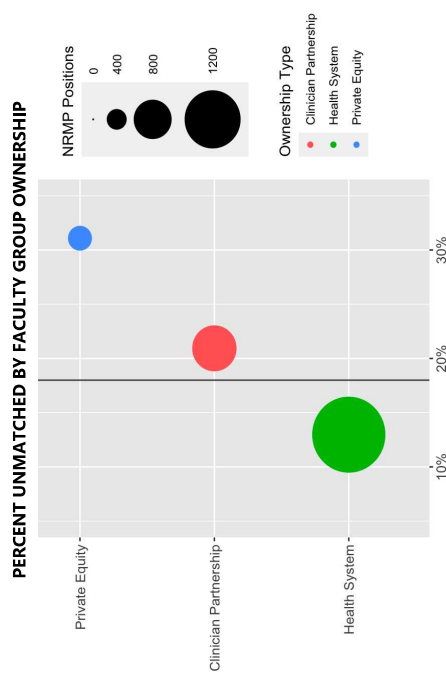


PERCENT UNMATCHED OF SYSTEMS WITH ≥3 EM RESIDENCIES

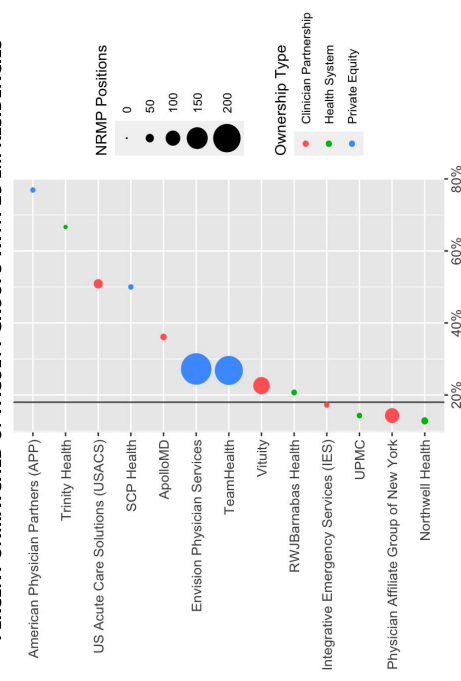


FACULTY GROUP OWNERSHIP

Health system employed groups matched higher (87%*) than clinician partnership (79%*) and private equity (68%*).



PERCENT UNMATCHED OF FACULTY GROUPS WITH ≥3 EM RESIDENCIES



Evaluating Perspectives on Well-Being and Burnout Among Emergency Medicine Residency Program Leaders

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Background

In emergency medicine...

65% Physicians

Residents

experience burnout

76.1%

experience burnout

Research on burnout among educational EM leadership remains limited.

Understanding these perspectives can **provide critical insights to sustain** educational leadership & EM trainees.

Objective

To evaluate EM educational leadership burnout and factors impacting burnout for themselves and their trainees

Methods

Study Design: A cross-sectional national survey of EM residency program leadership

Participants: Convenience sample of Council of Residency Directors in Emergency Medicine (CORD)

Survey Dates: February 8 to March 31, 2023

Data Management and Analysis: Digital survey conducted via Qualtrics; Stata SE 18 and coding via thematic content analysis



Scan to read more



Sample Characteristics

	N	%
Total Partial Responses	174	100.0%
Total Complete Responses	153	87.9%
<i>Individual Characteristics</i>		
Age (n = 174)		
31-40	79	45.4%
41-50	65	37.4%
51-50	27	15.5%
61+	3	1.7%
Academic Rank (n = 173)		
Instructor	8	4.6%
Assistant Professor	88	50.6%
Associate Professor	57	32.8%
Professor	15	8.6%
Other	5	2.9%
Role (n = 174)		
Program Director	70	40.2%
Associate Program Director	49	28.2%
Assistant Program Director	36	20.7%
Other	19	10.9%
Years in Role (n = 174)		
0 to 1	26	14.9%
1 to 2	28	16.1%
3 to 4	54	31.0%
> 4	66	37.9%
<i>Program Characteristics</i>		
Number of Chief Residents (n = 161)		
0 to 2	39	22.4%
3 to 4	110	63.2%
> 4	12	6.9%
Number of APDs (n = 162)		
0 to 1	31	19.1%
2 to 3	95	58.6%
4 to 6	36	22.2%
Number of program coordinators align with recommendations? (n = 161)		
Yes, Exceeds	45	25.9%
Yes, aligns	88	50.6%
No	17	9.8%
Unsure	11	6.3%
Number of Residents, Mean (SD) [Range] (n = 148)		
	37.54 (15.4)	[8 - 80]

Results



52.9%

Reported experiencing burnout



34.6%

Reported feeling professional fulfilled

50.3%

Had considered leaving role

Factors Contributing to Burnout for...	
Individual	Trainees
Clinical work strain (capacity strain, ED crowding, boarding)	92.8%
Feeling underappreciated	62.1%
EHR documentation	49.0%
Leadership decisions	44.4%
Lack of personal care time	40.5%
Mistreatment from consultants	34.6%
Mistreatment from patients	33.3%
Schedule of shifts	32.7%
Acuity and volume of patients	28.1%
Lack of peer support	17.6%
Other	13.1%

Free Text Themes from Respondents		Factors Contributing to Burnout	
Lack of Leadership Support		34%	
Admin Workload/ACGME Requirements		29%	
Teamwork and Community		21%	
Providing Mentorship and Education		18%	
Leadership Support		18%	
Feeling Valued and Respected		18%	
Protected Time		17%	
Meaning in Work		11%	
Work/Life Integration and Balance		7%	
Autonomy		4%	

Conclusions

- High rates of burnout persist among EM residency leaders
- Educational leaders identified **decision making and personal time** to be more prescient for themselves
- For trainees, more **clinical and operational aspects** were important, such as interactions with consultants and shift scheduling.

Exploring Cultural and Community Context for Substance Use Interventions in West Philadelphia

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Introduction

- The overdose crisis in the US has reached staggering levels, with unprecedented increases in overdose deaths nationally
- Philadelphia is an urban epicenter of the overdose crisis, substantial increases in overdose deaths in Black and Brown communities
- Less is known about specific factors contributing to these disparities or culturally appropriate strategies to mitigate overdose among Black and Brown communities

Methods

- Semi-structured interviews exploring perceptions of substance use, harm reduction, treatment and community-academic partnerships in West Philadelphia
- Interviews conducted from May-August 2022 (n=19)
- Interviews were transcribed and double-coded using NVivo 12 to ensure interrater reliability (K=0.70)
- Analyzed using thematic content analysis

Results

Participant Characteristics (%)	n=19
Mean Age	46
Female Gender	79%
Race	
White	21%
Black	84%
Educational Attainment	
Did not graduate High School	11%
High School Diploma/GED	21%
Some College or Associate's Degree	16%
Bachelor Degree	21%
Masters or Higher	32%
Employment Status	
Full-time	79%
Part-time	5%
Unemployed	16%
Lives in West Philadelphia?	74%
Works in West Philadelphia?	74%
Works with PWUD?	53%
Personal or Family Impact of Drug Use	84%

Results

Key Barriers to the Uptake of Substance Use Treatment in West Philadelphia

- The War on Drugs persists, hinders uptake of harm reduction initiatives for Black West Philadelphians
- Structural Racism, including gentrification and inequitable resource distribution contributes to distrust between West Philadelphians and surrounding healthcare institutions
- The cumulative effects of racism and disenfranchisement produces generational trauma and makes black communities like West Philadelphia uniquely vulnerable to substance misuse and overdose

Participant Recommendations

- Inclusive, culturally appropriate services that centers the community's needs and preferences
- Improve community engagement to include educational campaigns to create awareness
- Accessible, in-person services centrally located within the community, targeting Southwest and West Philadelphia

Implications

- Healthcare professionals should be aware of the factors impacting care for populations at increased risk of overdose
- Enhancing community engagement could increase awareness of the overdose crisis, including the risks of fentanyl use and harm reduction strategies to empower and equip communities
- More research is needed to evaluate the effectiveness of grassroots organizing and community driven research to reduce opioid-related deaths in predominantly black communities

Conclusions

- Our results suggest the need for continued efforts that ensure equitable distribution of resources for the provision of substance use and harm reduction services



Acknowledgements

- Funding from Philadelphia Department of Public Health and Independence Blue Cross
- CAMP Community Advisory Board members, community leaders, CBOs, and partners
- Thanks to our participants for sharing their experiences



War on Drugs

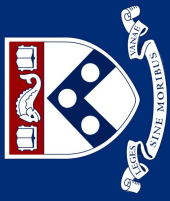
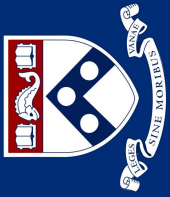
"I think it's interesting that ...now that substance abuse is affecting white people, now they want to have needle exchange programs and – I forgot the other thing you said. But with the crack epidemic, all the black people that were impacted by it went to jail or prison and they were just allowed to buy and live their ways. So, personally I think it's contradictory and I wonder why now all of the sudden that white people are majorly impacted by why it's a national issue. But when black people – when it was a whole crack epidemic, they were all punished."

Systemic Racism

"...So, what's happening is ...in order to build trust with those people, we have to make room for the people who are already living in that community to feel safe and not feel threatened by the gentrification coming in and moving them out of their residences. So, when you come together and tell the people that you're not trying to buy up all of the property to kick them out and that their homes are gonna be stable and that they'll be able to engage in that community, then maybe things can start changing."

Generational Trauma

"...there's a lot of generational trauma and things that are passed down. Yeah, if you're experiencing so much pain that you feel like you don't have a way out and you have no one to go to and no other answer, the numbing through or at least self-soothing through substances is obviously a sign of a broken system. So, we shouldn't be criminalizing the victims of the system. We should be fixing the system, so that people get what they need, so they don't have to be self-medicating and self-soothing with something that's actually doing more harm to them than good sometimes."



Geography of the Underserved: The Contribution of Rural Non-Trauma Hospitals to Trauma Care

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Background

- Prompt treatment at a designated trauma center improves injury outcomes.
- But over 38.4 million Americans live > 1 hour from a trauma center.
- Therefore, rural non-trauma-center hospitals may play an essential role in stabilizing and treating injured people.

Study Aim

Describe the contribution of rural non-trauma centers to injury care for rural Americans.

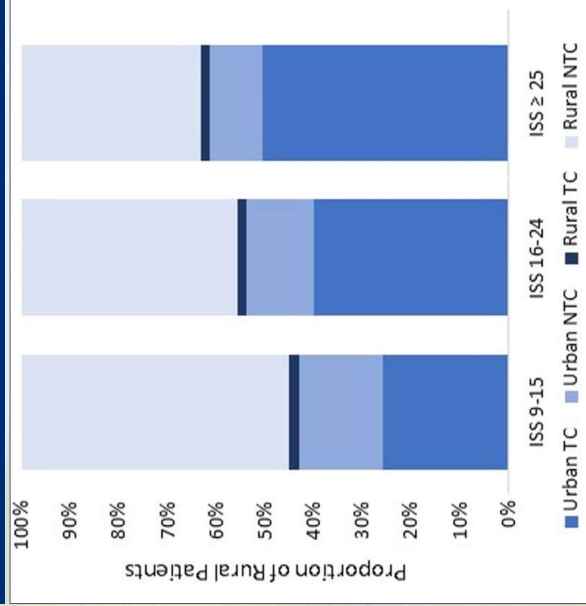
Methods

- Retrospective, pooled cross-sectional study
- Data source: National Emergency Department Sample, 2016-2020
- Inclusion criteria:
 - Moderate to severe injury (injury severity score ≥ 9)
 - Rural residents (rural urban continuum code of 9)
- Analysis: compared patient characteristics, treatment, and outcomes between rural and urban trauma centers (TCs) and non-trauma centers (NTCs)

Treatment and Outcomes

	Urban TC	Rural TC	Urban NTC	Rural NTC
	N=232,845 (31%)	N= 15,137 (2%)	N= 117,999 (16%)	N= 382,607 (51%)
Inpatient days	6.9	5.1	5.1	4.4
Procedures per patient	2.7	1.8	1.5	1.2
Total charges	\$70,520	\$18,278	\$16,527	\$5,966
Mortality				
Lived	96.0%	99.1%	99.1%	99.5%
Died in ED	0.5%	0.3%	0.3%	0.4%
Died as inpatient	3.5%	0.6%	0.6%	0.1%

Distribution of Patients According to Injury Severity Score



Disposition

	Urban TC	Rural TC	Urban NTC	Rural NTC
ED disposition				
Admitted	61.5%	16.3%	19.0%	4.7%
Transferred	2.9%	21.0%	14.4%	21.9%
Treated and Released	35.1%	62.5%	66.3%	72.8%
Inpatient disposition				
Discharged home	43.9%	39.1%	21.1%	25.9%
Transferred	1.8%	4.3%	3.1%	8.1%
Rehab/SNF	38.7%	42.2%	60.3%	52.7%
Home Health Care	9.1%	9.7%	11.9%	10.1%
AMA	0.8%	0.8%	0.4%	0.6%

Discussion and Policy Relevance

- Rural NTCs care for more than half of injured patients and manage most definitively without transfer.
- Rural NTCs should be incorporated into trauma system improvement efforts.
- Rural hospital closures may worsen access to trauma care for rural residents.
- Rural Emergency Hospital Designation
 - 2021 federal policy allows rural hospitals to convert to freestanding EDs, eligible for payment support.
 - This conversion could help to stabilize rural trauma care.
 - Over 1,500 hospitals in the US are eligible

Study Protocol: A Retrospective Case-Control Study on Using Digital Data to Predict Cardiovascular Disease and Healthcare Utilization



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BACKGROUND

Cardiovascular disease (CVD) is the leading cause of death in the US. While prevention approaches and risk prediction tools have improved longevity of patients, these models are imprecise and there is increasing focus on identifying markers that provide better measures of risk. With the increasing use of digital platforms, digital data available from social media, online search histories, and sensor devices in smartphones offer a new window into lifestyle and health behaviors and may better characterize individual and population CV health.

STUDY AIMS

1. Identify and characterize topics and features derived from digital data which are associated with CVD and related risk factors.
2. Quantify and validate the incremental benefit of adding variables from patients' digital data to conventionally-derived predictive models of CVD.
3. In a cohort of patients with and without heart disease, develop and evaluate models that use digital media data to predict health care utilization (e.g. cost), risk score).

METHODS

Step 1: Identify cases and controls through EPIC workbench/BPA

Criteria	Age	Diagnosis	English speaking	Presented through	Expanded Criteria
Cases	40-75	ICD-10 I20-25, I63	✓	HUP ED, PAH ED, PPMC ED, or Outpt clinic	Encounter with hx of ICD-10 I20-25, I63
Controls	case age +/- 5 yrs	Not ICD-10 I20-25, I63	✓	HUP ED, PAH ED, PPMC ED, or Outpt clinic	No ICD-10 I20-25, I63

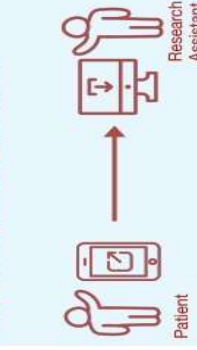
Step 2: Does Patient Have Digital Data? (one from each category)



Step 3: Patient Completes Baseline Survey



Step 4: Export Digital Data



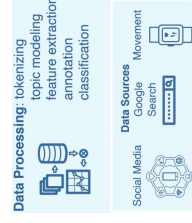
Step 5: Patient Financial Compensation



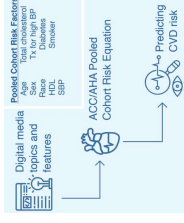
EXPECTED RESULTS

Our study findings will be threefold:

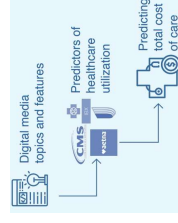
1. Produce a robust database of individual patients' digital data from linked with EMR data and algorithms for processing digital data.



2. Quantify and validate the incremental benefit of adding variables from patients' digital data to conventionally-derived predictive models of CVD.



3. Test whether digital media signals allow us to predict high healthcare utilization in advance when there may be early interventions to improve health and reduce costs.



Qualitative Evaluation of Hospital Security Program for Engaging Communities with Firearm Safe Storage Devices and Interventions

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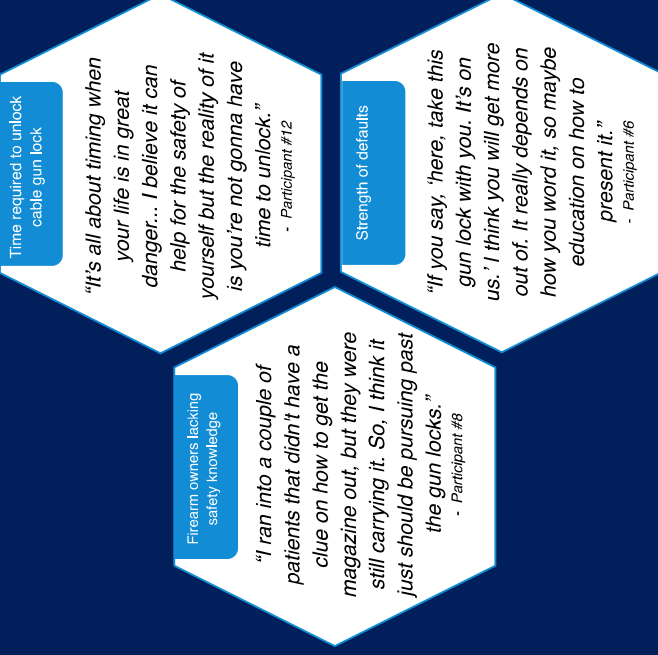
Introduction

- Problem:** 40% of Philadelphians in household with at least one firearm. 2/3 of those have at least one firearm unsecured.¹⁻³
- Safe storage devices (cable locks, lock boxes):** Evidenced-based strategy to prevent accidents, suicide, violence, theft, and crime. However, device usage is low.
- Hospital weapon storage:** In 2021, security team at Pennsylvania Hospital (PAH) started weapon screening and offering firearm owners option to store weapons during visit.
- Pilot intervention:** In 2022, Nudge Unit partnered with PAH security team, layering onto existing workflow. When security guards returned firearm to owner, guards offered owners cable lock and brochure.
- Pilot results:** 44% acceptance rate, distributing 300+ cable gun locks and brochures. However, over half of firearm owners declined locks and team cannot measure usage.

Methods

- Semi-structured qualitative interviews**
Conversations with security supervisors helped reveal interventions' barriers, facilitators, ways to measure device usage, and feedback on lock box distribution (N=12). Data analysis done in NVivo.
- Participatory workshop**
PAH security supervisors joined hospital leadership and Nudge Unit project team to explore ways to educate and engage firearms owners, build workflow to distribute lock boxes, and measure firearm owners usage of devices.

Hospital security team found firearm safe storage pilot to be acceptable and appropriate.



Education was seen as major challenge to adoption of firearm safe storage devices.

Interview Findings

- Security team overwhelmingly supported pilot intervention, finding it acceptable and appropriate.
- Guards are comfortable engaging firearm owners on safe storage and believe information is well-received. Firearm owners generally respond neutrally to offer of lock, brochure.
- Security guards organically employed nudging techniques when distributing locks, like defaults and framing.
- They believe education is biggest challenge to safe storage, observing visitors mishandle firearms or ask for instruction on using cable locks.
- Security guards believe time required to unlock cable locks, insufficient understanding of unsecured firearm risks, and complacency are challenges to firearm owners using safe storage devices at home.
- Opportunities exist to improve brochure, engage firearm owners, provide scripts for security, and recruit firearm owners for future research studies.

Workshop results

- Security guard script:** Combines security guards' approaches with BeSci techniques.
- Brochure re-design:** Illustrates how to use firearm cable lock.
- Poster:** Engages all hospital visitors and employees.



Next steps

- PAH can no longer store weapons due to policy change so the Nudge Unit will pivot to testing two strategies to engage with firearm owners.
- Security team engagement:** weapon identified at metal detectors, guard offers lock/brochure. Brochure has unique QR code for survey on usage.
 - Standalone poster:** poster near entrance with unique QR code offers anonymous way to take survey, receive lock in mail.