Understanding Drivers of Hospitalization Among Central and South American Newcomers in the Emergency Department

Kavya Ganuthula, BS, MPH, Abigail Steiner MPH, Kristine Knuti Rodrigues MD, MPH

University of Colorado Anschutz Medical Campus

DENVER HEALTH. est. 1860 FOR LIFE'S JOURNEY

Background

- Newcomers, including refugees, immigrants, asylees, and migrants, face significant barriers to healthcare access[1-3]
- Under EMTALA, emergency departments (EDs) are primary point of care, regardless of ability to pay[4,5]
- Beginning in 2022, a surge in US-Mexico border arrivals placed increased demand on U.S healthcare systems
- Per capita, Denver, CO received more newcomers than any non-border city[6]
- Many individuals traveled through dangerous routes (e.g Darién Gap)[7,8]

Aims

- **Aim #1**: Characterize clinical presentations and outcomes of Central and South American newcomers seeking ED care
- **Hypothesis #1**: A primary discharge diagnoses of communicable disease of injury will be more prevalent in newcomers who are hospitalized.
- **Aim #2:** Examine the relationship between age and hospitalization among newcomers
- **Hypothesis #2**: Older age will increase the likelihood of hospitalization among newcomers, after adjusting for key clinical covariates

Methods

- Retrospective observational cohort study at a large urban safety-net hospital in Denver, CO (2022 - 2024)
- Included adult and pediatric patients from key Central and South American countries (Mexico excluded)
- Total sample = 5,417 unique first-time visits
- Primary outcome: Hospitalization following first emergency encounter
- Statistical Analysis:
  - Chi-square & Fisher's Exact tests to compare discharge diagnoses between hospitalized vs. non-hospitalized patients
  - Multivariable logistic regression to examine association between age and hospitalization

Results

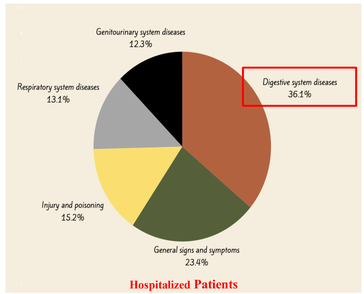
- The sample was predominantly young, male, Hispanic, and Venezuelan
- Significant differences in hospitalization rates were seen with gastrointestinal, circulatory, endocrinological, and respiratory diagnoses
- Communicable disease and injury diagnoses were not significantly associated with hospitalization status (p = 0.09 and p = 0.92, respectively)

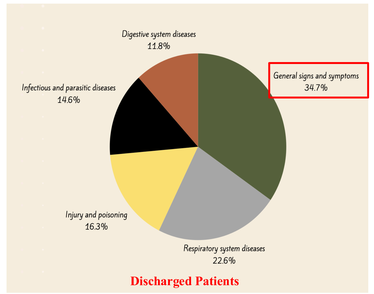
Table 1. Demographic characteristics of newcomer patients at first-time UC or ED visits

Characteristics		Overall Sample	Age Category			p-value*
			< 18 n = 1,390 (25.7%)	18 – 39 n = 3,224 (59.5%)	40+ n = 802 (14.8%)	
		N (%)	N (%)			
Sex	Male	2,831 (52.3)	700 (24.7)	1,706 (60.3)	425 (15.0)	0.2542
	Female	2,585 (47.7)	690 (26.7)	1,518 (58.7)	377 (14.6)	
Race/Ethnicity	Hispanic	5,274 (97.6)	1,347 (97.1)	3,149 (59.7)	778 (14.8)	0.5328
	Non-Hispanic White	64 (1.2)	20 (31.3)	34 (53.1)	10 (15.6)	
	Non-Hispanic Oher	68 (1.3)	21 (30.9)	35 (51.5)	12 (17.7)	
Country of Origin	Venezuela	3,024 (55.8)	801 (26.5)	1,841 (60.9)	382 (12.6)	<0.0001
	Colombia	1,332 (24.6)	408 (30.6)	699 (52.5)	225 (16.9)	
	Ecuador	78 (1.4)	48 (61.5)	22 (28.2)	8 (10.3)	
	El Salvador	216 (4.0)	27 (12.5)	132 (61.1)	57 (26.4)	
	Guatemala	247 (4.6)	24 (9.7)	176 (71.3)	47 (19.0)	
	Honduras	333 (6.2)	65 (19.5)	218 (65.5)	50 (15.0)	
	Nicaragua	186 (3.4)	17 (9.1)	136 (73.1)	33 (17.7)	
Insurance Type**	Self-Pay	2,925 (54.0)	868 (29.7)	1,693 (57.9)	364 (12.4)	<0.0001
	ED Medicaid	1,461 (27.0)	268 (18.3)	941 (64.4)	252 (17.3)	
	Financial Assistance	1,030 (19.0)	254 (24.7)	590 (57.3)	186 (18.1)	

*P-values calculated using Pearson's Chi-square test
**Insurance type is based off value recorded at patient's last visit.

Figure 1. Most Common Discharge Diagnoses at First ED/UC Visit Among Hospitalized vs Discharged Patients





Results (cont).

Table 2. Association Between Age Category and Hospitalization at First Encounter: Results of Multivariable Logistic Regression

Age Category (ref = 18-39)	Unadjusted OR (95% CI)	Adjusted OR* (95% CI)
<18	0.83 (0.63 – 1.10)	0.61 (0.45 – 0.82)
40+	1.48 (1.12 – 1.96)	1.42 (1.06 – 1.90)
Adjusting for sex, country of origin, and triage level		

- Triage level emerged as an important confounder for the pediatric age group

Conclusion

- Most patients required no hospitalization, suggesting a stable but underserved population
- GI and respiratory diagnoses were the top drivers of hospitalization suggesting benefits of augmenting targeted screening
- Pediatric patients were less likely to be hospitalized than young adults; triage level may reflect mistriage or access barriers
- Patients 40+ were more likely to be hospitalized independent of acuity, possibly reflecting emerging chronic disease burden

Acknowledgements

- Thank you to Craig Gravitz for assistance with data extraction and to all co-authors

References

1. Nonrefugee migrants & Newcomers. Nonrefugee Migrants & Newcomers - MN Dept. of Health. (n.d.). https://www.health.state.mn.us/communities/rih/migrant/index.html
2. Zeidan, A., Khatri, U., Munyikwa, M., Barden, A., & Samuels-Kalow, M. (2019). Barriers to accessing acute care for newly arrived refugees. Western Journal of Emergency Medicine, 20(6), 842–850. https://doi.org/10.5811/westjem.2019.8.43129
3. Vearey, J., Hui , C., & Wickramage , K. (n.d.). (rep.). *World Migration Report 2020: Chapter 7 - MIGRATION AND HEALTH: CURRENT ISSUES, GOVERNANCE AND KNOWLEDGE GAPS*. International Organization for Migration. Retrieved from https://publications.iom.int/system/files/pdf/wmr_2020_en_ch_7.pdf.
4. Acquadro-Pacera, G., Valente, M., Facci, G., Molla Kiros, B., Della Corte, F., Barone-Adesi, F., Ragazzoni, L., & Trentin, M. (2024). Exploring differences in the utilization of the emergency department between migrant and non-migrant populations: A systematic review. *BMC Public Health*, *24*(1). https://doi.org/10.1186/s12889-024-18472-3
5. Centers for Medicare & Medicaid Services. (n.d.). Emergency Medical Treatment & Labor Act (EMTALA). https://www.cms.gov/medicare/regulations-guidance/legislation/emergency-medical-treatment-labor-act
6. Jordan, M. (2024, February 13). Big burden of migrant influx strains Denver. The New York Times. https://www.nytimes.com/2024/02/12/us/denver-colorado-migrants.html
7. Mohor, D. (2024, October 21). The darién gap migration crisis in six graphs, and one map. The New Humanitarian. https://www.thenewhumanitarian.org/maps-and-graphics/2024/01/15/darien-gap-migration-crisis-six-graphs-and-one-map
8. Muñoz-Pogossian, B., & Winkler, A. (2023, November 27). The persistence of the Venezuelan migrant and refugee crisis. Center for Strategic & International Studies. https://www.csis.org/analysis/persistence-venezuelan-migrant-and-refugee-crisis
9. Acevedo, A., Whidden, E., Zepeda, F., et al. (2025). Evaluating emergency department utilization among undocumented patients receiving care at a community health clinic. Journal of Immigrant and Minority Health. https://doi.org/10.1007/s10903-025-01723-9