COMPARING DEMOGRAPHICS AND UTILIZATION OF INDIVIDUALS USING CALIFORNIA'S 2-1-1 AND 9-1-1 SYSTEMS

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BACKGROUND

Emergency Medical Services (EMS) are increasingly called upon to respond to individuals facing homelessness and behavioral/substance use issues. While 9-1-1 is the "go-to" system for medical emergencies and crisis response, 2-1-1 offers information and referral services that may be more suitable in non-emergency situations and to address social drivers of health. No research exists comparing these systems.

OBJECTIVES

The purpose of this study is to compare the 2-1-1 and 9-1-1 user demographics and requests related to behavioral/substance use and unhoused status.

METHODS

- Retrospective analysis
- January 1, 2021- June 30, 2023
- 9-1-1 system records for EMS responses; excluded fire incidents, standby and cancellations
- 2-1-1 system records for contacts with documented service needs
- Records from both systems compared by:
  - Age
  - Sex
  - Race/Ethnicity
  - Urbanicity
  - Behavioral/Substance Use
  - Unhoused Status

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Table 1. Demographics and Requests for Behavioral/Substance Use and Unhoused Status from California's 2-1-1 and 9-1-1 Systems between January 2021 and June 2023

	Total 911		Total 211		Delta %	p-value
	(N=6,511,733)		(N=2,152,834)			
Age Categories						
<18	382,137	5.90%	8,257	1.10%	4.80%	<0.001
18-29	673,633	10.40%	82,998	11.10%	-0.70%	<0.001
30-49	1,367,530	21.10%	273,401	36.60%	-15.50%	<0.001
50-64	1,329,373	20.50%	212,293	28.40%	-7.90%	<0.001
65+	2,728,517	42.10%	170,024	22.80%	19.30%	<0.001
Missing	30,543		1,405,861			
Race/Ethnicity						
American Indian or Alaskan Native	20,941	0.40%	6,071	0.90%	-0.50%	<0.001
Asian	223,328	4.00%	28,743	4.00%	0.00%	0.974
Black/African American	534,840	9.60%	132,659	18.60%	-9.00%	<0.001
Hispanic/Latino	815,430	14.70%	283,858	39.80%	-25.10%	<0.001
Multiple Races	33,186	0.60%	31,786	4.50%	-3.90%	<0.001
Native Hawaiian/Pacific Islander	24,505	0.40%	5,050	0.70%	-0.30%	<0.001
Other Race/Unknown	1,866,742	33.70%	36,923	5.20%	28.50%	<0.001
White	2,023,729	36.50%	188,116	26.40%	10.10%	<0.001
Missing	969,032		1,439,628			
Sex*						
Female	3,193,716	49.30%	708,894	69.90%	-20.60%	<0.001
Male	3,279,804	50.70%	303,130	29.90%	20.80%	<0.001
Other Non-Binary	0	0.00%	1,935	0.20%	-0.20%	<0.001
Missing	38,213		1,138,875			
Urbanicity						
Urban	6,348,601	98.10%	2,074,999	98.50%	-0.50%	<0.001
Suburban	109,536	1.70%	30,340	1.40%	0.30%	<0.001
Rural	15,997	0.20%	208	0.00%	0.20%	<0.001
Missing	37,599		47,287			
Unhoused						
No	825,556	86.60%	1,900,356	88.30%	-1.70%	<0.001
Yes	127,930	13.40%	252,478	11.70%	1.70%	<0.001
Missing	5,558,247		-		0.00%	
Behavioral/Substance Use	811,223	12.50%	125,027	5.80%	6.70%	<0.001

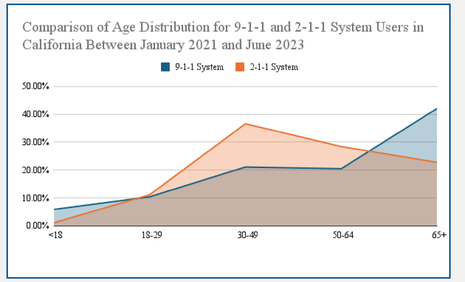
Table 2. Comparison of Data Collection Methods for Compared Variables from California 9-1-1 and 2-1-1 Systems

	9-1-1	2-1-1
Age	Patient age in years	Could be caller age or age of person receiving support [1]
Sex[2]	Patient sex	Could be caller sex or sex of person receiving support[1]
Race/Ethnicity	Patient race/ethnicity	Could be caller race/ethnicity or race/ethnicity of person needing/receiving support[1]
Urbanicity	Based on incident location	Based on caller or person receiving support zip code
Behavioral	Provider primary or secondary impression related to behavioral and/or substance use disorder	Caller requests support/resources related to behavioral and/or substance use[1]
Unhoused	Some agencies have option to select a box for a custom element that asks, "Is the patient homeless?"	Caller requests support related to homelessness[1]

[1]Caller may not be person needing/receiving support from 2-1-1. Caller can request resources on behalf of someone else.
[2]Unknown if gender or biological sex

RESULTS

- 9-1-1 incidents included: 6,511,733
- 2-1-1 incidents included: 2,152,834
- While 9-1-1 records were mostly from individuals aged 65+ (42.1%), 2-1-1 records were primarily from those aged 30-49 (36.6%).
- There were significant differences in race/ethnicity between the two systems, 2-1-1 records indicate a higher percentage of Hispanic/Latino (39.8%) and Black/African American (18.6%) individuals compared to 9-1-1 records (14.7%, 9.6% respectively).
- More females used 2-1-1 compared to males (69.9% vs 29.9%), while 9-1-1 had a more even distribution between the sexes (49.3% female, 50.7% male).
- Both systems had similar proportions of unhoused records (9-1-1: 13.4%; 2-1-1: 11.7%).
- Behavioral/substance use accounted for a higher percentage of 9-1-1 records compared to 2-1-1 (12.5% vs 5.8%).



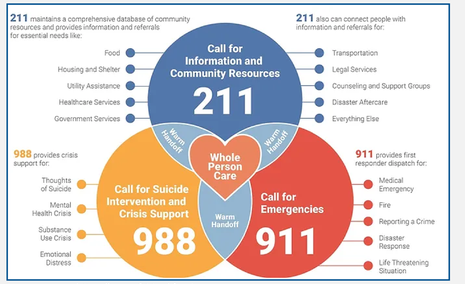


Image source: https://www.211california.org

LIMITATIONS

- Convenience sample
- Missingness in 2-1-1 data
- Data are collected differently in each system, so variables have similar but not identical definitions

CONCLUSION

While there are demographic differences between 9-1-1 and 2-1-1 utilizers, there is an overlap of service requests related to behavioral/substance use and unhoused status. By leveraging each system's strengths, policymakers and healthcare professionals can work together to develop effective systems that can direct utilizers to the most appropriate service for their needs. Future research should focus on the most appropriate use of each system to reduce redundancies and optimize health outcomes to better serve California's diverse population.