



Discharge Delay Survey 2023 – Technical Appendix

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Between June 15 and July 31, 2023, the California Hospital Association (CHA) surveyed its membership on the issue of discharge delays, or patients who remain in hospital beds despite being medically cleared for discharge to a less acute-care setting. We distributed three surveys, one focused on General Acute Care Hospitals (GACH), another on Acute Psychiatric Hospitals and Units (APH/U), and another on Emergency Departments (ED). Survey responses were used to estimate the impact of discharge delays on all California hospitals, including on non-respondents. This technical appendix describes the survey sample and methodology, including the method for extrapolating statewide estimates.

Population and Sample

We distributed the three discharge delay surveys to each of CHA's member hospitals, 436 hospitals in all. Across the survey period, we provided members both mass e-mail reminders and personalized communications encouraging their participation. Some hospitals include units falling under GACH, APH/U, and ED care and were thus encouraged to complete all three surveys, whereas others provide only one or two of these services and were only encouraged to complete the surveys relevant to their services.

Figure 1 compares respondents to the GACH discharge delay survey to the population of GACH hospitals in California. (For the figures in this section, we counted only respondents who separately report financial and utilization data to California's Department of Health Care Access and Information, which means we excluded some hospitals whose data is aggregated with their parent health system.) Generally, respondents closely resemble the overall population in their geographic distribution (CHA is organized into three regional associations, with the Hospital Council representing Northern California and the Central Valley, the Hospital Association of Southern California representing Los Angeles to Santa Barbara, Orange County, and the Inland Empire, and the Hospital Association of San Diego and Imperial Counties representing the Southern border) and payer mix. They have similar average lengths of stay and are similarly sized. Respondents tended to be somewhat more likely to be organized as a non-profit and to be integrated into a larger health system.

Figure 1. General Acute Care Survey Respondents

	Population	Respondents	Respondents as Share of Total
Size			
Number of Hospitals	356	195	49%
GACH Beds	67,260	44,097	66%
GACH Inpatient Days	17,129,166	11,050,049	65%
GACH Inpatient Discharges	3,039,622	2,049,598	67%
Characteristics			
Member of Health Systems	71%	76%	
Organized as a Non-Profit	56%	72%	
Rural	17%	15%	
Hospital Council	48%	49%	
Hospital Association of South California	46%	44%	
Hospital Association of San Diego and Imperial Counties	6%	7%	
Averages			
Average GACH Beds	189	183	
Average GACH Inpatient Days	47,074	56,667	
Average GACH Inpatient Discharges	8,409	10,511	
Average GACH Length of Stay	5.6	5.4	
GACH Medicare Payer Mix	39%	39%	
GACH Medi-Cal Payer Mix	31%	29%	
GACH Commercial Payer Mix	27%	29%	

Figure 2 compares respondents to the APH/U discharge delay survey to the population of hospitals offering acute psychiatric inpatient services in California. As with the GACH survey, respondents closely resemble the overall population in their geographic distribution and payer mix. They are similarly likely to be organized as a non-profit and integrated into a larger health system.

An important note on this section: acute psychiatric inpatient services are offered primarily by two very different types of California hospitals. First, about 40 hospitals are specifically licensed as Acute Psychiatric Hospitals, and these average about 128 psychiatric beds each. An additional 68 GACHs contain psychiatric units, and these units average about 43 psychiatric beds each. Of the 37 respondents to our APH/U survey, 13 are licensed as Acute Psychiatric Hospitals and 24 are licensed as GACHs with psychiatric units.

Figure 2. Acute Psychiatric Care Survey Respondents

	Population	Respondents	Respondents as Share of Total
Size			
Number of Hospitals	105	37	35%
APH/U Beds	6,000	2,042	34%
APH/U Inpatient Days	1,650,190	575,080	35%
APH/U Inpatient Discharges	179,511	59,466	33%
Characteristics			
Member of Health Systems	71%	76%	
Organized as a Non-Profit	47%	46%	
Hospital Council	36%	38%	
Hospital Association of South California	54%	49%	
Hospital Association of San Diego and Imperial Counties	10%	14%	
Averages			
Average APH/U Beds	59	54	
Average APH/U Inpatient Days	15,716	15,134	
Average APH/U Inpatient Discharges	1,452	1,565	
Average APH/U Length of Stay	10.8	9.7	
APH/U Medicare Payer Mix	20%	19%	
APH/U Medi-Cal Payer Mix	39%	36%	
APH/U Commercial Payer Mix	32%	35%	

Figure 3 compares respondents to the ED discharge delay survey to the population of hospitals with EDs in California. Once again, respondents closely resemble the overall population in their geographic distribution and payer mix. They are similarly likely to be integrated into a larger health system and only somewhat more likely to be organized as a non-profit. However, respondents tended to have somewhat larger EDs than the average California hospital.

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Figure 3. Emergency Department Survey Respondents

	Population	Respondents	Respondents as Share of Total
Size			
Number of Hospitals	304	131	43%
Emergency Department Visits	14,016,248	7,242,228	52%
Characteristics			
Member of Health Systems	73%	73%	
Organized as a Non-Profit	63%	76%	
Hospital Council	50%	49%	
Hospital Association of South California	44%	44%	
Hospital Association of San Diego and Imperial Counties	6%	7%	
Averages			
Average Emergency Department Visits	46,106	54,865	
Emergency Department Medicare Payer Mix	17%	18%	
Emergency Department Medi-Cal Payer Mix	33%	29%	
Emergency Department Commercial Payer Mix	23%	27%	

In conclusion, respondents to all three surveys closely resemble the average hospital in California with one major exception: respondents tend to be notably larger. However, there is another perspective worth considering: the experience of the average patient in California. As Figure 4 shows, the average inpatient is served by a relatively large facility in all three care settings, with the survey respondents typically representing a middle ground between the experience of the average hospital and that of the average patient.

Figure 4. Comparison With Care Setting for Average California Patient

	Average Hospital	CHA Survey Respondent	Average Patient
GACH			
Average GACH Beds	168	183	316
Average GACH Inpatient Days	42,823	56,667	87,624
Average GACH Inpatient Discharges	7,599	10,511	16,446
Average GACH Length of Stay	5.6	5.4	5.64
APH/U			
Average Acute Psychiatric Beds	15	54	82
Average Acute Psychiatric Inpatient Days	4,125	15,134	26,315
Average Acute Psychiatric Inpatient Discharges	444	1,565	3,165
Average Acute Psychiatric Length of Stay	9.3	9.7	9.2
ED			
Average Emergency Department Visits	35,041	54,865	70,397

Responses

The tables that follow provide the frequency and percentage (or, in the case of unbounded and continuous responses, the averages) for each question in the three surveys.

Q1. As of today: How many patients are currently occupying an inpatient bed in your hospital who are medically stable and ready for discharge, but whose discharge is delayed for more than X (3 days for GACH, 1 day for APH/U, 4 hours ED)?

	Responses	Average	Standard Deviation
GACH	215	11.3	29.1
APH/U	46	11.2	13.6
ED	121	5.4	8.5

Q1a. For the patients noted above in the first question, please indicate the number of patients with each of the following primary payment sources. (Totals for all respondents)

	Medi-Cal Fee-for-Service	Medi-Cal Managed Care Plan	Medi-Cal County Mental Health Plan	Traditional Medicare	Medicare Advantage	Commercial	Uninsured	Other
GACH	307	769	24	472	515	291	37	90
APH/U	128	129	94	83	37	16	6	0
ED	72	159	12	117	117	126	31	25

Q2. For patients whose discharge is delayed for more than X, what is the average number of avoidable Y (days for GACH/APH/U, hours for ED) they stay in your hospital while awaiting discharge?

	Responses	Average	Standard Deviation
GACH	206	14.1	36.1
APH/U	50	16.4	32.8
ED	123	10.0	19.6

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Q3. What were your hospital's total avoidable inpatient Y (days for GACH/APH/U, hours for ED) during the prior month?

	Responses	Average	Standard Deviation
GACH	201	245	559
APH/U	54	157	346
ED	107	3,311	16,440

Q4 for GACH. Generally, what are the most frequent destinations resulting in discharge delays. (Rank the below from most common (1) to least common (6))

	Responses	Avg. Rank	Standard Deviation
Skilled Nursing Facility	208	1.4	0.8
Home Health	208	3.7	1.3
Inpatient Rehabilitation Facility (IRF)	208	3.6	1.4
Long Term Care Hospital (LTCH)	208	3.7	1.3
Assisted Living Recuperative Care	208	4.1	1.5
Other	208	4.6	1.8

Q4 for APH/U. Generally, what are the most frequent destinations resulting in discharge delays. (Rank the below from most common (1) to least common (7))

	Responses	Avg. Rank	Standard Deviation
Mental health residential treatment facility	39	2.1	1.4
Substance use disorder residential treatment facility	39	4.3	1.5
Skilled nursing facility	39	3.5	1.7
Board and care home	39	3.5	1.2
Basic housing/shelter, due to homelessness	39	4.0	1.5
Foster care placement for children/youth	39	5.6	1.9
Other	39	5.1	1.9

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Q5 for GACH. Generally, which of the following health insurance plans' policies and practices negatively affect timely discharge? (Rank the below from most common (1) to least common (6))

	Responses	Avg. Rank	Standard Deviation
Delay or denial of authorization	196	2.2	1.2
No covered benefit for requested service	196	2.8	1.3
Inadequate provider network	196	3.0	1.2
Inadequate reimbursement available for receiving facility/service	196	3.5	1.4
Inadequate transportation services	196	4.4	1.3
Other	196	5.1	1.8

Q5 for APH/U. Generally, which of the following health insurance plans' policies and practices negatively affect timely discharge? (Rank the below from most common (1) to least common (7))

	Responses	Avg. Rank	Standard Deviation
Delay or denial of authorization	57	3.3	1.2
No covered benefit for requested service	57	2.3	1.1
Inadequate provider network	57	2.8	1.2
Inadequate reimbursement available for receiving facility/service	57	4.1	1.3
Inadequate transportation services	57	5.4	1.3
Dispute over county of responsibility	57	5.2	1.9
Other	57	4.9	2.9

Q5 for ED. Generally, which of the following health insurance plans' policies and practices negatively affect timely discharge? (Rank the below from most common (1) to least common (6))

	Responses	Avg. Rank	Standard Deviation
Delay or denial of authorization	129	2.7	1.3
No covered benefit for requested service	129	2.8	1.2
Inadequate provider network	129	3.0	1.2
Inadequate reimbursement available for receiving facility/service	129	4.1	1.3
Inadequate transportation services	129	4.1	1.3
Other	129	3.8	1.9

Q6 for GACH. Which post-acute care setting policies and practices affect patients' timely discharge? (Rank the below from most common (1) to least common (4))

	Responses	Avg. Rank	Standard Deviation
Residential care setting declines admission	201	2.1	1.0
Inadequate reimbursement	201	2.3	1.2
Inadequate staffing	201	3.2	1.0
Patients' needs exceed provider capabilities	201	2.4	1.0

Q6 for APH/U. Which post-acute care setting policies and practices affect patients' timely discharge? (Rank the below from most common (1) to least common (4))

	Responses	Avg. Rank	Standard Deviation
Residential care setting declines admission	39	1.4	0.7
Inadequate reimbursement	39	3.2	0.7
Inadequate staffing	39	3.4	0.8
Patients' needs exceed provider capabilities	39	2.1	0.9

Q6 for ED. Which post-acute care setting policies and practices affect patients' timely discharge? (Rank the below from most common (1) to least common (4))

	Responses	Avg. Rank	Standard Deviation
Residential care setting declines admission	129	1.8	0.8
Inadequate reimbursement	129	2.7	1.2
Inadequate staffing	129	3.0	1.0
Patients' needs exceed provider capabilities	129	2.4	1.0

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Q7. Which of the following issues affect patients' timely discharge? (Check all that apply)

	GACH	APH/U	ED
Number of responses	215	40	153
Needs 1 to 1 supervision	66%	70%	52%
Access to dialysis	73%	3%	54%
Need for memory care	65%	50%	51%
Need for custodial care	93%	60%	71%
Substance use disorder	61%	43%	15%
Disruptive or aggressive behavior	79%	93%	7%
Post incarceration	29%	35%	63%
Bariatric needs	55%	10%	73%
Gender identity or sexual orientation	9%	10%	59%
Parents or family members are unwilling or unable to pick up patient	87%	80%	54%
Mental illness	67%	43%	49%

Q8. Which consent issues frequently affect timely discharge? (Check all that apply)

	GACH	APH/U	ED
Number of responses	216	41	153
Patient refusal	89%	83%	72%
Family refusal	94%	78%	78%
Lack of decision maker/conservator/guardian	86%	59%	69%
Not applicable	3%	5%	11%

Q9. What outcomes result from the hospital's inability to discharge patients timely? (Check all that apply)

	GACH	APH/U	ED
Number of responses	179	38	150
Higher Ambulance Patient Offload Times	50%	24%	55%
ED Overcrowding	78%	63%	97%
Delays in new patient admissions	85%	92%	85%
Increased frequency of ambulance diversion	39%	16%	41%
Need for space waivers	25%	11%	28%
Staffing shortfalls	71%	55%	61%

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Q10. Which of the following services does your hospital purchase or arrange in order to facilitate discharge? (Check all that apply)

	GACH	APH/U	ED
Number of responses	178	39	150
Hospital pays for or provides transportation	97%	95%	99%
Hospital leases beds in a lower level of care or shelter	51%	26%	32%
Hospital pays for hotel costs	43%	23%	36%
Hospital provides funding for (or provides) equipment or supplies	88%	62%	74%
Hospital pays for in-home care	56%	13%	36%
Hospital provides funding for 1:1 patient sitters	43%	23%	46%

Q10a. Approximately how much do you spend annually on the services listed in the question above?

	Responses	Average	Standard Deviation
GACH	130	\$907,590	\$3,188,309
APH/U	24	\$2,074,295	\$7,190,184
ED	61	\$446,660	\$1,041,549

Extrapolations

To estimate the statewide effects of discharge delays (including the effects on hospitals that did not respond to our survey), we relied on data pulled from the California Department of Health Care Access and Information’s Hospital Annual Disclosure Report for 2022. Specific methods for our estimates are recounted below.

For our estimates of the total number of inpatient days caused by discharge delays, we divided respondents’ answers to Question 3 (“What were your hospital’s total avoidable inpatient days during the prior month?”) by an estimate of their total inpatient days for that month. Estimated total inpatient days were equal to the total inpatient days for 2022 divided by 12, adjusted by the growth rate in the total inpatient days reported by that hospital between the 2022Q1 and 2023Q1 quarterly reports (which, unlike the annual data, are preliminary). We separated inpatient days between psychiatric care and general acute care. This gave us an estimate that, among our respondents, 5.1% of GACH inpatient days and 20.4% of APH/U are due solely to discharge days. We then multiplied these percentages by the statewide total for inpatient days, and rounded down to the nearest hundred thousand.

We used a similar process for estimating Emergency Department boarding hours caused by discharge delays. Specifically, we divided respondents’ answers to Question 3 (“What were your hospital’s total boarding hours for patients awaiting discharge during the prior month?”) to an estimate of their total ED visits for that month. Again, estimated total ED visits were equal to the

total ED visits for 2022 divided by 12, adjusted by the growth rate in total ED visits reported by that hospital between the 2022Q1 and 2023Q1 quarterly reports. This gave us an estimate of 0.78 avoidable boarding hours per ED visit. We multiplied this by total ED visits statewide and rounded down to the nearest half million.

For estimated costs, we calculated the average cost of serving patients in a rehabilitation hospital, which was about \$2,000 a day. This comparison was selected because patients experiencing a discharge delay, like those in a rehab facility, are not receiving operations or other acute interventions which would inflate these average costs. (Our calculated average cost per day is also similar to the average Medi-Cal administrative day rate adjusted for our estimate that Medi-Cal typically pays 74% of actual costs, and is equal to about half the average cost of an inpatient day in all hospital settings in California). We multiplied this estimated cost per day by our estimate of inpatient days caused by discharge delays and rounded down to the nearest hundred million.

For Emergency Department costs, we did an extensive literature review but found few studies which attempt to estimate the cost of boarding patients in EDs. One high quality paper, Schreyer and Martin (2017), generally estimated that ED boarding costs are about twice that of GACH boarding costs. This estimate resonated with our understanding of ED costs. We thus doubled our estimate of the per-day boarding costs in GACH (\$4,000), divided this by 24 (\$167/hour), multiplied this by our estimate of boarding hours caused by discharge delays, and rounded down to the nearest hundred million.

To estimate staffing needs, we assumed the statutory nursing ratios of 5:1 for inpatients and 4:1 for EDs and assumed three nursing shifts per day. We then took our estimate of inpatient days (and boarding hours divided by 24), and applied these ratios and shift assumptions, and then rounded down to the nearest 100.

To estimate the frequency of discharge delays by payer type, we compared each respondent's answer to Question 1a ("For the patients noted above in the first question, please indicate the number of patients with each of the following primary payment sources.") to their payer mix for all discharges from the Annual Financial Report. This approach implicitly assumes that the length of a discharge delay does not vary by payer source, thus all disproportionality in the share of patients who are delayed by payer types and the share of all patients who are discharged is attributed to the frequency of discharge delays.

References

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