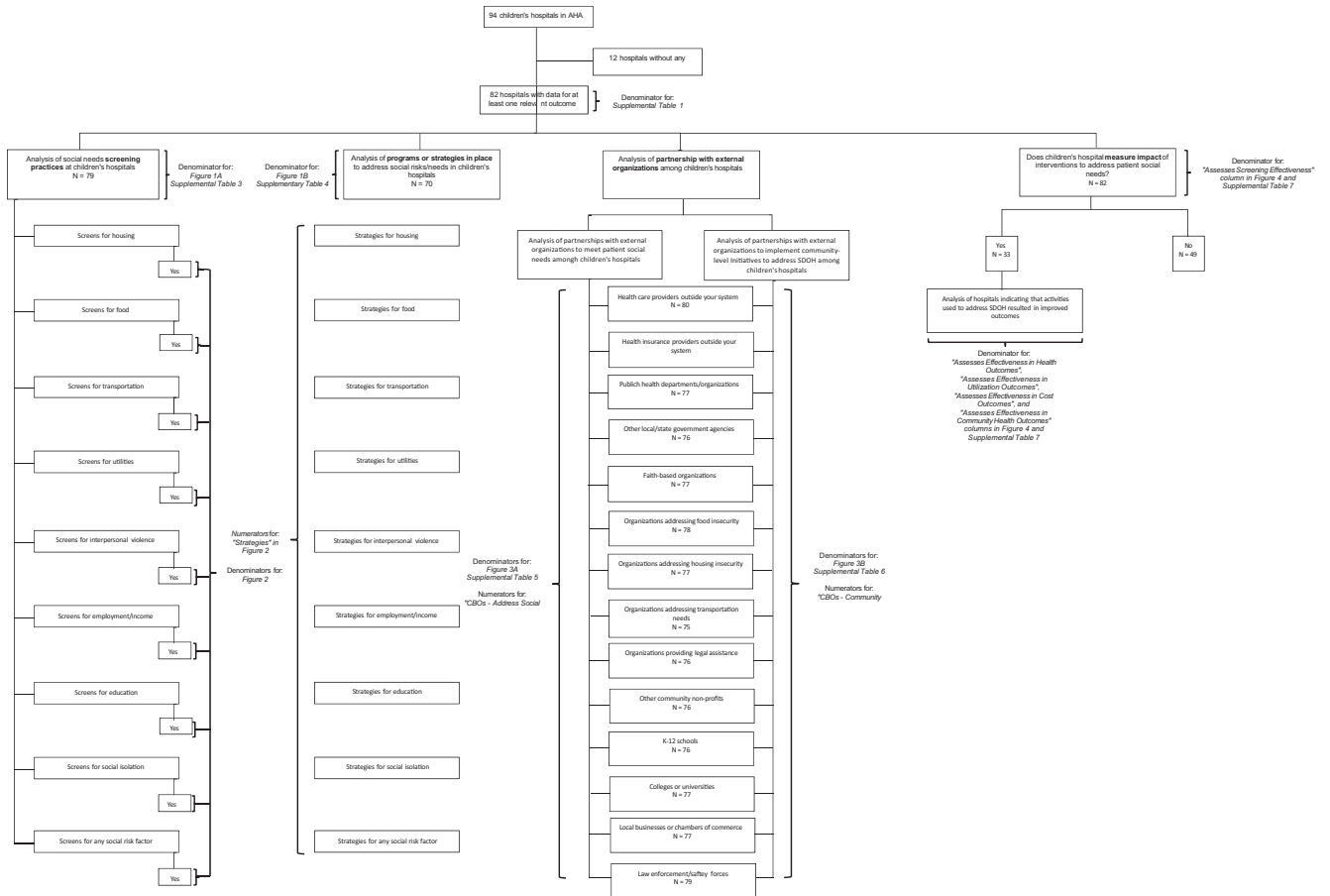


Supplemental Information



SUPPLEMENTAL FIGURE 5 Sample selection flowchart.

SUPPLEMENTAL TABLE 1 Characteristics of Children's Hospitals with at Least 1 Outcome Variable of Interest	
Characteristic	<i>N</i> = 82
Bed size, %	
<100	47.6
100–400	43.9
>400	8.5
Ownership, %	
Non-federal government	6.1
Nonprofit	82.9
For profit	11.0
Large Medicaid population, %	
No	18.3
Yes	81.7
Teaching status, %	
Major teaching	18.3
Minor teaching	61.0
Nonteaching	20.7
Region, %	
Northeast	11.0
Midwest	22.0
South	47.6
West	19.5

SUPPLEMENTAL TABLE 2 Missing Data by Type of Outcome Variable

Characteristic	Missing Screening Data (N = 15)	Not Missing Screening Data (N = 79)	P	Missing Strategies Data (N = 24)	Not Missing Strategies Data (N = 70)	P	Missing Partner Data (N = 25)	Not Missing Partner Data (N = 69)	P	Missing Impact Tracking Data (N = 12)	Not Missing Impact Tracking Data (N = 82)	P
Bed size, %												
<100	73.3	46.8	.161	70.8	44.3	.063	64.0	46.4	.282	57.7	47.6	.177
100-400	20.0	44.3		20.8	47.1		32.0	45.5		34.6	43.9	
>400	6.7	8.9		8.3	8.6		4.0	10.1		7.7	8.5	
Ownership, %												
Non-federal government	26.7	3.8	.008	20.8	2.9	.006	24.0	1.5	.001	11.5	6.1	.423
Nonprofit	66.7	84.8		62.5	88.6		68.0	87.0		80.8	82.9	
For profit	6.7	11.4		16.7	8.6		8.0	11.6		7.7	11.0	
Large Medicaid population, %												
No	46.7	17.7	.014	50.0	12.9	<.001	52.0	11.6	<.001	30.8	18.3	.014
Yes	53.3	82.3		50.0	87.1		48.0	88.4		69.2	81.7	
Teaching status, %												
Major teaching	13.3	17.7	.025	12.5	18.6	.030	16.0	17.4	.143	13.5	18.3	.020
Minor teaching	33.3	62.0		41.7	62.9		44.0	62.3		55.8	61.0	
Nonteaching	53.3	20.3		45.8	18.6		40.0	20.3		30.8	20.7	
Region, %												
Northeast	26.7	11.4	.422	25.0	10.0	.257	24.0	10.1	.142	19.2	11.0	.171
Midwest	20.0	22.8		25.0	21.4		28.0	20.3		26.9	22.0	
South	33.3	48.1		37.5	48.6		28.0	52.2		42.3	47.6	
West	20.0	17.7		12.5	20.0		20.0	17.4		11.5	19.5	

SUPPLEMENTAL TABLE 3 Social Needs Screening Practices Among Children's Hospitals by Hospital Characteristic (N = 79)

Characteristic	Any Social Need	P	5+Needs	P	All Needs	P	Housing	P	Food	P	Utilities	P	Violence	P	Transportation	P	Employment/Income	P	Education	P	Social Isolation	P
Bed size, %																						
<100	71.9	.250	46.8	.092	26.5	.070	57.6	.157	49.3	.008	36.7	.487	55.7	.006	51.7	.036	40.6	.090	45.4	.019	67.1	.216
100-400	87.7		71.8		47.8		78.8		83.4		72.4		67.5		80.8		62.7		68.8		62.2	
>400	85.8		57.5		13.7		71.2		85.8		70.7		72.2		70.8		28.7		13.7		28.9	
Ownership, %																						
Non-federal government	34.0	.068	0.0	.007	0.0	.216	0.0	.002	0.0	.000	0.0	.020	0.0	.021	0.0	.001	0.0	.058	0.0	.172	34.0	.567
Nonprofit	85.2		68.6		40.2		78.3		79.1		63.4		70.4		78.0		57.0		55.3		65.0	
For profit	67.7		29.3		21.0		40.0		29.3		29.3		41.9		29.3		29.3		59.4		59.4	
Large Medicaid population, %																						
No	54.0	.011	34.0	.042	19.5	.171	34.0	.003	39.1	.019	24.6	.011	45.3	.162	39.1	.023	19.5	.011	19.5	.004	49.0	.247
Yes	85.6		64.0		38.4		75.5		72.7		61.2		65.7		71.7		56.3		61.3		65.7	
Teaching status, %																						
Major teaching	92.9	.421	70.7	.139	42.5	.717	70.5	.487	92.9	.007	77.9	.215	78.1	.522	92.9	.025	42.5	.378	49.6	.763	56.8	.514
Minor teaching	75.5		63.3		35.7		71.6		71.8		53.3		59.5		68.4		55.4		51.2		59.3	
Nonteaching	82.4		39.6		28.6		56.5		39.6		44.3		59.0		44.3		38.0		60.1		72.9	
Region, %																						
Northeast	76.1	.607	46.3	.156	22.2	.079	56.9	.263	76.1	.519	41.2	.086	65.6	.130	76.1	.650	22.2	.058	22.2	.125	57.1	.220
Midwest	87.1		74.4		42.3		78.8		78.8		73.5		61.7		73.9		65.3		53.0		55.9	
South	82.5		64.0		45.6		73.8		64.0		60.0		72.7		64.3		58.0		65.6		74.8	
West	68.6		37.7		12.1		49.9		54.5		31.5		37.7		54.5		30.5		44.4		45.8	

^a Denotes significance using Bonferroni correction.

SUPPLEMENTAL TABLE 4 Programs or Strategies in Place to Address Social Risks/Needs Among Children's Hospitals by Hospital Characteristic (N = 70)

Characteristic	Any Strategy	P	5+ Strategies	P	All Strategies	P	Housing	P	Food	P	Utilities	P	Violence	P	Transportation	P	Employment/Income	P	Education	P	Social Isolation	P
Bed size, %																						
<100	94.4	.722	39.6	.037	25.7	.653	50.8	.163	43.0	.020	34.8	.015	53.2	.639	63.8	.314	36.3	.281	55.6	.014	77.4	.420
100-400	97.4		58.9		35.1		54.3		72.7		58.6		63.3		74.6		51.4		84.8		67.0	
>400	100.0		100.0		34.9		100.0		100.0		100.0		68.2		100.0		66.5		100.0		52.4	
Ownership, %																						
Non-federal government	100.0	0.707	0.0	.001	0.0	.043	0.0	<.001 ^a	0.0	<.001 ^a	0.0	.007	0.0	.003	100.0	<.001 ^a	0.0	.003	100.0	.638	44.9	.692
Nonprofit	94.8		68.2		40.1		72.9		78.4		62.2		73.4		84.1		59.0		69.0		72.2	
For profit	100.0		0.0		0.0		0.0		0.0		10.4		15.0		10.4		0.0		72.2		74.6	
Large Medicaid population, %																						
No	100.0	0.478	25.5	.075	25.5	.713	45.6	.538	37.0	.145	25.5	.107	44.9	.382	79.1	.557	25.5	.186	59.1	.401	70.0	.933
Yes	95.3		56.3		31.3		57.0		63.4		53.3		60.9		69.3		48.1		73.3		71.5	
Teaching status, %																						
Major teaching	100.0	0.753	91.7	.016	46.2	.146	76.2	.129	100.0	.001	84.0	.042	69.1	.511	100.0	.001	68.7	.071	91.7	.256	69.5	.971
Minor teaching	96.0		52.3		34.0		59.1		65.7		49.7		61.3		79.7		48.4		71.9		70.9	
Nonteaching	94.2		31.6		14.8		36.8		26.4		31.6		47.5		36.8		25.2		59.8		73.1	
Region, %																						
Northeast	100.0	0.772	34.8	.017	22.4	.009	52.1	.023	47.9	.363	34.8	.004	62.8	.027	100.0	.033	34.8	.008	57.1	.545	100.0	.281
Midwest	100		88.4		58.3		88.4		81.6		93.2		76.5		100.0		75.6		88.4		71.1	
South	94.8		55.8		36.2		59.7		60.5		48.5		69.0		61.3		52.2		70.4		72.8	
West	94.0		27.0		5.1		27.0		47.6		27.0		27.0		57.0		15.4		66.5		58.0	

^a Denotes significance using Bonferroni correction.

SUPPLEMENTAL TABLE 5 Partnerships with External Organizations to Meet Patient Social Needs Among Children's Hospitals

Characteristic	Clinicians (N = 80)	Insurance Providers (N = 77)	Health Departments (N = 77)	Other Government Agencies (N = 76)	Faith-Based Organizations (N = 77)	Local Food Organizations (N = 76)	Local Housing Organizations (N = 77)	Local Transportation Organizations (N = 76)	Local Legal Organizations (N = 76)	Other Nonprofits (N = 76)	K-12 Schools (N = 76)	Colleges/ Universities (N = 77)	Local Businesses (N = 77)	Law Enforcement (N = 79)	P																				
Bed Size																																			
<100	56.0	77.1	45.1	2.00	47.9	50.7	15.8	3.98	34.6	59.5	40.8	17.5	41.5	3.39	39.8	.122	38.0	3.61	51.4	11.9	53.3	66.0	25.4	21.4	31.3	6.23	32.7	.445							
100-400	53.5	63.8	61.2	7.3	41.0	59.6	53.2	61.6	41.7	74.2	63.1	44.6	25.7																						
>400	40.1	70.3	55.5	0.0	56.5	70.3	70.3	70.3	70.3	70.3	55.5	28.2	13.3	40.1																					
Ownership																																			
Non-federal government	0.0	0.75	0.0	0.73	30.2	29.7	0.0	0.24	0.0	0.24	0.0	0.058	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Nonprofit	59.5	57.0	59.7	7.8	44.1	61.4	58.0	58.1	48.6	65.2	55.5	35.5	27.1	37.2																					
For-profit	51.6	61.8	51.6	19.3	27.2	27.2	27.2	37.4	27.2	57.3	72.0	37.4	37.4	61.8																					
Large Medicaid population																																			
No	36.1	142	139	0.01	19.1	0.11	15.8	58.2	8.1	0.16	15.0	0.006	18.7	0.13	5.4	<.001 ^a	14.7	0.35	36.9	0.64	32.7	0.62	22.6	37.3	28.9	92.9	0.0	0.0	0.0	0.0	0.0	0.0			
Yes	58.2	62.3	61.3	10.3	44.9	58.1	54.8	60.5	46.9	66.9	62.2	35.8	27.5	48.0																					
Teaching Status																																			
Major teaching	69.9	460	70.3	4.31	64.1	7.77	8.4	63.1	62.9	26.3	77.4	18.4	88.0	2.00	91.7	.030	63.2	3.35	78.7	4.66	71.2	1.91	42.6	41.5	28.0	87.1	57.0	23.1							
Minor teaching	49.2	49.5	52.0	9.2	36.0	49.0	50.9	41.9	40.3	58.1	49.0	27.6	25.8	31.8																					
Nonteaching	57.5	59.6	53.2	16.7	33.2	41.7	33.2	53.1	34.6	63.5	69.1	42.0	31.7	47.5																					
Region																																			
Northeast	34.6	562	33.9	5.54	24.3	0.42	0.0	23.4	22.6	7.64	33.8	4.30	59.7	2.66	33.8	.504	72.4	0.78	58.7	4.32	24.3	1.41	35.3	87.6	39.5	4.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Midwest	54.0	64.5	62.7	6.2	44.7	68.8	68.9	67.2	62.7	72.0	64.9	43.0	16.2	32.4																					
South	52.9	52.6	44.3	18.3	39.0	46.1	37.1	46.7	28.9	53.0	54.6	30.6	23.5	39.0																					
West	64.3	60.8	78.3	4.8	41.4	53.1	49.4	53.7	41.0	74.0	73.3	31.6	39.8	61.1																					

^a Denotes significance using Bonferroni correction.

SUPPLEMENTAL TABLE 6 Partnerships with External Organizations to Implement Community-Level Initiatives to Address Social Risks by Hospital Characteristic

Characteristic	Clinicians (N = 80)	Insurance Providers (N = 77)	Health Departments (N = 77)	Other Government Agencies (N = 76)	Faith-Based Organizations (N = 77)	Local Food Organizations (N = 78)	Local Housing Organizations (N = 77)	Local Transportation Organizations (N = 75)	Local Legal Organizations (N = 78)	Other Nonprofits (N = 78)	K-12 Schools (N = 78)	Colleges/ Universities (N = 77)	Local Businesses (N = 77)	Law Enforcement (N = 79)				
	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
Bed size, %																		
<100	18.0	.001	20.7	<.001*	34.6	.018	51.6	.159	9.4	.001	2.4	<.001*	19.9	<.001*	12.3	.002	16.0	.001
100-400	45.0		44.9		41.0		36.0		22.4		29.1		72.5		36.0		52.1	
>400	85.9		71.1		55.5		14.1		72.5		70.5		85.2		71.1		71.1	
Ownership, %																		
Non-federal government	23.0	.016	0.0	.031	0.0	.096	0.0	.054	0.0	.034	0.0	.0265	0.0	.265	0.0	.040	100.0	.004
Nonprofit	43.0		34.5		46.5		46.5		44.1		40.1		25.6		24.8		25.6	
For profit	0.0		0.0		10.2		72.8		27.2		8.7		0.0		0.0		0.0	
Large Medicaid population, %																		
No	19.7	.210	0.0	.028	0.0	<.001	74.0	.010	15.2	.556	6.1	0.162	17.0	.030	10.7	.016	5.4	.018
Yes	37.1		30.8		54.4		35.7		20.0		55.1		52.7		55.1		35.7	
Teaching status, %																		
Major teaching	78.7	.002	36.7	.089	64.1	.236	48.6	.497	62.9	.265	71.6	.002	16.7	.111	40.9	.150	35.1	.064
Minor teaching	31.1		31.0		46.4		38.7		36.0		31.3		17.5		17.5		21.4	
Nonteaching	18.8		9.1		32.8		28.4		35.2		12.9		12.9		12.9		4.5	
Region, %																		
Northeast	20.3	.231	0.0	.189	12.1	.069	12.1	.077	22.6	.764	47.5	.027	26.6	.327	55.3	.035	26.3	.133
Midwest	50.6		42.1		72.1		65.7		44.7		60.3		24.6		41.7		39.1	
South	37.2		24.5		44.7		52.2		39.0		26.1		13.8		13.8		13.7	
West	20.9		28.3		39.0		44.7		41.4		15.3		5.9		5.9		11.2	

* No findings remained significant using Bonferroni correction.

SUPPLEMENTAL TABLE 7 Measurement of Impact of Interventions to Address Patient Social Risks/Needs Among Children's Hospitals										
Characteristic	Assesses Screening Effectiveness (N = 82)	P	Assesses Effectiveness in Health Outcomes (N = 33)	P	Assesses Effectiveness in Utilization Outcomes (N = 33)	P	Assesses Effectiveness in Cost Outcomes (N = 33)	P	Assesses Effectiveness in Community Health Outcomes (N = 33)	P
Bed size, %										
<100	32.9	.387	45.0	.200	63.5	.381	23.2	.184	32.1	.078
100–400	44.1		55.8		60.0		55.1		54.5	
>400	57.1		100.0		100.0		50.4		100.0	
Ownership, %										
Non-federal government	25.3	.821	0.0	.400	100.0	.538	0.0	.628	0.0	.528
Nonprofit	40.6		60.8		66.9		42.2		52.8	
For profit	39.9		47.5		47.5		47.5		47.5	
Large Medicaid population, %										
No	26.1	.256	39.4	.489	78.5	.536	0.0	.066	17.8	.135
Yes	42.5		57.8		63.2		47.2		54.0	
Teaching status, %										
Major teaching	46.7	.638	56.2	.709	84.5	.285	42.0	.563	56.2	.867
Minor teaching	40.9		59.7		68.0		46.6		49.8	
Nonteaching	31.2		41.2		41.2		22.5		41.2	
Region, %										
Northeast	8.5	.103	100.0	.531	100.0	.727	0.0	.627	100.0	.339
Midwest	27.2		80.3		80.3		63.6		80.3	
South	48.4		50.6		58.9		40.1		45.4	
West	45.5		48.9		67.6		35.1		37.2	

SUPPLEMENTAL DOCUMENT 1. AMERICAN HOSPITAL ASSOCIATION 2020 ANNUAL SURVEY SOCIAL RISK FACTOR QUESTIONS

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1. Which social needs of patients/social determinants of health in communities does your hospital or health system have programs or strategies to address? (Check all that apply)
 - a. Housing (instability, quality, financing)
 - b. Food insecurity or hunger
 - c. Utility needs
 - d. Interpersonal violence
 - e. Transportation
 - f. Employment and income
 - g. Education
 - h. Social isolation (lack of family and social support)
 - i. Health behaviors
 - j. Other, please describe: _____
2. Does your hospital or health system screen patients for social needs?

Yes, for all patients Yes, for some patients No (skip to question 3)
- 2a. If yes, please indicate which social needs are assessed. (Check all that apply)
 1. Housing (instability, quality, financing)
 2. Food insecurity or hunger
 3. Utility needs
 4. Interpersonal violence
 5. Transportation
 6. Employment and income
 7. Education
 8. Social isolation (lack of family and social support)
 9. Health behaviors
 10. Other, please describe: _____
- 2b. If yes, does your hospital or health system record the social needs screening results in your electronic health?

Yes No
3. Does your hospital or health system use outcome measures (for example, cost of care or readmission rates) to assess the effectiveness of the interventions to address patients' social needs?

Yes No
4. Has your hospital or health system been able to gather data indicating that activities used to address the social determinants of health and patient social needs have resulted in any of the following? (Check all that apply)
 11. Better health outcomes for patients
 12. Decreased utilization of hospital or health system services
 13. Decreased health care costs
 14. Improved community health status
5. Please indicate the extent of your hospital's current partnerships with external partners for population and/or community health initiatives. Which types of organizations do you currently partner with in each of the following activities? (Check all that apply)

		Work Together to Meet Patient Social Needs (eg, Referral Arrangement or Case Management)	Participates in our Community Health Needs Assessment Process	Work Together to Implement Community-Level Initiatives to Address Social Determinants of Health
a. Health care providers outside your system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Health insurance providers outside of your system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Local or state public health departments/ organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other local or state government agencies or social service organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Faith-based organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Local organizations addressing food insecurity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Local organizations addressing housing insecurity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Local organizations addressing transportation needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Local organizations providing legal assistance for individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Other community nonprofit organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. K-12 schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Colleges or universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Local businesses or chambers of commerce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Law enforcement/safety forces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>