

RESEARCH ARTICLE

Social and Medical Care Integration Practices Among Children's Hospitals

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ABSTRACT OBJECTIVES: In response to evidence linking social risk factors and adverse health outcomes, new incentives have emerged for hospitals to screen for adverse social determinants of health (SDOH). However, little information is available about the current state of social risk-related care practices among children's hospitals. To address outstanding knowledge gaps, we sought to describe social risk-related care practices among a national sample of children's hospitals.

METHODS: We analyzed responses to the 2020 American Hospital Association Annual Survey. Among children's hospitals, we calculated the prevalence of screening for social needs, strategies to address social risks/needs, partnerships with community-based organizations to address social risks/needs at the individual and community level, and rates of impact assessments of how social risk-related interventions affect outcomes. We also used χ^2 tests to compare results by hospital characteristics. We weighted results to adjust for nonresponse.

RESULTS: The sample included 82 children's hospitals. A total of 79.6% screened for and 96.0% had strategies to address at least 1 social risk factor, although rates varied by SDOH domain. Children's hospitals more commonly partnered with community-based organizations to address patient-level social risks than to participate in community-level initiatives. A total of 39.2% of hospitals assessed SDOH intervention effectiveness. Differences in social risk-related care practices commonly varied by hospital ownership and Medicaid population but not by region.

CONCLUSIONS: We found wide variability in social risk-related care practices among children's hospitals based on the risk domain and hospital characteristics. Findings can be used to monitor whether social risk-related care practices change in the setting of new incentives.



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www.hospitalpediatrics.org

DOI:<https://doi.org/10.1542/hpeds.2023-007246>

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HOSPITAL PEDIATRICS (ISSN Numbers: Print, 2154-1663; Online, 2154-1671).

FUNDING: Dr Pantell was supported by a Society for Pediatric Research (SPR) Bridging to Success Award, the Agency for Healthcare Research and Quality (AHRQ; 1K08HS028473-01A1), and a National Institutes of Health (NIH) Loan Repayment Award (9L40HD106442-02A1).

CONFLICT OF INTEREST DISCLOSURES: The content is solely the responsibility of the authors and does not represent the views of SPR, AHRQ, or the NIH. The other authors have indicated they have no potential conflicts of interest to disclose.

COMPANION PAPER: A companion to this article can be found online at www.hospeds.org/cgi/doi/10.1542/hpeds.2023-007375.

Drs Holmgren, Leary, Iott, Adler-Milstein, and Gottlieb conceptualized and designed the study, drafted the initial manuscript, reviewed and revised the manuscript, and approved the final manuscript as submitted. Dr Neuhaus carried out the analyses, reviewed and revised the manuscript, and approved the final manuscript as submitted. Dr Pantell conceptualized and designed the study, drafted the initial manuscript, carried out the analyses, reviewed and revised the manuscript, and approved the final manuscript as submitted.

Social risk factors are adverse social determinants/drivers of health (SDOH), such as food insecurity and housing instability.¹ When a patient would like help addressing these social risks, they are referred to as “social needs.”¹ Social risks are associated with a wide range of negative pediatric health and health care utilization outcomes.^{2–7} Consequently, national professional organizations such as the American Academy of Pediatrics, Children’s Hospital Association, and National Academies of Sciences, Engineering, and Medicine have recommended screening for social risk factors in clinical settings.^{8–10} Other standards-setting organizations are following these leads. For example, in 2023, the National Commission for Quality Assurance added social risk screening to its Healthcare Effectiveness Data and Information Set measures for health plan accreditation.¹¹ In parallel, 2 Centers for Medicare and Medicaid Services value payment and quality reporting programs have launched quality measures related to social risk screening.^{12,13} The Joint Commission similarly has issued new standards related to social risk screening and follow-up care and the *US News and World Report* rankings are now also taking social risk screening rates into consideration when calculating children’s hospital rankings.^{14,15}

With measures of hospital quality increasingly tied to social care capacity, interest around screening and interventions related to adverse SDOH is likely to accelerate dramatically. However, little information is available about the current state of standardized social and medical care integration practices among hospitals, such as routine screening for SDOH. Of the few existing studies on these topics, none has specifically focused on children’s hospitals, which are likely to face unique barriers and facilitators to integrated health and social services delivery.^{16,17}

Looking forward, a baseline assessment of the current state of social care practices in children’s hospitals will be necessary to interpret whether and how different incentives designed to change practice have their intended effects. We sought to address outstanding knowledge gaps in this evolving area of practice by describing the present landscape of the following specifically among children’s hospitals: social needs screening practices; hospital strategies in place to address social risks/needs; hospital partnerships with community-based organizations (CBOs) to help address social risks and needs; and social intervention evaluation efforts.

METHODS

Study Sample

We analyzed responses to the American Hospital Association’s (AHA) 2020 Annual Survey, a voluntary national survey about hospital characteristics sent to every US hospital with a request for the chief executive officer (CEO) to respond or to delegate to a knowledgeable representative to respond. Data were collected from March through September 2021, and the response rate was 66.1%. To identify our sample of children’s hospitals, we included hospitals answering “yes” to the question, “Does the hospital restrict admissions primarily to children?” within the 50 states and District of Columbia. We excluded hospitals missing all outcome

variables of interest. Our analysis followed the American Association for Public Opinion Research Reporting Guidelines for surveys.¹⁸ Our institution’s institutional review board deemed our study exempt from the need for human subjects approval.

Outcome Variables

Social Needs Screening Practices

Supplemental Document 1 displays all relevant survey questions related to our outcomes.¹⁹ The survey asked, “Does your hospital or health system screen patients for social needs?” If respondents select “Yes, for all patients” or “Yes, for some patients,” they then select the social needs for which they screen. We coded hospitals as conducting any social needs screening if they checked any of the following: housing, food insecurity or hunger, utility needs, interpersonal violence, transportation, employment and income, education, and social isolation. We also calculated rates of individual social need domain screening. Hospitals were coded as screening for an individual social need if they checked the corresponding domain category in question 2a. We also calculated rates of screening for between 0 and 5 domains and for all domains.

Existing Strategies to Address Social Risks/Needs

To determine how commonly children’s hospitals have strategies in place to address social risks, we analyzed the survey question, “Which social needs of patients/social determinants of health in communities does your hospital or health system have programs or strategies to address?” We calculated the percentage of hospitals that checked any of the same answer boxes as provided for the screening measures (eg, housing) after this prompt. As with our analysis of screening practices, we also calculated rates of existing strategies for each domain, rates of having strategies between 0 and 5 domains, and rates of having strategies for all domains.

Of note, because hospitals could potentially have strategies in place to address social risks/needs but not screen for social needs, we initially analyzed strategies to address social risks/needs independently of whether hospitals endorsed screening for social needs. We then additionally calculated rates of any existing strategy among hospitals screening for the analogous domain. For example, we calculated the percentage of hospitals with an existing strategy to address food insecurity among hospitals screening for food insecurity. We also calculated the percentage of hospitals that had analogous strategies for every domain for which they screened. For example, if a hospital screened for food and housing and had strategies for addressing food insecurity and housing, they would be coded as having an existing strategy in place to address every domain for which they screened. If the same hospital only had a strategy for housing, and not for food insecurity, they would be coded as not having a strategy in place to address every domain for which they screened.

Partnerships to Address Patient-Level Social Needs

We calculated the percentage of hospitals working together with external partners to address patient-level social needs as measured by question 5 in Supplemental Document 1, which provided the following answer options: health care providers outside your system, health insurance providers outside of your system, local or state public health departments/organizations, other local or state government agencies or social service organizations, faith-based organizations, local organizations addressing food insecurity, local organizations addressing housing insecurity, local organizations addressing transportation needs, local organizations providing legal assistance for individuals, other community nonprofit organizations, K-12 schools, colleges or universities, local businesses or chambers of commerce, and law enforcement/safety forces.

Among hospitals screening for food insecurity, housing insecurity, or transportation needs, we calculated rates of partnerships with external organizations that specifically address food insecurity, housing insecurity, and transportation needs, respectively. These were the only 3 domains for which there were external organizations specifically addressing the analogous domain. Among hospitals screening for at least one of these 3 domains, we also calculated rates of partnering with every analogous external organization that addressed the domain(s) for which they screened.

Partnerships to Implement Community-Level Social Risk Initiatives

The partnership prompt further asks hospitals to indicate with which groups the hospital “Work[s] together to implement community-level initiatives to address social determinants of health.” We calculated rates of answering “yes” to the same category answers available as listed previously.

Again, among hospitals screening for food insecurity, housing insecurity, or transportation needs, we calculated rates of external partnerships complementing community initiatives to address the analogous domain(s) for which they screened. Among these hospitals, we also calculated rates of partnering with every analogous external organization that addressed the domains for which they screened.

Social Risks/Needs Intervention Impact Evaluations

To assess whether hospitals measure the impact of their social needs intervention programs, we calculated the percentage of hospitals answering “yes” to the question, “Does your hospital or health system utilize outcome measures (for example, cost of care or readmission rates) to assess the effectiveness of the interventions to address patient social needs?” Among hospitals indicating they assess effectiveness, we also calculated rates of hospitals selecting any of the following answer options to the question, “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?”: better health outcomes for patients, decreased

utilization of hospital or health system services, decreased health care costs, and improved community health status.

Hospital Characteristic Variables

We compared rates of outcome variables based on the following hospital characteristics included in the dataset: bed size, hospital ownership, teaching status, and region. We also compared outcomes based on whether hospitals served a large Medicaid population, which we defined as being in the highest quartile of percentage of Medicaid discharges among hospitals. This was calculated by dividing each hospital’s total number of Medicaid discharges by its total number of admissions. The cutoff for being categorized as serving a large Medicaid population was more than 22.9% of discharges being discharges of Medicaid patients.

Statistical Analysis

We tabulated hospital characteristics among children’s hospitals without missing relevant data. We compared characteristics of hospitals with and without missing data using χ^2 tests. We compared missing data based on answers to the following survey sections: social risk screening practices, strategies to address social risks, partnerships with external organizations, and impact evaluation data. These analyses were all unweighted.

In a method similar to Figueroa et al, to adjust for nonresponse rates, we constructed weights using a logistic regression to predict responding to the survey based on hospital bed size, ownership, urbanicity, teaching status, region, critical access status, and Medicaid status.¹⁷ Because different survey sections had different rates of nonresponse, we constructed 4 different weights, 1 for each different section of missing outcome variables of interest: screening, strategies, partnerships, and evaluations.

The remainder of our analyses were weighted applying 1 of the 4 calculated survey weights using the inverse of the estimated probability of response to extrapolate the sample to all children’s hospitals in the United States. We tabulated weighted hospital characteristics among hospitals included in the analysis. We also calculated weighted percentages of outcome variables in total and by hospital characteristics. We also performed weighted comparisons of each outcome by hospital characteristics using χ^2 tests. We used $P < .05$ as a measure of significance. To account for multiple bivariate comparisons, we also indicate which tests were significant using a Bonferroni correction of $P < .002$. However, unless otherwise noted, we reference results arrived at using the $P < .05$ value throughout the rest of this paper.

RESULTS

Supplemental Figure 5 displays a sample selection flowchart for each analysis. We identified 94 children’s hospitals in the AHA 2020 Annual Survey, 82 of which had at least 1 outcome variable

of interest. Supplemental Table 1 displays hospital characteristics of the sample. Rates of missing data varied by outcome variable and hospital characteristics (Supplemental Table 2).

Nearly 80% of children's hospitals endorsed screening for at least 1 of the 8 social needs, with 58.2% reported screening for 5 or more and 34.8% screening for all 8. Screening rates varied by domain, ranging from a low of 49.2% for employment/income

screening to 67.5% for housing screening (Fig 1A). Screening rates in total and by category varied by certain hospital characteristics. For example, hospitals serving a high percentage of Medicaid-insured patients were more likely to report screening in nearly all categories (Supplemental Table 3).

Whether they endorsed screening for social needs or not, nearly all (96.0%) hospitals had a strategy in place to address at

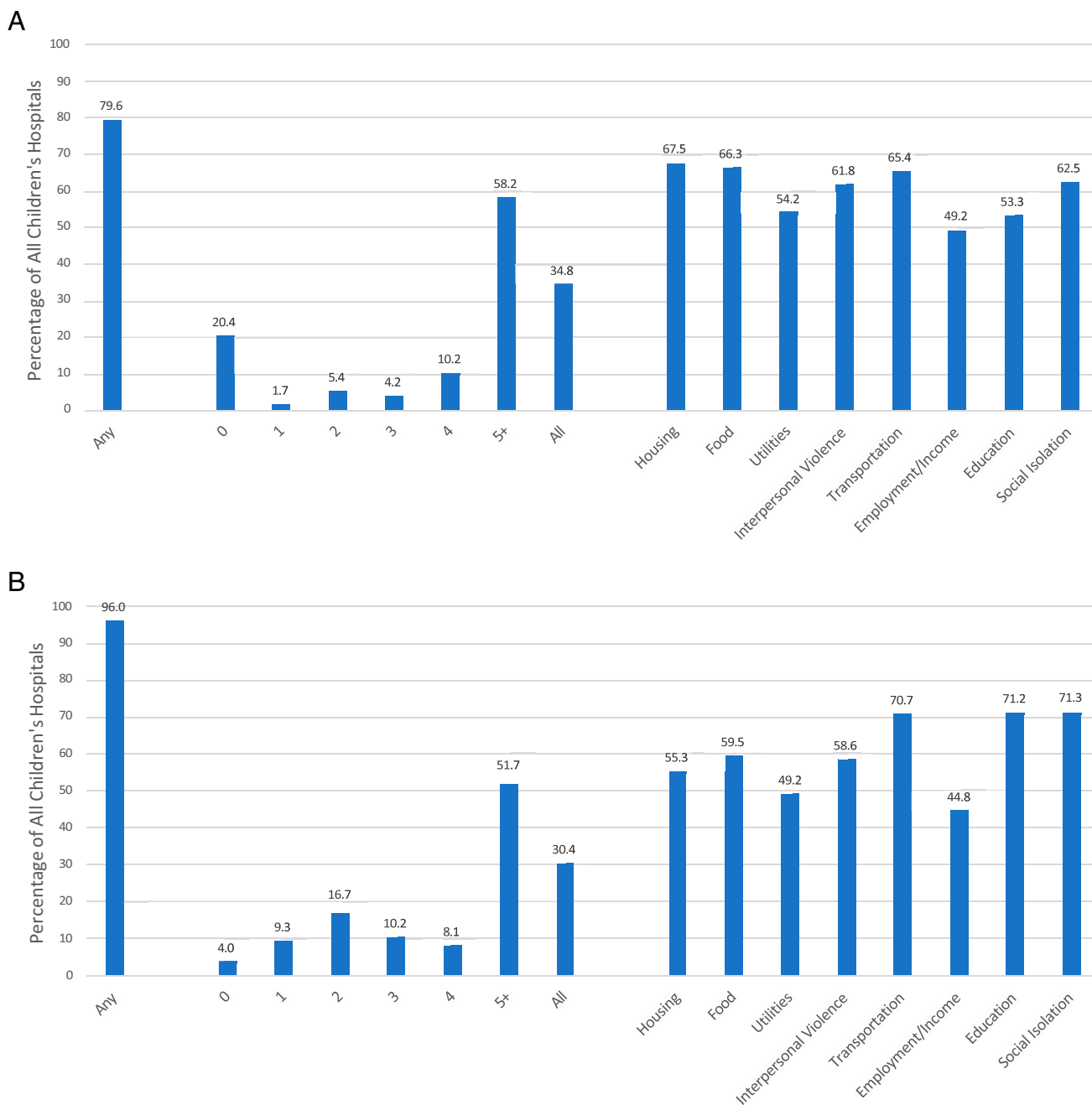


FIGURE 1 (A) Rates of social needs screening by risk factor ($N = 79$). (B) Rates of programs/strategies to address social risks/needs by risk factor (regardless of screening practices, $N = 70$).

least 1 social risk/need, a higher percentage than hospitals screening for at least 1 social need. A total of 51.7% reported strategies to address 5 or more risks/needs and 30.3% reported strategies to address all 8. Rates of strategies addressing domains by type ranged from 44.8% of hospitals having a strategy to address employment/income to 71.3% having 1 to address social isolation (Fig 1B). Most rates of strategies varied by at least 1 hospital characteristic. For example, nonprofit hospitals typically endorsed the highest rates of strategies (Supplementary Table 4). Having a strategy in place to address the analogous domain for which hospitals screened ranged from a low of 73.1% for employment/income to a high of 93.9% for education, with 66.8% of hospitals having a strategy in place to address every social risk/need for which they screened (Fig 2).

Partnering with CBOs and other external organizations to meet patient social needs varied by organization, with 11.2% of hospitals reporting partnering with other government agencies and 62.2% reporting partnering with other nonprofits (Fig 3A). The most consistent variation in partnerships was tied to percentage of Medicaid patients: hospitals serving a high percentage of Medicaid-insured patients were more likely to have higher rates of partnership with many organizations compared with hospitals not serving a high percentage of Medicaid patients (Supplemental Table 5). Among hospitals screening for food insecurity, housing, or transportation needs, rates of working with the analogous external partners that address the domains for which hospitals screened ranged from a low of 61.4% for housing to 69.5% for food insecurity, with 51.7% of hospitals working with relevant external organizations to address all analogous social needs for which they screened (Fig 2).

Rates of partnering with organizations to implement community-level initiatives to address social risks also varied both by the type of organization and hospital characteristics. Partnership rates ranged from a low of 18.6% of hospitals working with local legal organizations to a high of 47.1% working with other nonprofits (Fig 3B). Smaller hospitals and hospitals serving a lower percentage of Medicaid patients reported lower rates of partnership for several categories (Supplemental Table 6). Among hospitals screening for food insecurity, housing, or transportation needs, only 9.1% of hospitals reported working together with external organizations to implement community-level initiatives on all analogous social risk domains for which they screened (Fig 2).

A total of 39.2% of hospitals reported assessing the effectiveness of interventions to address patient social needs. Among these hospitals, more than half reported that activities used to address social risks/needs resulted in improved patient health and utilization. Nearly half (49.1%) of children's hospitals reported improved community health outcomes and 40.9% reported decreased health care costs (Fig 4). Results did not vary by hospital characteristics (Supplemental Table 7).

DISCUSSION

In a national sample of children's hospitals, we found that the majority reported screening for at least 1 social need and having at least 1 strategy in place to address identified social risks/needs; half of children's hospitals reported screening for and having existing strategies to address 5 or more social risks/needs. This is the first study of which we are aware to describe the prevalence of social needs screening, strategies to

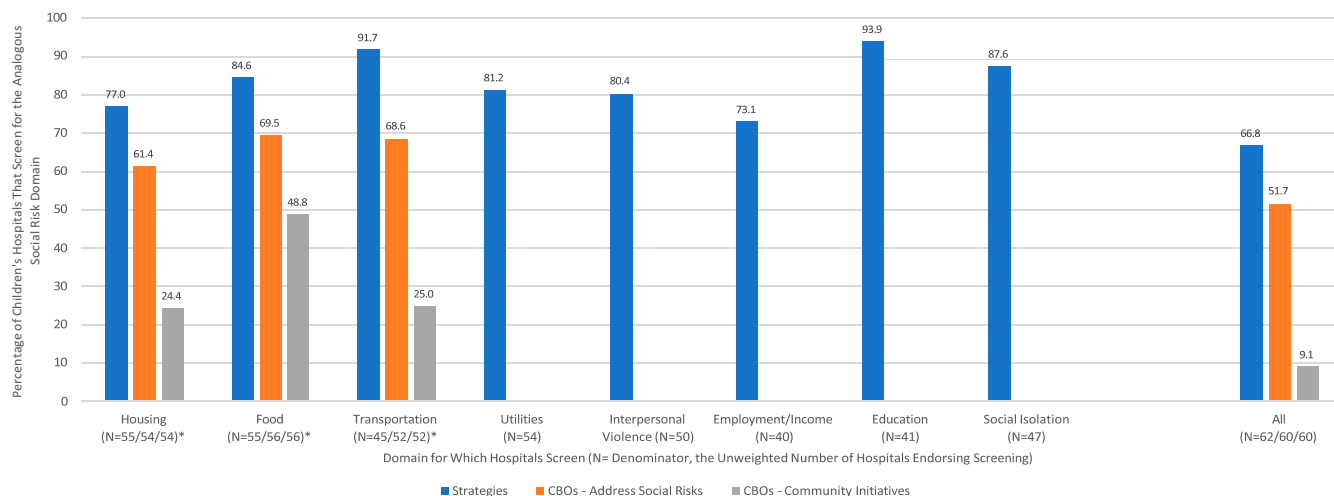


FIGURE 2 Rates of programs/strategies to address social risks/needs and partnerships with external organizations among children's hospitals screening for social needs by social domain. The American Hospital Association Survey did not ask about working with CBOs to address utilities, interpersonal violence, employment/income, education, or social isolation. CBO, community-based organization; SDOH, social determinants of health. *Denominators vary within screening domains because of differences in response rates in strategies to address social risks and partnering with external organizations.

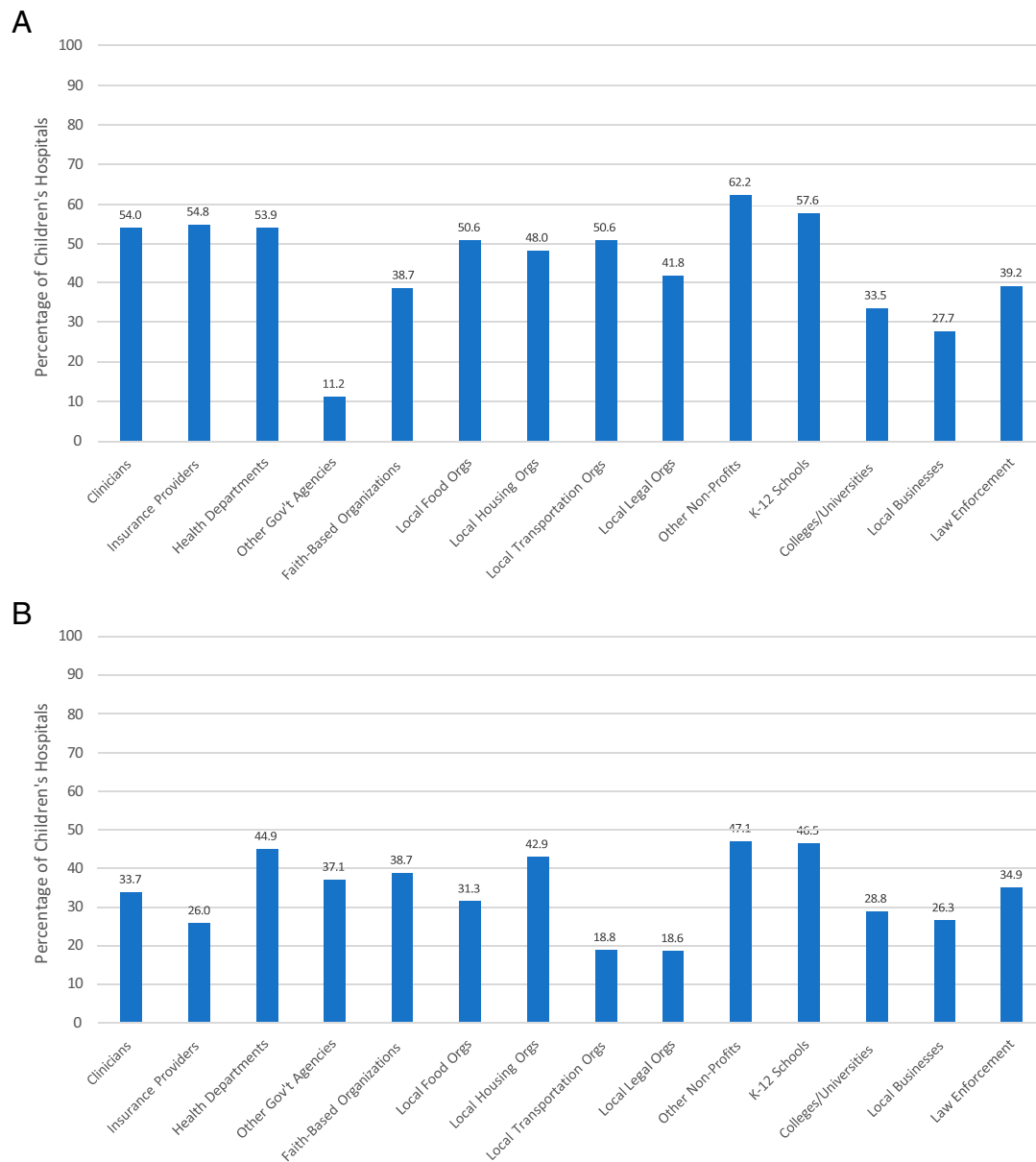


FIGURE 3 (A) Rates of partnership with external organizations to address patient social needs among children's hospitals. (B) Rates of partnership with external organizations to implement community initiatives to address social risks among children's hospitals.

address social risks/needs, and partnerships with CBOs to address social risks and needs in a national sample of children's hospitals.

Variation in social needs screening and intervention strategies may reflect differences in hospital resources and partnerships. For example, we found that among hospitals screening for housing, more than 60% partnered with local housing organizations to respond to identified housing needs. The presence of these partnerships might empower hospitals to screen for housing because hospitals then have organizations to which they can refer patients. Alternatively, screening for certain social needs

may lead hospitals to develop these external partnerships to facilitate referrals. It is also possible that priorities to screen for specific social risk domains is influenced by barriers to hospital discharge planning. For example, because transportation barriers can affect timely patient discharge and follow up, hospitals may prioritize identifying and addressing transportation. In future research, leaders of children's hospitals might be asked to discuss perceived and actual barriers to universal screening and intervention adoption.

Not surprisingly, screening practices varied by hospital characteristics. That hospitals with a high percentage of Medicaid

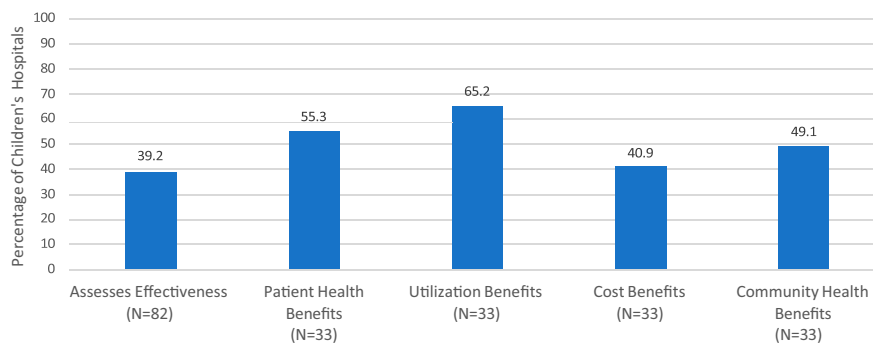


FIGURE 4 Rates of impact evaluation of interventions to address patient social risks/needs among children's hospitals.

patients screen for more social needs likely reflects the high burden of social risks among patients experiencing low income.²⁰ Previous work suggests that pay-for-performance penalties that do not account for population social risk factors can disproportionately penalize hospitals caring for vulnerable patients.²¹ Our finding that hospitals caring for a high percentage of Medicaid patients are currently more likely to screen for social needs suggests that emerging policy incentives are aligned to support these hospitals in caring for vulnerable patients. Notably, in a separate analysis of the AHA data, Figueroa et al did not find significant differences in the total number of social needs screened by safety net hospital status.¹⁷ However, they compared total needs for which hospitals screened and not individual screening domains.

Strategies to address patient risks/needs also varied by hospital characteristics. For example, for several domains, more teaching hospitals than nonteaching hospitals reported having social care intervention strategies in place, which paralleled Figueroa et al's findings and may reflect both that academic settings are more likely to be aware of the connection between social risk-related practices and health outcomes and/or more likely to have the resources to test novel care approaches, in this case social risk-related care intervention strategies.¹⁷ Teaching hospitals are often part of academic universities and may have researchers who can disseminate and socialize the evidence about addressing social needs in hospital settings more easily than nonteaching hospitals.

We also found that children's hospitals often reported partnering with community-based partners to address patient social needs rather than to implement community initiatives. This suggests that hospitals have not yet shifted organizational investments from their traditional focus on individual patients to focus on community-level conditions. Additionally, the rate of children's hospitals partnering with external organizations to implement community initiatives did not exceed 50% for any type of organization, highlighting that children's hospitals may need additional incentives to both partner with community-based organizations and to address community-level social conditions.

Most hospitals responding to questions about their own evaluations of social needs-related care practices reported finding that their initiatives contributed to improvements in patient health and utilization. This was a surprising finding because the existing academic literature on these outcomes remains relatively sparse. Professional organizations and policymakers should encourage children's hospitals to share and disseminate their findings on the impacts of social care.

Several new and anticipated social care endorsements from national standard-setting organizations aim to increase social care activities.¹³ The majority of these focus on social risk screening. Although some of these new screening standards specify social risk topics for screening (eg, food insecurity, housing, transportation) others do not specify domains.^{13,14} It is therefore difficult to assess at this point how many children's hospitals would currently benefit from the emerging screening incentives. The implicit assumption of many of these policies is that screening will also lead hospitals to establish social care intervention programs. It is therefore relevant that only 68% of children's hospitals reported strategies in place to address all the social risks for which they screened, and, among hospitals screening for food insecurity, housing, or transportation, only roughly half reported partnerships with CBOs that were designed to meet the specific needs for which they were screening. Policies are likely needed that incentivize acting on identified social needs to ensure that screening is the initial and not the final step in hospitals' efforts to provide integrated social care.

Limitations

Our study has several limitations. If delegated survey respondents were unfamiliar with hospital social care strategies, they may have underreported relevant activities. Alternatively, individual social needs domain screening practices may be overestimated because we cannot assess whether hospitals endorsing screening do so for 1 patient or every patient. Previous work has shown wide variability in how frequently families are screened for social risks within the same hospitals.^{22,23}

Therefore, social needs screening rates at the hospital level almost certainly overestimate screening at the individual patient level. Similarly, because the AHA Annual Survey does not verify the existence of social care integration practices nor their effect on relevant outcomes, the internal validity of the AHA SDOH questions is unclear. Additionally, although the survey was administered to hospital CEOs, the verbiage asking about social needs screening practices does not explicitly state to limit answers to the hospital setting (versus to include ambulatory sites in the health system). Therefore, CEO answers may overstate social needs screening practices if they included ambulatory sites within the scope of their answers. Finally, data for our analysis were collected before many national incentives for social risk screening were in place. Although the timing of our study is helpful in that it shows the state of practice before many incentives were in place, it will be crucial to reanalyze the AHA Annual Survey in future years to understand if and how social risk screening and intervention practices have changed in response to these incentives.

CONCLUSIONS

In a national sample of children's hospitals, many hospitals reported screening for multiple social needs, having existing social care intervention strategies, and evaluating the impacts of their social care programs. Many children's hospitals also reported partnering with CBOs to address patient-level social needs; fewer hospitals indicated that the goal of those partnerships was to improve community-level social conditions. We found differences in hospital social care practices based on hospital characteristics such as ownership and percentage of Medicaid patients and little variation related to hospital size and region. Although it is promising that nearly 80% of children's hospitals report screening for at least 1 social need and more than half screen for 5 or more, our findings suggest that there is likely room for improvement in children's hospitals' social care activities, particularly around multidomain screening and CBO partnerships. As screening for and addressing social risks in children's hospitals becomes more common, the dissemination of best practices can help ensure that hospitalized children and their families maximally benefit from social and medical care integration efforts.

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