

# Comparison of Resident and Faculty Screening for Social Determinants of Health in an Academic Pediatric Primary Care Practice

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## ABSTRACT

**BACKGROUND:** Social determinants of health (SDH) have an important role in children's health and development and should be investigated in pediatric well child care.

**METHODS:** A retrospective chart review of children aged 5-17 at well visits at an urban academic pediatric primary care practice was performed. Chi-square tests of independence and z-test for proportions were used to assess differences between residents and faculty SDH screening.

**RESULTS:** Faculty screened for SDH more frequently than residents ( $P < 0.05$ ). Residents screened less frequently for food insecurity ( $P < 0.05$ ) and financial insecurity ( $P < 0.05$ ). Financial insecurity was endorsed less frequently by resident families ( $P < 0.05$ ), while school absence was endorsed more frequently by resident families ( $P < 0.05$ ). Referrals to the clinic's community resource desk did not differ between residents and faculty.

**CONCLUSIONS:** Differences exist in screening and need between clinician groups. Despite these differences, there was no difference in community resource desk referrals.

**KEYWORDS:** social determinants of health, screening, graduate medical education, community resources

## INTRODUCTION

Graduate medical education is of paramount importance in teaching hospitals. Medical education includes training not only in the practice of medicine in inpatient hospital settings, but also in outpatient settings. Taking care of a patient in a primary care outpatient setting must include evaluation of socioeconomic factors that relate to the patients' health. There are few studies in the literature that investigate resident training in regard to screening for social determinants of health. This study is an important evaluation of social determinants of health screening rates amongst trainee physicians and can be useful in shaping future medical education.

Sociodemographic factors including income, food security, and zip code play a significant role in childhood development, childhood mental health, and the long-term

well-being of children.<sup>1</sup> These are commonly referred to as social determinants of health (SDH). According to the 2013 US Census Bureau, approximately 20% of all children in the United States live in poverty, which puts them at greater risk of developmental and behavioral problems.<sup>2</sup> This represents a large proportion of the pediatric population, making it important for clinicians who work with children to be familiar with the impact of poverty on health and be comfortable with addressing these issues. There are increased efforts by pediatricians to address SDH, as literature has shown that unmet social needs are associated with increased post-natal mortality, greater risk of injuries from accidents, higher percentages of asthma, and lower development scores.<sup>3</sup>

When SDH screening is performed in pediatric primary care settings, high percentages of social needs are found. One study found that 82% of families of 0-6 year olds presenting for a well visit reported at least 1 health-related social problem.<sup>4</sup> Despite research showing the high level of social needs in pediatric populations, relatively few pediatricians routinely screen for these issues. The American Academy of Pediatrics (AAP) recommends screening for SDH at routine visits as a new category of anticipatory guidance.<sup>5</sup> Data from a survey of 600 AAP members who are active general pediatricians showed that although 61.6% of pediatricians reported that screening for these needs is important, only about half (52.6%) of the surveyed pediatricians reported they routinely screened for at least one social need.<sup>6</sup> Most physicians realize the importance of screening; however, many reported that barriers such as lack of time during the visit, lack of standardization of screening methodologies, lack of screener training and orientation among staff, and lack of referral resources make the implementation of routine screening challenging in practice.<sup>7</sup> Differences have been noted in adult clinics between faculty clinicians and residents in terms of patient panels, patient outcomes, and practice styles, but there are mixed results as to how these differences affect patient care.<sup>8-11</sup>

There is a paucity of research on differences between faculty and resident patients with respect to SDH in pediatrics. The aim of this study was to determine if there are differences in SDH screening percentages and SDH needs between faculty and residents in an academic pediatric primary care practice.

## METHODS

### Setting

The study took place at Hasbro Children's Hospital Pediatric Primary Care in Providence, Rhode Island, which is an urban, academic pediatric primary care setting. It is the teaching site for the Alpert Medical School of Brown University pediatric residents. Clinicians that see patients in this setting include faculty, residents, and medical students. Residents and students are supervised by faculty physicians. Approximately 10,000 patients are attributed to the practice. Over 90 % of patients have Medicaid insurance and approximately 20 % of parents have not graduated from high school or high school equivalent. On average, over a three-year period (2011–2014), there were approximately 23,000 visits per year.

### Subjects

Subjects included 5–17 year old patients seen for a well visit during a three month time period, January 1, 2019 to March 30, 2019. Only school-aged children (aged 5 years and older) were included because one of the SDH questions focuses on missed school days.

### Data Extraction

A manual retrospective chart review was performed. There are four SDH screening questions for clinicians to ask built into the school-aged, well-child visit template in the electronic medical record (EPIC LifeChart). The questions were adapted from validated SDH screening tools that are recommended by the American Academy of Pediatrics (AAP).<sup>5</sup>

The first SDH question, "In the past year have you worried about running out of food before you have money to buy more?" is adapted from the 2-question Hunger Vital Sign.<sup>12</sup> The second SDH screening question "Do you worry about having enough money to pay your bills and rent?" is adapted from the housing and utility section of the IHELLP social history screening tool, which is recommended by the AAP.<sup>13</sup> The third SDH question "Has your child missed 2 or more days of school in the last month?" was created based on truancy literature that has shown that missed school is associated with poverty, homelessness, and adverse health outcomes.<sup>14,15</sup> The final question in our four question SDH screen was "Would you like to be referred to Connect for Health?" Connect for Health is the community resource desk at the clinic that connects low-income families to community resources vital to their health, such as utility assistance, public benefits, furniture, and food. The Connect for Health program screens each referred family for various SDH needs, in addition to the clinician screening questions. They assist families with applications for federal and state welfare benefits, provide lists of food banks, assist families with utility assistance programs, in addition to many other services. There is an additional question at the end of the

well visit template that asks the clinician to indicate if the patient was referred to Connect for Health.

The following data was extracted from the patient's chart: were the above SDH questions asked, the answers to these questions (if asked), age of patient, and level of primary clinician who saw patients (faculty, PGY1, PGY2, PGY3, PGY4).

### Data Analysis

Data was analyzed to determine overall percentages of screening, positive screens, clinician level, and referral to Connect for Health. Descriptive statistics performed included frequency (percentages) with 95% confidence intervals. Comparisons of screening percentages and patient populations were made between clinician groups using Chi-square tests of independence and a Z-test for proportions as appropriate. Statistical significance was accepted when  $P < 0.05$  (two-tailed). All statistical analyses were performed using the statistical programming software, R, Version 3.6.1. Research protocol was reviewed and approved by the Lifespan Institutional Review Board.

## RESULTS

890 charts were reviewed, 58.1% of patients were seen by residents and 41.9% by faculty (Table 1).

**Table 1.** Families seen by clinician level

Clinician Level	Total (n=890)
PGY 1	141 (15.8%)
PGY 2	190 (21.4%)
PGY 3	164 (18.4%)
PGY 4	22 (2.4%)
Faculty	373 (41.9%)

### Screening percentages

Overall screening percentage for at least one SDH need was 93% (829/890). When evaluating resident and faculty screening percentages, faculty screened for SDH more frequently than residents, defining screening as asking at least one SDH question. When analyzed using a chi-square test, an association was observed between clinician type and screening percentages ( $P < .05$ ). Specifically, 91% of families seen by residents were screened for one or more SDH need (95% CI: 88.4% to 93.4%) as compared to 96% of faculty patients (95% CI: 94.3% to 98.2%).

Residents as a whole screened families significantly less frequently than faculty for food insecurity (79.3% vs. 92.5%,  $P < 0.05$ ) and financial insecurity (79.9% vs. 93.6%,  $P < 0.05$ ) (Table 2). The percentage of residents and faculty that screened families for school absence were similar (83.9% and 86.1%,  $P = 0.78$ ) (Table 2).

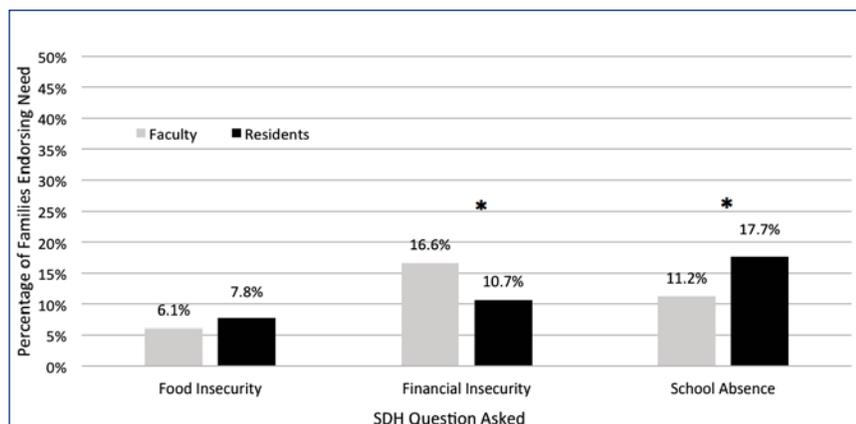
**Table 2.** SDH screening questions asked by clinician level

	Families seen by Residents (n=517)	Families seen by Faculty (n=373)
Families screened for food	79.3% (95% CI: 75.81% to 82.79%)	92.5% * (95% CI: 89.82% to 95.17%)
Families screened for finances	79.9% (95% CI: 76.43% to 83.34%)	93.6% * (95% CI: 91.07% to 96.05%)
Families screened for school	83.9% (95% CI: 80.78% to 87.11%)	86.0% (95% CI: 82.54% to 89.57%)

\* P-value &lt;0.05

### Positive screens

Food insecurity did not differ between resident and faculty families (7.8% and 6.1%, respectively,  $P=0.4$ ) (Figure 1). Financial insecurity was endorsed significantly less frequently by resident families than faculty families (10.7% vs. 16.6%,  $P<0.05$ ) (Figure 1). School absence was endorsed more frequently by resident families (17.7% vs 11.2%,  $P<0.05$ ) (Figure 1). Request for Connect for Health referral did not differ between residents and faculty (11.4% and 15.0%, respectively,  $P= 0.14$ ). Referrals to the clinic's community resource desk did not differ for residents and faculty (12.4% and 13.4%, respectively,  $P=0.7$ ).

**Figure 1.** Positive SDH needs (yes responses) by clinician level. \* P-value <0.05

### DISCUSSION

Overall, clinicians in an academic pediatric primary care practice screened for SDH at the majority of school aged well visits, screening for at least one SDH in 93% of visits. However, differences were found in percentages of SDH screening between faculty and residents. Both resident and faculty physicians in this study appeared to screen more frequently for SDH than screening percentages reported in the literature.

When analyzed by clinician level, residents screened less frequently than faculty, 91% of families were screened by residents as compared to 96% by faculty. We defined screening as asking about at least one SDH need. An AAP survey of outpatient pediatricians suggests SDH screening in pediatric practices to be as low as 52%.<sup>6</sup> Screening percentages may have been higher in this study due to perceived increased need, as there is a large underserved population of patients in the clinic. Additionally, the screening questions were built into the note templates, which prompts all clinicians to screen. It is unclear why the differences in screening of SDH between faculty and residents were found. Perhaps the relationships between faculty and their patients are longer and more trusting, leading to increased comfort of the physician with screening and increased likelihood of families to endorse insecurities. Adult medicine literature suggests that residents are more likely to have shorter relationships with their patients and patients are more likely to be less satisfied after their visits.<sup>9</sup> Faculty may be more efficient at well child visits, allowing them time to perform screenings more often than residents. Residents are often just learning how to prioritize tasks during a visit and become more efficient and comfortable with these screening questions over time.

Compared to the literature, clinicians in our study seem to be under-referring for community support. The survey data for 600 AAP member pediatricians showed that 85% of these pediatricians referred families for at least one resource over a 1 year period.<sup>6</sup> It is worth recognizing that in comparison to the AAP survey, our study looked at only one well visit per patient, and may not be as comparable to physician practices over a 1 year time period. In addition, the questions asked in this study were limited to only a few SDH categories. The percentage of referral to the community resource desk may increase if more questions regarding other SDH categories had been asked. Finally, this study only evaluated if referral to the community resource desk was made, rather than to what services the family received. Once referred to the community resource desk, the patient advocate screens for additional SDH needs and refers to appropriate services based on this second screen.

Resident patients endorsed less financial insecurity (10.7% vs. 16.6%) but no differences were found with food insecurity. However, resident patients endorsed more school absences (17.7% vs 11.2%). Despite differences in screening percentages and social needs between resident and faculty patients, there was no difference in the request for referral or the percentage of referrals to the community resource desk between clinician groups (12.4% vs. 13.4%). Perhaps

it is easier for a family to request a general referral without endorsing specific needs due to family concern for stigma or embarrassment. The academic clinic in this study cares for some of the most underserved families in the state of Rhode Island, but the percentage of food insecurity endorsed in our study (7.8% and 6.1%), is lower than state data (11% of all families) and national data (11.8% of all families).<sup>12,14,16</sup> Additionally, the percentage of families in our study that endorsed financial insecurity (10.7% and 16.6%) is less than state data (18%) and national data (20%) for financial insecurity.<sup>2,14</sup> The differences between national and regional food and financial insecurities and the food and financial insecurities noted in our study may be due to the shorter time period in our study, since only a single visit for each patient was evaluated. In addition, our method of screening could have contributed to the lower percentages of food and financial insecurities endorsed by families. Screening was performed verbally with yes-no questions, which could affect percentages of positive screens. Some studies suggest that yes-no screeners have lower sensitivity as compared to screeners that give “sometimes, never, always” as answer options.<sup>17</sup> Further, questions were asked by the clinician rather than having the family complete a form on their own. This may have led to falsely low percentages of needs. There is literature that has documented that parents are more likely to disclose unmet social needs when screened via tablet than verbal screening.<sup>18</sup> One study found a significant difference in food insecurity screening between written and verbal questionnaires.<sup>18</sup> Interestingly, resident families did have more school absences endorsed than faculty families (17.7% vs. 11.2%). This was similar to state data (14–33% depending on age) and national data (13%).<sup>14,15</sup> The resident patient percentages seem to be more similar to state and national data for students than faculty percentages. Research has shown that resident patients in academic clinics tend to be more complex, are more likely to be lower socioeconomic status with higher comorbidities, and may have a variety of other needs that should be addressed in a well visit.<sup>8–11</sup> Residents having more patients with school absences could be a marker of medical complexity, which could support this. At our setting, however, patients are randomly distributed between faculty and residents and there is no division based on insurance type or other factors. Our clinic also has multiple specialized programs that provide care to children in foster care, children with complex medical needs and children in newly arrived refugee families. Most of the patients in these programs are seen by faculty clinicians rather than residents. This distribution of patients may limit the generalizability of our findings to other hospital-based academic practices.

The main limitation to this study is that it was a retrospective chart review. We relied on clinician documentation to determine if SDH screening was performed and how questions were answered. There could be mistakes in

documentation as these are “fields” in the chart and are toggled through for selection. Another limitation, as mentioned above, is that our study only looked at one well-visit per child over a 3-month time frame in the school age period. There may be greater needs when children are younger, especially with costs of diapers and childcare. Overall further research is needed to determine differences amongst faculty and resident screening processes.

Further information about the characteristics of resident patient panels compared to faculty panels in this setting is needed. More research is also needed to determine the reason for referral to the community resource desk by each clinician. There are differences in screening percentages and endorsement in need between faculty and residents, which would be interesting to further investigate, perhaps with longitudinal studies.

## CONCLUSION

Encouragingly, this study did show robust screening amongst all clinicians in the academic primary care clinic; however, the percentages of positive screens were lower than expected, perhaps suggesting there may be room to improve upon how screening is performed.

Overall, the information produced in this study is a valuable tool for resident training and also for resource allocation in residency continuity clinics.

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### Prior Related Poster Publications

Abstract accepted at Pediatric Academic Societies 2020 meeting, published as virtual poster session.

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