

Barriers to Tobacco Cessation for Caregivers of Hospitalized Children: Perspectives of Pediatric Hospitalists

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ABSTRACT

OBJECTIVES: Secondhand smoke exposure is associated with adverse health outcomes in children, yet tobacco cessation efforts for caregivers of hospitalized children are lacking. We sought to explore pediatric hospitalists' attitudes and barriers to providing tobacco cessation for caregivers of hospitalized children.

METHODS: We conducted a cross-sectional survey of pediatric hospitalists and fellows at 7 hospitals from November 1, 2018, to November 30, 2019. A 70-question anonymous survey was used to assess participants' perceptions of current practices, attitudes, and barriers to providing tobacco cessation support for caregivers of hospitalized children. We used descriptive statistics to summarize the data.

RESULTS: Of 207 eligible participants, 100 responded (48%). A majority (79%) agreed that offering tobacco cessation counseling for caregivers is an important part of their role in caring for hospitalized children, but 79% never received tobacco cessation training. Only half of the participants were comfortable providing brief advice and few were comfortable prescribing nicotine replacement therapy. Identified barriers included lack of time (74%), perceived lack of interest from patients' caregivers (71%), and other medical conditions of the patient taking priority (70%). The majority of participants were interested in further training in tobacco cessation support.

CONCLUSIONS: In this survey of 100 pediatric hospitalists, we found overall agreement that tobacco cessation support for caregivers of hospitalized children is important. However, most participants did not feel comfortable with provision of evidence-based counseling or pharmacotherapy because of identified barriers. Future work should target actionable barriers to improve provision of tobacco cessation support in this clinical setting.

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Drs Masonbrink and Berg conceptualized and designed the study, critically reviewed the study data, conducted data analyses, and drafted the initial manuscript; Drs Harrison, Rossetti, Heller, Darby, Ngo, and Dean participated in participant recruitment and data collection and critically reviewed the study data; Dr Catley critically reviewed the study data; and all authors reviewed and revised the manuscript, approved the final manuscript as submitted, and agree to be accountable for all aspects of the work.

Secondhand smoke exposure (SSE) in children causes serious adverse health outcomes, including respiratory diseases, cancer, cardiovascular disease, and early mortality.^{1,2} There is no safe level of SSE in children,^{1,3} and caregiver tobacco dependence increases the risk for tobacco initiation and dependence among their children.^{1,4} The American Academy of Pediatrics and US Public Health Service recommend that pediatricians assess caregiver tobacco use and SSE at all clinical visits and offer tobacco prevention and treatment, including pharmacotherapy such as nicotine replacement therapy (NRT), when indicated.^{2,3}

SSE increases the risk for respiratory-related hospitalizations (eg, bronchiolitis, asthma); therefore, pediatric hospitalization is a prime opportunity to screen for and address SSE among children.⁵⁻⁷ Addressing tobacco use among caregivers during their child's hospitalization makes use of a teachable moment to facilitate behavior change by demonstrating how SSE negatively impacts the health of their child.⁶ Caregivers are generally receptive to tobacco cessation programs during their child's hospitalization.^{6,8} To our knowledge, authors of only one study have investigated the perspectives of pediatric inpatient staff (eg, physicians, physician trainees, nurses, respiratory therapists) on tobacco cessation programs for caregivers. Although preliminary support for such programs was indicated in the study,⁹ to date, the pediatric hospital remains underused for provision of this evidence-based care, and barriers remain poorly understood.^{8,9} Because tobacco cessation counseling is more effective if provided by a physician and health insurance coverage for NRT requires a physician prescription,¹⁰ understanding the barriers to care provision among pediatric inpatient physicians can inform efforts to improve tobacco cessation for caregivers in this setting. Our objective of this study was to describe pediatric hospital medicine physicians' (ie, hospitalists) and fellows' attitudes and barriers to addressing tobacco cessation for caregivers of hospitalized children.

METHODS

Study Design

We performed a cross-sectional survey of pediatric hospitalist medicine physicians at 7 university-affiliated hospitals across the United States, including freestanding children's hospitals as well as children's hospitals within larger systems also serving adults across multiple US Census regions (ie, West North Central, West South Central, East North Central, East South Central, and South Atlantic). Participants were eligible for participation if they were pediatric hospitalists, medicine-pediatric hospitalists, or pediatric hospital medicine fellows with >50% of clinical time dedicated to pediatric inpatient care. Because of variability in clinical setting practice (eg, outpatient, inpatient), resident physicians were excluded. The study was approved by the institutional review board at each participating institution.

Data Collection

A pediatric hospitalist site lead from each hospital identified eligible participants at his or her institution. Those eligible were recruited electronically via an e-mail containing study details including confidentiality, implied consent, and a link to the survey from November 2018 to November 2019. By responding to the survey, participants provided their informed consent to participate in the study. A reminder e-mail was distributed 2 weeks after the initial survey invitation. The survey contained no personal identifiers and responses were not linked to participants. Study data were collected and managed by using Research Electronic Data Capture.¹¹

Survey Instrument

Our multidisciplinary team of pediatric hospitalists, tobacco cessation psychologists, and a survey design research analyst modified an existing survey instrument on the basis of the social cognitive theory and the ask, advise, assess, assist, and arrange (5As) framework for tobacco cessation. The original survey, which was developed for use among adult ambulatory care providers, was adapted for pediatric hospitalists including modifications to fit the survey items in the

hospital-based context and targeting parents of hospitalized children rather than adult patients (eg, substituting "your patient" with "your patient's caregiver").^{12,13} The 70-question anonymous, Web-based survey was used to assess participants' attitudes and barriers to providing tobacco cessation support for caregivers of hospitalized children. We conducted limited cognitive pretesting of the survey instrument with 5 hospitalists, and revisions were made on the basis of feedback to ensure accuracy and readability. We also collected participant demographics including age, sex, years since completion of most advanced training, and US Census region of practice.

To identify potential barriers to provision of tobacco cessation support, we assessed participants' attitudes regarding provision of such support as well as specific barriers to practice. There were 11 questions used to assess attitudes (eg, "tobacco cessation counseling is an important part of my role," "clinicians should advise caregivers to quit smoking," "counseling by a clinician helps caregivers quit") and 16 questions used to assess participants' knowledge and comfort level with tobacco cessation methods (eg, "I am familiar with the 5As model for tobacco cessation," "I feel comfortable prescribing NRT," "I know where to refer caregivers for tobacco cessation support"). To assess specific barriers to providing tobacco cessation support in practice, participants were asked to rate the significance of 11 potential barriers (eg, lack of time, lack of training, lack of resources) on a 4-point Likert scale ("very significant," "somewhat significant," "slightly significant," "not at all significant"). There were four questions (yes or no) to assess participants interest in further training on provision of tobacco cessation services (eg, brief counseling, NRT prescribing) with an additional question to assess how likely they would be to increase service provision after receipt of further training answered on a 5-point Likert scale ("extremely likely," "likely," "neutral," "unlikely," "extremely unlikely"). Two questions were used to assess how additional training may impact participants' comfort with prescribing tobacco cessation medications. These questions were

answered on a 5-point Likert scale (“strongly agree,” “agree,” “neutral,” “disagree,” “strongly disagree”).

To assess perceptions of tobacco cessation practices, participants responded to 11 questions asking how often they provide tobacco cessation support to caregivers (eg, assessing tobacco use status, advising caregivers to quit, providing written cessation materials, discussing cessation medications, referring to cessation programs). These questions were answered on a 5-point Likert scale (“always,” “usually,” “about half the time,” “seldom,” “never”).

Statistical Analysis

We used descriptive statistics to report frequencies and percentages for demographics and other categorical variables. Likert responses were combined by using a top 2 (eg, strongly agree and agree) and bottom 2 (disagree and strongly disagree) box score and reported as frequencies and percentages. Because of a small sample size, data were grouped to evaluate survey question responses on the basis of participant demographics. Likert scale responses were collapsed to dichotomous (eg, agree versus disagree), and demographics were collapsed to dichotomous (ie, age categories: 20–39, 40+ years; years since completion of advanced training: 0–10, 11+ years) and compared by using χ^2 tests with a *P* value <.05 considered statistically significant. Missing data were included in frequency calculations. All statistical tests were conducted by using SPSS version 24.0 (IBM SPSS Statistics, IBM Corporation).

RESULTS

Of 207 eligible participants contacted via e-mail, 100 participants responded (48%). A majority of participants were female (72%), 30 to 39 years old (56%), and were within 10 years of training completion (64%) (Table 1). Most participants had never received tobacco cessation training (79%).

Attitudes

A great majority of participants agreed or strongly agreed that providing tobacco cessation counseling for their patients' caregivers is an important part of their role as a clinician (78%) and most (64%) agreed

that clinicians should advise their patients' caregivers to quit smoking (Fig 1). A minority of participants agreed or strongly agreed that caregivers who smoke want to quit (22%) and that caregivers are receptive to their advice about behavior change (19%). Just more than half of the participants (54%) disagreed or strongly disagreed that assisting caregivers to quit smoking is their usual practice.

A majority of participants disagreed or strongly disagreed that they are familiar with the 5As framework for tobacco cessation (68%) or feel comfortable using the 5As framework for tobacco cessation (77%). Approximately half (51%) agreed or strongly agreed that they feel comfortable providing brief advice to quit smoking to

caregivers and 79% agreed that NRT combined with brief counseling is more effective than counseling alone (Fig 2). A great majority (82%) disagreed or strongly disagreed that they are comfortable prescribing NRT for their patients' caregivers; however, nearly half agreed or strongly agreed that they would feel comfortable prescribing NRT if they received more training (42%).

Barriers to Practice

A majority of participants reported very or somewhat significant barriers to providing tobacco cessation counseling and/or support for patients' caregivers, including lack of clinician's time (74%), lack of interest from patients' caregivers (71%), and other health problems of the patient take priority

TABLE 1 Participant Characteristics

Characteristic	Total (N = 100), n (%)
Age category, y ^a	
20–29	4 (4)
30–39	56 (56)
40–49	25 (25)
50–59	5 (5)
≥60	2 (2)
Sex ^a	
Female	72 (72)
Male	20 (20)
Time since completion of most advanced training, y ^a	
<5	29 (29)
5–10	35 (35)
11–20	23 (23)
>20	5 (5)
Ever practiced in clinical setting other than hospital medicine ^a	
Yes	30 (30)
No	62 (62)
Previous completion of tobacco cessation training ^a	
Yes	13 (13)
No	79 (79)
US census region of practice	
West North Central	30 (30)
East North Central	3 (3)
West South Central	36 (36)
East South Central	23 (23)
South Atlantic	8 (8)

Missing data included in % calculations.

^a Missing n = 8.

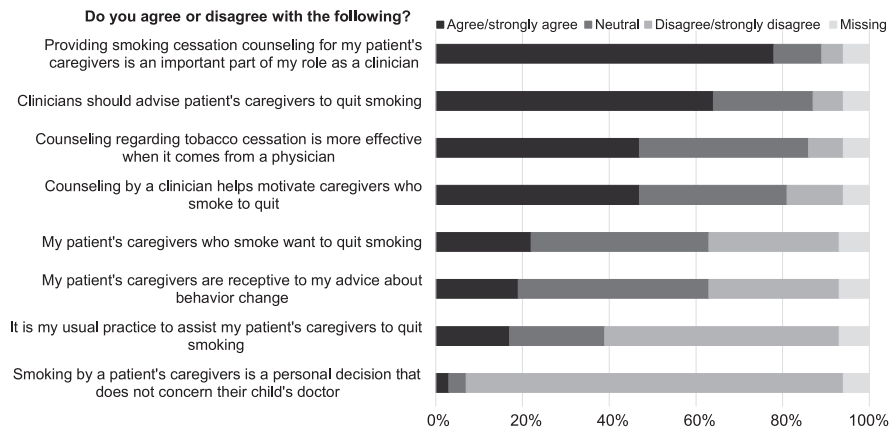


FIGURE 1 Attitudes.

(70%) (Fig 3). Additional barriers reported included lack of caregivers' compliance with tobacco cessation recommendations (68%), lack of tobacco cessation training (66%), and lack of impact on caregivers' behaviors (60%).

Perceived Practices

Nearly half of participants reported always or usually asking caregivers about tobacco use (44%), documenting tobacco exposure (45%), or advising caregivers with tobacco use to quit (43%). Two-thirds reported never or seldom providing brief counseling for caregivers with tobacco use. A majority reported never or seldom discussing (86%) or prescribing (91%) tobacco cessation medications.

Differences by Demographics

In comparison among demographics, there were differences in attitudes and barriers

by age, sex, and years since completion of advanced training. There were differences by age in those reporting familiarity with the 5 As framework (20–39 years, $n = 15$ [15%] vs ≥ 40 years, $n = 2$ [2%]; P value = .03) and feeling comfortable with giving brief advice to quit (20–39 years, $n = 39$ [39%] vs ≥ 40 years, $n = 12$ [12%]; P value = .01). There were differences by sex, including reporting that patients' caregivers are not receptive to tobacco cessation advice (female, $n = 61$ [61%] vs male, $n = 12$ [12%]; P value = .016), lack of interest from patients' caregivers (female, $n = 59$ [59%] vs male, $n = 11$ [11%]; P value = .012), and lack of tobacco cessation education materials for patients' caregivers (female, $n = 35$ [35%] vs male, $n = 15$ [15%]; P value = .036). There were differences by years since completion of

most advanced training, including reporting agreement that patients' caregivers want to quit smoking (0–10 years, $n = 19$ [19%] vs ≥ 11 years, $n = 3$ [3%]; P value = .049), feeling comfortable with providing brief advice to quit smoking (0–10 years, $n = 41$ [41%] vs ≥ 11 years, $n = 10$ [10%]; P value = .012), and familiarity with NRT (0–10 years, $n = 25$ [25%] vs ≥ 11 years, $n = 5$ [5%]; P value = .046).

Interest in Further Training

A majority of participants were interested in further training regarding referral options for tobacco cessation (83%), brief counseling for tobacco cessation (77%), and screening for SSE exposure (51%). A minority of participants were interested in further training regarding NRT prescribing (49%), other tobacco cessation medications (eg, varenicline, bupropion) (39%). Most participants (72%) reported they were extremely likely or likely to increase provision of these services if they received further training.

DISCUSSION

In this multisite study used to investigate pediatric hospitalists' attitudes and barriers to providing tobacco cessation support for caregivers of hospitalized children, we identified actionable barriers to improve care provision. Although pediatric hospitalists agreed that offering tobacco cessation counseling for caregivers is an important part of their role in caring for hospitalized children, most had never received tobacco cessation training and therefore were not comfortable with provision of many of the evidence-based elements of this care. Suggested in these findings are clear opportunities for improvement by addressing identified barriers to care including time constraints, misperceptions about caregivers' acceptance of support, and lack of provider comfort regarding the 5As framework and NRT prescription.

Past studies have revealed that educational interventions and even just 1-hour training can lead to increased knowledge, level of comfort with tobacco cessation support, and quit program referrals and NRT prescription care provision.^{8,14–16} In this

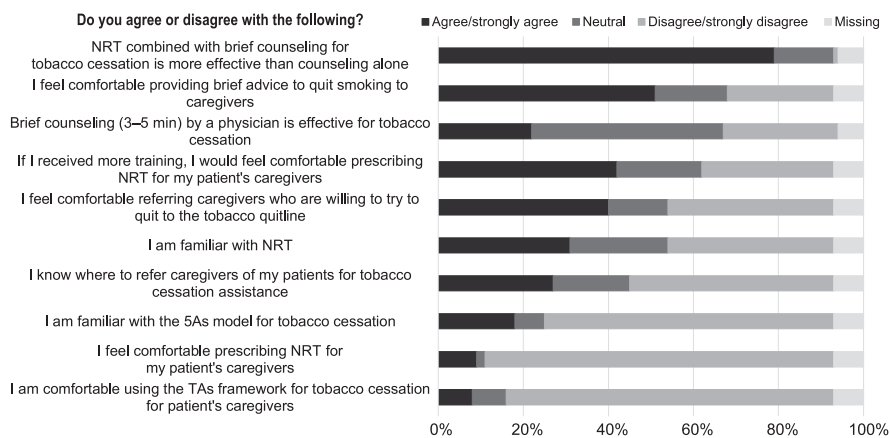


FIGURE 2 Attitudes.

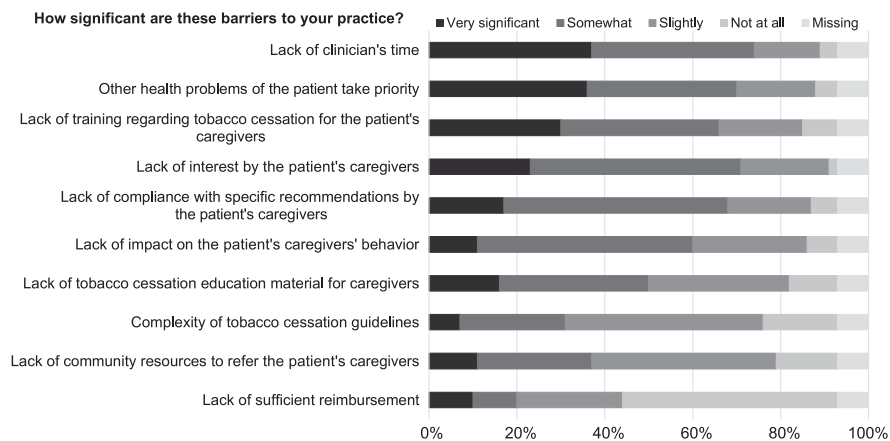


FIGURE 3 Barriers.

study, we identified opportunities to fill specific tobacco cessation knowledge gaps among pediatric hospitalists, including SSE screening, brief counseling by using the 5As framework, referral options, and NRT prescription. Nearly three-quarters of participants reported they would increase service provision with additional training. Future efforts should provide pediatric hospitalists with educational interventions that are focused on these elements of tobacco cessation to improve care provision for caregivers of hospitalized children.

A large majority of hospitalists identified time constraints as a barrier to provision of tobacco cessation support for caregivers. There are a number of proven methods to overcome this well-known barrier of time for provision of preventive services, including tobacco cessation, among busy clinicians.^{10,17} These include adopting an efficient model of care by incorporating changes to the electronic health record and task sharing with other members of the clinical team (eg, nurses, social workers). Use of a dedicated tobacco treatment specialist is recommended to address this barrier; however, this may not be feasible for some institutions to support depending on budget and resources available.^{17,18} In addition, time spent providing tobacco cessation support is billable in the inpatient as well as outpatient settings. Thus, modifications to the electronic health record (eg, note templates that include billing information) and training regarding

the specific billable elements and coding for hospitalists could help to overcome this barrier.¹⁹

Most hospitalists reported perceiving that caregivers are not interested in quitting or receptive to their advice regarding behavior change. Past studies indicate that not only are caregivers receptive to tobacco cessation discussion during their child's hospitalization but report increased rates of 6-month abstinence after receipt of such counseling.^{6,7,20} Thus, increasing pediatric hospitalists' knowledge of this evidence in support of tobacco cessation counseling could lead to increased provision during a pediatric hospitalization.

Evidence-based guidelines recommend use of the 5As framework for tobacco cessation support based in motivational interviewing.¹⁰ Although half of hospitalists reported they are comfortable offering brief advice to caregivers to quit tobacco use, most are not familiar with or do not feel comfortable using this evidence-based approach. In addition, we identified differences in knowledge, attitudes, and barriers by demographics including age, sex, and years since completion of most advanced training. Younger (20–39 years old) hospitalists reported feeling more comfortable with the 5 As framework. Those with less time since completion of their advanced training (≤ 10 years) were more comfortable providing brief advice to quit and more familiar with NRT. Despite knowledge that counseling combined with

NRT is more effective for tobacco cessation, most pediatric hospitalists did not feel comfortable prescribing NRT. The discrepancy between knowledge of best practice and hospitalists' level of comfort implementing these strategies highlights the need for further training, particularly among those further out from completion of their advanced training. Encouragingly, more than three-quarters of participants reported interest in further training regarding tobacco cessation counseling and nearly half reported they would feel more comfortable if offered additional training in prescribing NRT. Previous studies have revealed low support for NRT prescription for caregivers among pediatric providers; however, the American Academy of Pediatrics supports and offers helpful provider resources for NRT prescription for caregivers when clinically indicated.²¹

Our study should be viewed in light of the following limitations. Our response rate was low at 48%, although similar to other studies of pediatric hospitalists.^{22,23} The study was performed in university-affiliated hospitals, including freestanding and pediatric hospitals within larger health care systems; therefore, our results may not be generalizable to other clinical settings. There is a risk of selection bias because voluntary participation may imply an inherent interest or knowledge regarding tobacco cessation. We were unable to compare characteristics between responders and nonresponders to further assess for bias. However, we were able to enroll a study sample representing multiple regions of the country with characteristics consistent with the majority of pediatric hospitalists practicing in the United States (eg, mostly female, <40 years old).^{24,25} Trainees were excluded from our study because of variability in their practice location and clinical subspecialty; however, they may play a role in tobacco cessation care provision to caregivers of hospitalized children. We relied on participant self-reporting to assess their perceptions of practices, which is susceptible to response and social desirability biases. Although multiple studies also report self-reported or perceived tobacco cessation practices,^{26–28} these findings should be verified via a future

chart review investigation. Future investigation is warranted to investigate how physician-reported knowledge, attitudes, and perceived practices impact actual tobacco cessation practices.

Despite these limitations, our study suggests that pediatric hospitalists are generally supportive of tobacco cessation efforts for caregivers of hospitalized children. However, we identified opportunities to address barriers to care provision and fill specific tobacco cessation knowledge gaps among pediatric hospitalists. Future efforts to facilitate provision of tobacco cessation for caregivers of hospitalized children should be focused on educational interventions to increase care provision and thus improve the numerous adverse health outcomes among children with SSE exposure.

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