Barriers to pediatric injury prevention counseling

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Abstract

Objectives—Physicians cite numerous barriers to incorporating injury prevention counseling into routine care. Health behavior models suggest that beliefs about barriers are associated with physician characteristics. This study explores associations between physician characteristics and physician perceptions of barriers.

Methods—Self administered structured questionnaires were sent to all five North Carolina (United States) pediatric residency programs. A total of 160 (72%) physicians training in pediatrics or medicine-pediatrics in these programs replied. Associations between perceived barriers and knowledge, gender, training, experience, and correlation between perceived barriers and other physician beliefs about injury prevention counseling, were measured.

Results—Although most residents believed that talking to parents about injury prevention during routine visits was important, they felt they lacked time, did not think to ask parents about injury prevention, or had more important things to do. The more importance residents placed on asking parents about hazards, the less the extent to which barriers were perceived ($r = 0.32$). Barriers were perceived to a greater extent by residents who thought their preceptors did not expect them to counsel about injury prevention ($r = 0.28$), lacked confidence that their counseling helped parents ($r = 0.32$), or felt uncomfortable counseling parents about injury prevention ($r = 0.18$). Knowledge, residency year, training, and previous experience with injury were not related to perceived barriers.

Conclusions—Residency programs should teach the importance of injury prevention; provide opportunities for residents to become comfortable talking with parents about this; and train residents in the appropriate use of counseling as one strategy for addressing injury prevention. (*Injury Prevention* 1999;5:36-40)

Keywords: anticipatory guidance; clinical decision making; health belief model; pediatric residency training

Injuries are responsible for more than 1100 deaths annually among United States children under 1 year of age¹ and 45% of the deaths among children between the ages of 1 and 4 years.² Injuries are similarly the leading cause of death for children aged 1 to 14 years throughout the developed world.³ Pediatricians and other primary care providers are encour-

aged to counsel parents about injury prevention,^{2 4-10} even though the effectiveness of this counseling is still in question.^{11 12} Unfortunately, before the effectiveness of routine well-child counseling can be examined, more must be known about the manner in which counseling occurs, the content of a typical counseling session, and the characteristics of physicians and the settings in which they practice.

In the United States, pediatricians are the health care providers with the most access to parents of young children.¹³ During the first two years of life, approximately seven "well-child" visits are recommended, making well-child care the most common type of pediatric office visit.¹⁴ Components of the well-child visit, such as the developmental assessment, the physical examination, and addressing parental concerns, help make this an ideal opportunity to raise parental awareness about injury prevention. Nevertheless, physicians claim that many barriers prevent them from doing so.^{3 10 15 16}

Although most primary care physicians believe that injury prevention is part of their role, they often believe they do not give enough attention to injury prevention.¹⁵ Inattention to injury prevention has been attributed to lack of time^{3 15-17}; lack of knowledge^{3 10 15-17}; lack of resources (such as funding or parent education materials)¹⁵; and fear of parents' reactions.¹⁶ These are the same barriers other primary care physicians cite as reasons for not providing other preventive services.^{18 19}

Previously, the barriers physicians cite have been accepted without question by researchers, program planners, and clinic administrators. Yet, conceptual models of health behavior suggest that perceived barriers are influenced by sociodemographic factors, such as education and gender, and sociopsychological variables, such as beliefs and attitudes.²⁰⁻²⁶ Therefore, perceived barriers to injury prevention counseling may be a function of other physician characteristics associated with counseling behavior.

In fact, physician characteristics have been shown to be associated with how physicians conduct preventive services.^{19 20 27-31} Female physicians express more empathy,²⁸ ask more questions, and give more information than male physicians.³¹ Being a parent and personal experience with a health condition have been shown to increase preventive counseling on topics such as firearm safety, breast feeding, and cardiovascular fitness.^{3 10 14 15 19 32 33} Training is expected to compensate for differences in other physician characteristics by improving knowledge and skills^{34 35} thereby improving the care provided. Likewise, physicians' confidence

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in their counseling effectiveness has been shown to be related to their counseling behavior,^{19 20 27 29 30} as has the importance they ascribe to the topic in question.^{3 10 15 16 19 29 36} Similarly, physicians' beliefs about what others expect of them are related to the counseling they provide.³⁷

In this study, we were interested in describing resident attitudes and beliefs about incorporating injury prevention counseling into routine practice.

Methods

We used an 111 item self administered structured questionnaire to collect information from residents enrolled in the five North Carolina pediatric residency programs, including those in four year combined medicine-pediatric programs. Questionnaires were mailed to the program director or chief resident at four of the programs. This person distributed, collected, and mailed back the completed questionnaires, as well as those of residents who refused to participate. Participation was anonymous. Residents in the fifth program were handed their questionnaire and an envelope by one of us (LRC). Drop boxes were placed in the residents' lounges to return the questionnaires. Residents in this program were assigned identification numbers linking their questionnaire data to other research data as part of a larger study and therefore were not anonymous. Questionnaire completion took approximately 20 minutes.

Possible barriers to conducting injury prevention counseling as part of well-child care were identified by reviewing the published literature on preventive services^{3 10 15-17} and by pilot testing the questionnaire with seven pediatric faculty members. For each of 10 possible barriers, we asked the extent to which the barrier keeps the resident from asking parents about injury risks. Responses were on four point Likert-type scales, from 0 (not at all) to 3 (to a great extent). Although responses to some barrier items were examined separately, the scores on 10 items were summed to create a "barriers index". Therefore, the higher the score on the barriers index, the greater the extent to which barriers were perceived to influence counseling.

Residents' beliefs about barriers to this counseling were studied in relation to the following independent variables: (1) "objective" characteristics (gender, parental status, residency year, knowledge about injury epidemiology and prevention, having a child in their family or among friends seriously or fatally injured, having a patient seriously or fatally injured, medical school training in prevention counseling, and attendance at one or more lectures or workshops on injury prevention during residency) and (2) "subjective" characteristics (perceived importance of asking parents about safety hazards and talking to parents about injury prevention, believing that faculty preceptors expect residents to counsel parents about injury prevention, believing that injury prevention questions on the American Board

of Pediatrics examination are likely, feeling comfortable counseling parents about injury prevention, and feeling confident that counseling helps parents prevent injuries). For these items, residents were asked to focus on well-child care of children under 1 year of age so as to standardize responses to a single developmental group. These items were scored on either four, five, or six point scales, where the lower the number, the more positive the response.

We used Student's *t* tests to examine the relationship between perceived barriers and gender, parental status, and the four personal history and training variables. Associations between barriers and residency year, knowledge, beliefs about importance, perceived professional norms, comfort, and confidence were assessed using Pearson's product moment correlation coefficients. Correlation coefficients with *p* values of 0.05 or less were considered significant. Differences between correlation coefficients were examined using 95% confidence intervals.³⁸

Results

A total of 160 pediatric residents from all five North Carolina pediatric residency programs returned completed questionnaires, for a response rate of 72%. Sixty per cent were female and most were under 30 years of age. Most residents were white (81%), and most (73%) did not have children. The largest proportion were in the first year of their residency (45%), with 27% in the second year and 28% in the third or fourth year.

We compared the five residency programs on each of the independent variables. Residents differed on only one of the independent variables. Those in one program were significantly less likely to report having had at least one clinic patient hospitalized due to injury than residents in the other four programs (6% *v* 41%, *p*=0.001).

Knowledge of injury epidemiology and prevention was limited (table 1). On average, residents answered only 62% of the 14 multiple choice knowledge questions correctly. The highest proportion of correct responses was 87% and the lowest was 20% (that is, three correct responses). Although almost all residents (94%) knew that injury was the health problem responsible for the most deaths of children ages 1 to 4, more than 40% did not know that motor vehicle crashes were the leading cause of injury death for children 1 to 4 years of age. Only 4% knew that homicide was the leading cause of injury related death for children under 1 year of age in the United States. Such knowledge was not correlated with residency year (*r* = 0.07) or with self reported counseling (*r* = 0.10).

Sixty per cent of the pediatric residents believed that asking parents of children under 1 year of age about safety hazards at home was very important. A similar percentage (54%) considered talking to parents about injury prevention to be this important.

Table 1 Pediatric residents' knowledge of injury prevention* (n=160)

	Correct (%)
A gun in the home is most likely to kill a family member or friend	94
Injury is leading cause of death ages 1-4 years	94
Use syrup of ipecac only after calling the poison control center	92
The AAP recommends baby walkers should be used not at all	88
Tap water should be below 120 degrees Fahrenheit	84
Under age 1, children drown most often in bathtubs	82
The AAP recommends guns be stored unloaded and locked	61
Turn convertible car seats forward when the child is 20 pounds	58
Motor vehicle crashes are leading cause of death ages 1-4	58
Majority of poison control calls ages <5 are for drugs and medicines	48
The safest place for an infant car seat is the back middle	42
Test water temperature with a meat or candy thermometer	26
Replace smoke detector batteries every year	23
Homicide is leading cause of injury death under age 1	4

* Data are given as the percentage of pediatric residents who answered each multiple choice question correctly. Questions are presented with the correct response inserted and italicized. AAP = American Academy of Pediatrics.

Table 2 Pediatric residents' perceptions of barriers to injury prevention counseling (n=160)

Barriers*	Scale†			
	0	1	2	3
Inadequate time during clinic visits?	1.9	19.1	49.7	29.3
Inadequate time to follow up with the parent if a risk is identified?	20.3	43.0	26.6	10.1
Don't think to ask?	18.1	49.7	26.5	5.8
There are more important things to do?	24.2	50.3	19.7	5.7
Parents are not interested?	33.8	41.4	24.8	0
Not knowing how to help if a risk were identified?	43.7	41.8	13.9	0.6
Asking won't change anything?	48.4	38.9	11.5	1.3
Feeling that the problem is too complicated to deal with?	48.1	39.2	12.7	0
Most injuries are not preventable?	80.6	18.7	0.6	0
It is not a pediatrician's role to ask about injury risks?	89.9	9.5	0.6	0

* Pediatric residents were asked, "To what extent do the following keep you from asking parents about injury risks for their children?"

† Data are given as the percentage of pediatric residents who perceived these barriers. The scale was from 0 (not at all) to 3 (to a great extent).

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We explored the residents' responses about potential barriers to asking parents about injury risks by comparing mean scores. By far the barrier that elicited the strongest response was "inadequate time during clinic visits", which more than three quarters of the residents scored as 2 or 3 (table 2). Three other barriers received mean scores over 1: "inadequate time to follow up with the parent if a risk is identified" (1.3); "don't think to ask" (1.2); and "there are more important things to do" (1.1).

The "barrier index", with a possible range of 0-30, had an observed range of 1-20 with a mean of 8.8. Women perceived fewer barriers to injury prevention counseling than men (8.2 v 9.6, $p=0.025$). None of the other resident characteristics were associated with the barrier index.

Interestingly, the more importance residents ascribed to asking parents about hazards, the less likely they were to perceive barriers ($r = 0.32$). Similarly, the less importance residents ascribed to talking to parents about injury prevention, the higher their score on the barrier index ($r = 0.28$).

Although expectations of injury content on board examinations were not related to perceived barriers ($r = 0.06$), the more residents perceived that their preceptors expected them to include injury prevention counseling in routine care, the lower their score on the barrier index ($r = 0.28$).

Whereas low scores on the barrier index were suggestive of a greater degree of comfort in

counseling ($r = 0.18$), they were more highly correlated with residents' confidence that counseling helped parents prevent injuries to their children ($r = 0.32$). Not surprisingly, residents who were more comfortable counseling were less likely to feel that the problem was "too complicated for them to deal with" ($r = 0.21$). Likewise, residents who were more confident about their ability to influence parents' behavior were less likely to believe "asking won't change anything" than those with less confidence in their own abilities ($r = 0.37$).

To understand differences in patterns of perceived barriers between men and women, we repeated these analyses, examining each gender separately. There were no statistically significant difference between male and female residents.

Discussion

As found in previous studies,^{3 10 15-17} physicians in this study thought that talking to parents about injury prevention was important, yet they also reported not having enough time, not thinking to ask, and having more important things to do than to provide injury prevention counseling. These beliefs about barriers were related to gender and to other, potentially changeable, physician beliefs including beliefs about the importance of injury prevention and confidence in the effectiveness of counseling.

One might expect that physicians perceive more barriers to counseling parents when they lack training and experience in counseling. However, the results of this study showed no effect of training in either preventive counseling or injury prevention on the barriers to counseling perceived by pediatric residents. And, while it is logical to assume that having a family member or patient die or become seriously ill from a health condition would be a type of "informal education," or "teachable moment" sensitizing the physician to this particular condition,^{19 39} this was not the case. Similarly, being a parent was also not related to perceptions of barriers to counseling.

Injury epidemiology and prevention are underemphasized in medical education.^{6 40-42} The minimal level of knowledge demonstrated by the residents in this study attests to this. Still, educators and researchers assume that physicians who know more about preventive health services will feel more positively about providing those services.^{14 30 33} Previous research that used subjective measures of knowledge (that is, self reported "preparedness to counsel") supports this assumption.^{27 30 35} However, we found no relationship between objectively measured knowledge of injuries and beliefs about barriers to injury prevention counseling or self reported counseling behavior.

Self reported preparedness to counsel appears to be more closely related to "comfort with counseling" and "confidence in counseling" than to objective knowledge. Many physicians are not comfortable with their role as counselors.^{30 43} Neither are they confident that their counseling has an effect on patient

behavior.^{27 36 44} Both were found to be related to barriers to counseling. It may be that physicians report facing barriers such as lack of time when, in fact, they feel uncomfortable or lack confidence in their ability to affect parents' behavior. This would support health behavior models that suggest a relationship between physician counseling behavior and socio-demographic and sociopsychological characteristics.

Due to the cross sectional nature of the data, we are unable to determine if these relationships are causal or the direction of causality. It is possible that perceiving numerous barriers to injury prevention counseling leads some residents to believe counseling to be of little importance. Or, these beliefs may be derived from other elements of medical education not assessed. In either case, awareness of the relationship between perceived barriers and physician beliefs should help residency programs improve the injury prevention care their residents provide by addressing the role of counseling throughout the residency experience. Believing that faculty preceptors expect injury prevention counseling is related to perceiving fewer barriers to counseling.³⁷

A second limitation of this study is that the sample was drawn from only one state. However, the sample is representative of the population of United States pediatric residents on gender and race, except that the North Carolina sample contained a disproportionate percentage of white residents.⁴⁵ In addition, the population sampled was pediatric residents, not practicing board certified pediatricians. Therefore, the findings may not be applicable outside the training context. Future studies should examine practicing pediatricians.

The current lack of confidence residents have in their counseling may be warranted, given their limited knowledge of injury epidemiology and prevention, the minimal empirical evidence of effectiveness for office based preventive counseling,¹² and the disagreement among childhood injury experts about what should be included or whether counseling can significantly affect parental behaviors when carried out in isolation.¹¹ Studies of the efficacy of counseling under ideal conditions—that is, applied consistently using high quality counseling strategies—have not been done. Additional research should examine both how well routine well-child counseling is carried out and whether or not this counseling is effective in changing knowledge, attitudes, or behaviors of parents or reducing injury risks. Only with that information can we determine the appropriate role of counseling as an injury prevention strategy. In the interim, counseling is one among an array of strategies residency programs may wish to encourage residents to incorporate. Training should include opportunities for residents to become more comfortable talking with parents about injury prevention (and other topics) and training in counseling skills to boost confidence. And finally, it would be helpful to know if these same findings pertain in countries where

anticipatory guidance is provided by a wider array of health professionals.

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Editorial Board Member: brief biography

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adolescents on farms, hazardous exposures to migrant children and adolescents, and rural/urban differences in injury patterns among children.

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