

# Do Pediatricians Counsel Families About Sun Protection?

## A Massachusetts Survey

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**Background:** Pediatric visits during summer months may be especially opportune times for sun protection counseling for children and their parents. Few data exist on the extent of such counseling.

**Objective:** To begin to assess this, we surveyed practicing Massachusetts pediatricians to examine current attitudes and practices of sun protection counseling.

**Design and Setting:** Surveys mailed to Massachusetts pediatricians.

**Results:** We received surveys from 756 (60%) of 1263 eligible Massachusetts pediatricians. Almost 70% indicated that they recommended safe sun practices to more than 50% of their patients and their parents during the summer months. Counseling regarding seat belt use, bicycle helmet use, and smoking prevention were ranked higher in priority than sun protection counseling by pediatricians; nutritional guidelines were noted by pediatricians to be a parent's most frequent concern. Four variables were independently associated with a practitioner's providing safe sun recommendations to more than 50%

of parents and children: (1) private setting and health maintenance organization practitioners as opposed to academic physicians, (2) high ranking of patients' safe sun knowledge, (3) high priorities of both parents and physicians for sun protection counseling and parental knowledge of safe sun practices relative to other recommendations, and (4) pediatrician interest in receiving instructional materials.

**Conclusions:** For the most part, summer sun protection counseling among Massachusetts pediatricians seems well integrated into standard practice. Most pediatricians rated their confidence level as high for discussing sun protection and only a few cited inadequate training or poor reimbursement as barriers toward improved counseling. Small steps, such as providing more instructional materials to patients and using office-based reminder systems, may improve the quality of sun protection counseling practices. Incorporating sunburn prevention into the list of routinely recommended injury prevention guidelines for pediatricians should be considered.

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**Editor's Note:** We need to determine why academicians were less likely to discuss sun protection than were pediatricians in private or HMO practices. Are they less aware of the sunshine?

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**M**ELANOMA is closely associated with sunlight exposure early in life.<sup>1,2</sup> Urgency in preventing this cancer has been sparked by reports of increases in incidence and mortality during the past few decades.<sup>3,4</sup> An important avenue for reversing this trend and reducing melanoma rates in the next generation is counseling in avoiding unprotected exposure to UV radiation, particularly for children and young adults.<sup>5-6</sup>

The pediatrician visit is a potentially important vehicle for promoting this health behavior. Pediatrician visits should include timely sun protection counseling for children and their parents, complementing counseling for nutrition, smoking behavior, and

injury prevention.<sup>7-11</sup> Pediatric counseling for safe sun practices can further US Public Health Service's *Healthy People 2000* goals calling for a 60% compliance level for people of all ages to limit their sun exposure, use sunscreens and protective clothing when exposed to sunlight, and avoid artificial sources of UV light (eg, sunlamps and tanning booths).<sup>12</sup>

In 1995, the American Academy of Dermatology and the Centers for Disease Control and Prevention cohosted the first national multidisciplinary consensus meeting of the National Skin Cancer Prevention Education Program to develop a skin cancer prevention and early detection agenda.<sup>5</sup> One of the 6 consensus points called for pediatricians and their staff to begin integrating sun protection counseling into well-child visits.

The conference's proposed methods of sun protection for adults and children (>6 months of age) were avoiding deliberate tanning by either natural or artificial light (tanning booths and sunlamps); limiting exposure to UV radiation, especially between

## MATERIALS, SUBJECTS, AND METHODS

### PROCESS

We surveyed Massachusetts primary care pediatricians, pediatric specialists, candidate fellows, and postresidency training fellows listed in the Massachusetts Chapter of the American Academy of Pediatrics' 1996 database.

The pediatricians were mailed a brief survey along with an explanatory letter of introduction. Four weeks after the first mailing, all nonrespondents were sent a second copy of the survey by fax or mail. We called nonrespondents to further encourage participation.

### SURVEY INSTRUMENT

The 12-question survey asked pediatricians for their year of graduation from medical school and their type of practice (private, health maintenance organization [HMO], academic, or other). Pediatricians who completed the second mailing or fax were also asked whether their primary practice was pediatric primary care or a pediatric specialty; this distinction had come to our attention as a possible important variable only after the first mailing.

For safe sun counseling, we asked physicians to respond only in regard to their white patients between the ages of 2 and 16 years. Physician priorities and their perceptions of parent concerns for various health promotion activities were assessed using a scale from 1 (not at all important) to 5 (very important). Physicians also were asked about their specific sun protection recommendations, the proportion of parents and children for whom they

recommended safe sun practices during the summer months, and their confidence level in discussing safe sun practices. Routinely recommended safe sun practices included using sunscreen with a sun protection factor of at least 15, wearing hats with brims and long-sleeved shirts, and staying in the shade during peak sunshine hours. Physicians were also asked whether they used or would like to receive instructional materials and whether they thought office-based reminder systems would increase safe sun counseling. Pediatrician assessment of patients' knowledge of safe sun recommendations were requested, and they were asked to identify key obstacles for safe sun counseling. We also asked pediatricians about their personal use of sunscreen.

### STATISTICAL ANALYSIS

Frequency distributions are presented for each of the survey variables. In addition to descriptive statistics, we determined the level of association between various attitudes and behaviors, with the primary outcome variable being the proportion of parents and children receiving recommendations for safe sun practices from pediatricians during the summer months. This outcome had 2 categories, those routinely recommending safe sun practices either with more than or with less than 50% of their white patients. The  $\chi^2$  and Spearman rank correlation tests were used to examine the association between physician priorities (an ordinal variable) and safe sun recommendations. Logistic regression was used to assess the multivariate relationship between safe sun recommendations and other variables.  $P < .05$  was regarded as statistically significant. All analyses were conducted using the SAS program (Statistical Analysis System Institute Inc, Cary, NC).<sup>15</sup>

10 AM and 4 PM; wearing protective clothing when out in the sun; and, for those areas of skin not adequately covered by clothing, daily use of a broad-spectrum sunscreen with a sun protection factor of 15 or greater and lip balm with sunscreen. It is recommended that children younger than 6 months be dressed in protective hats and clothing and be kept in the shade rather than have sunscreen applied, because of the possibility of allergic reactions.<sup>5</sup> The "Save Our Skin" Sun Safety Guidelines for Children and Parents<sup>13</sup> jointly developed by the American Academy of Pediatrics, the American Medical Association, the American Academy of Dermatology, and the American Society of Plastic and Reconstructive Surgeons previously supported many of these recommendations.<sup>13,14</sup>

Little information is available to determine whether pediatricians follow these guidelines or what priority level is given them relative to other preventive practices. To begin to assess this, we conducted a survey of Massachusetts pediatricians to examine current attitudes and self-reported practices in counseling their young patients on sun protection.

## RESULTS

Of 1683 Massachusetts pediatricians, we excluded 248 residents and 99 emeritus fellows (with medical school graduation year before 1950 and no current office ad-

dress). An additional 73 surveys were returned with no forwarding address. In all, 1263 pediatricians were eligible to complete the survey.

We received surveys from 756 (60%) of 1263 eligible Massachusetts pediatricians. Of the 756 completed surveys, 498 came from the first mailing, 152 from fax returns, and 106 from second mailings. There were no important differences in the year of medical school graduation, type of practice, or level of safe sun recommendations among pediatricians responding to the first letter, second letter, or faxed mailing.

Among the 756 pediatricians who completed and returned the survey, the median year of medical school graduation was 1982, 50% were in private practice, 14% practiced in HMOs, 23% in academic centers, and 13% in other settings (eg, community health centers). Of the 245 respondents (32%) who were asked about pediatric specialty, 82% were primary care practitioners, and 18% were pediatric specialists.

### RECOMMENDATIONS OF SAFE SUN PRACTICES

Almost 70% of pediatricians indicated that they recommended safe sun practices with more than 50% of their white patients and their parents during the summer months. Of the safe sun practices, sunscreen use with a minimum sun protection factor of 15 was most com-

**Table 1. Safe Sun Recommendations Made to Parents and Children During the Summer Months Reported by 756 Pediatricians**

	Percentage of Pediatricians
Percentage of parents and children receiving any recommendations	
≤25	14.4
26-50	15.8
51-75	26.8
≥76	43.0
Specific practices routinely recommended	
Use sunscreen with SPF*≥15	93.3
Wear a hat	61.4
Seek shade during peak sun hours	59.5
Wear a long-sleeved shirt	37.8

\*SPF indicates sun protection factor.

monly recommended (**Table 1**). More than 80% expressed an interest in receiving instructional materials; 24% were already using them. Fifty percent stated that an office-based reminder system would help to increase sun protection counseling (not shown in the table).

#### CHARACTERISTICS OF THOSE WHO RECOMMEND SAFE SUN PRACTICES

There was no apparent relationship between the year of medical school graduation (a proxy for age) and reported recommendation practices. Nor were there differences in practice by geographic site of pediatrician offices, when adjusted for practice setting. Pediatricians practicing in private settings and HMOs (as opposed to academic centers and other settings), and primary care practitioners (compared with specialists) were more likely to recommend safe sun practices. Lower rates of counseling by academic pediatricians could be explained by the fact that they made up the highest proportion of specialists, or that residents were providing essential prevention teaching.

#### PEDIATRICIAN AND PARENTAL PRIORITIES

Pediatrician priorities for health promotion counseling and their indication of parental concerns are given in **Table 2**. Of 6 choices provided for health promotion, use of seat belts, use of bicycle helmets, and smoking prevention were pediatricians' highest priorities; nutritional guidelines were noted by pediatricians to be a parent's most frequently expressed concern. Sun protection counseling was rated as the fourth highest priority by pediatricians, and high ranking of its priority was most closely associated with safe sun recommendations. Routine sun protection counseling approached 80% for pediatricians rating it as a high priority, compared with 46% for pediatricians rating it as a low priority ( $P < .001$ ,  $\chi^2$  test) (not shown in the table). Similarly, concern regarding sun protection was only the parents' fifth priority, but it, too, was most closely associated with higher rates of pediatrician sun protection counseling (Table 2).

**Table 2. Pediatricians' Health and Safety Priorities and Parental Concerns as Reported by 756 Pediatricians, and Their Association With Safe Sun Recommendations**

Recommendation	Pediatricians' Priority of Health and Safety Recommendations	
	Pediatricians Giving High Priority, %	Spearman Rank Coefficient*
Seat belt use	93.8	0.050
Bike helmet use	90.7	0.084
Smoking prevention	88.5	0.119
Sun protection	73.8	0.408
Nutrition guidelines	72.1	0.097
Exercise	69.2	0.113
Recommendation	Most Common Health and Safety Concerns of Parents	
	Parents Giving High Priority, %	Spearman Rank Coefficient*
Nutrition guidelines	70.5	0.075
Seat belt use	49.8	0.066
Bike helmet use	35.8	0.074
Smoking prevention	34.9	0.031
Sun protection	26.7	0.233
Exercise	17.4	0.034

\*Spearman rank coefficients indicate the measure of ranked correlation between priority or concern ratings of health behaviors and pediatrician priority for safe sun recommendations.

#### REMINDER SYSTEMS AND MATERIALS

Pediatricians using instructional materials were more likely to recommend safe sun practices than were those not using them (79% vs 67%, respectively,  $P = .008$ ,  $\chi^2$  test). Interest in sun protection materials was also associated with safe sun recommendations (**Table 3**).

Only 43% of pediatricians believed that more than 50% of their patients had knowledge of sun protection recommendations, and such beliefs were associated with more frequent recommendations of safe sun protection ( $P = .001$ ,  $\chi^2$  test). Private and HMO pediatricians were most likely to rate patient knowledge as high (51% and 49%, respectively), compared with lower ratings by academic and other pediatricians (28% for both). More than 80% of pediatricians routinely recommended sun protection when they rated parental knowledge score as high (>50%) compared with 45% when the score was rated as low (<25%) ( $P = .001$ ) (Table 3). Almost 24% of pediatricians identified at least 3 specific obstacles for sun protection counseling, most commonly lack of parent compliance (41%), little time (39%), and lack of interest from parent (36%) and child (28%). Inadequate training or poor reimbursement were cited by only 8% and 7%, respectively. More than 80% rated their confidence for discussing sun protection as quite or very confident (not shown in the table).

Almost 75% of pediatricians noted that they personally used sunscreen routinely (always or often). Recommendations to families were higher in this group when compared with pediatricians who used sunscreen sporadically (sometimes, rarely, never) (Table 3). Skin type (whether the person burned or tanned when exposed to the sun) of respondents was not available.

## MULTIVARIATE ANALYSES

The multivariate logistic regression analysis identified variables independently associated with delivering safe sun recommendations to more than 50% of the white patients. The 4 variables that remained significant in these models were as follows: (1) private and HMO practitioners, (2) high ranking of parents' sun protection knowledge, (3) high physician and parental priorities for sun protection counseling relative to other activities, and (4) interest in use of instructional materials.

### COMMENT

Prevention of excessive sun exposure in youth could reduce the rising incidence of melanoma and other skin cancer.<sup>16-18</sup> For melanoma, sun exposure early in life has been found to be the strongest link with increased risk later in life.<sup>19,20</sup> Pediatrician counseling may be a potent way to educate children and their parents about adverse sun exposure.

This statewide survey found that almost 70% of Massachusetts pediatricians routinely recommend safe sun practices during the summer, a period of maximal sun exposure for children. For the most part, sun protection counseling among these pediatricians seems well integrated into standard practice. Eighty percent of pediatricians rated their confidence level for discussing sun protection as high and only a few cited inadequate training (8%) or poor reimbursement (7%) as barriers.

The results from the multivariate analyses suggest several strategies to boost sun protection counseling. Counseling seems to be more commonly practiced in private and HMO settings; thus, specific programs may need to be targeted to pediatricians and their patients in academic institutions and community health centers. Decreased rates of counseling were found among pediatricians rating sun protection as a lower priority for themselves and for their patients, those rating parental knowledge of sun protection to be low, and those not expressing an interest in using instructional materials. Only 45% of pediatricians recommended sun protection counseling when the parental knowledge score was rated low compared with more than 80% of pediatricians recommending sun protection when the knowledge score was rated high. These barriers may indicate the need for professional education and increased public information to improve patient knowledge.

Small steps, such as providing more instructional materials and using office-based reminder systems, may improve the quality of counseling practices. Improving pediatrician priorities for recommending sun protection measures may be a challenge, given the brevity of a routine medical visit. Furthermore, pediatricians and health educators clearly face many objective barriers, such as cost of sunscreen, and attitudinal barriers, such as the public's perception of a tan as a healthy and attractive attribute.<sup>16, 21</sup>

Sun protection information should be easy to disseminate to patients. For children, such messages may emphasize short-term effects of sun exposure, eg, sunburning; for parents, sunburning may need to be coupled with information on the long-term effects of sun exposure as a

**Table 3. Other Related Survey Responses Positively Associated With Recommendations of Safe Sun Practices Among 756 Pediatricians**

Pediatrician Response	Percentage of Pediatricians in Category	Percentage of Category Who Routinely* Recommend Safe Sun Practices	P (χ <sup>2</sup> Test)
Instructional materials			
Using instructional materials	23.6	79.2	.008
Not using instructional materials	76.4	66.7	
Interested in instructional materials	81.1	70.8	.001
Not interested	18.9	59.8	
Percentage of parents believed by pediatrician to be knowledgeable about sun protection			
≤25	15.0	45.2	.001
26-50	42.5	66.9	
51-75	34.3	80.2	
≥76	8.2	80.7	
Personal use of sunscreen			
Always or often	72.5	75.6	.001
Sometimes, rarely, or never	27.6	54.3	

\*Routinely indicates pediatrician made recommendations to more than 50% of patients during the summer months.

melanoma risk. Our study also raises a question for health education messages to children, namely, will children understand the link between sun exposure and skin cancer and modify their behavior? It is unclear at what age an integrated message of cancer prevention, as well as sun protection, should be introduced to children.

## OTHER STUDIES

To our knowledge, only 2 other studies have examined pediatric sun protection counseling. In a 1986 survey of 349 pediatricians in Florida (response rate, 49%), Pupo et al<sup>22</sup> found that 62% of pediatricians included sun protection as part of their well-child care. Of these respondents, 66% said patients asked them questions related to sun exposure in an average month, and 65% of pediatricians requested further information regarding sun-related issues. Health promotion priorities for pediatricians and their patients were not addressed, nor were other safe sun recommendations or barriers to sun protection. In a study of 96 pediatricians at New Jersey hospitals, Brodtkin and Altman<sup>23</sup> found that only 30% warned their patients about UV radiation exposure.

## LIMITATIONS

Response to this survey compares favorably with many mailed surveys to pediatricians,<sup>24-27</sup> and respondents in the second wave did not differ from earliest respondents. However, an overall nonresponse rate of 40% raises the possibility that bias affected the results. It is possible that nonrespondents were less likely than respondents to coun-

sel children and their families, thus biasing our estimates of pediatrician practices. Second, all the data are self-reported. Future studies should consider validation of self-reports, such as with patient interviews. Third, with our request to include all patients between the ages of 2 and 16 years, we cannot easily distinguish possible variations in practice by age group. Finally, pediatrician status (primary care vs specialist) was only known for 34% of respondents.

## RECOMMENDATIONS

Minimizing children's unprotected sun exposures and reducing sunburning rates are likely to decrease the risk of their developing melanoma and nonmelanoma skin cancer.<sup>28,29</sup> For practice guidelines, the US Preventive Services Task Force does not specifically target children for sun protection counseling, although it does state that "counseling patients at increased risk of skin cancer to avoid excess sun exposure is recommended."<sup>28</sup>

Future steps to promote sun protection education should involve the American Academy of Pediatrics, the American Academy of Dermatology, and the Centers for Disease Control and Prevention, Division of Cancer Prevention and Control, as well as the American Cancer Society, the American Academy of Family Physicians, and the Association of Teachers of Preventive Medicine. The Put Prevention Into Practice office-based systems, developed by the United States Public Health Service, Department of Health and Human Services, should expand and test sun protection systems in pediatric settings.<sup>30</sup>

Incorporating sunburn prevention into the list of routinely recommended injury prevention guidelines for pediatricians should be considered. Health education, through office-based visits, has been shown to contribute to the prevention of childhood injury.<sup>8</sup>

## CONCLUSIONS

This survey of pediatricians' sun protection recommendations found high rates of counseling in Massachusetts during the summer months, but it may require replication in other states. Future collaboration and studies should assess the effect of providing educational materials to pediatricians and their patients, and of establishing easy-to-use office-based reminder systems. Incorporating sun protection counseling into the pediatric visit should strongly complement sun protection education under way at newborn nurseries, day-care centers, schools, and recreational sites.<sup>17,31</sup>

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