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Well-Child Visits in the Video Age: Pediatricians and the American Academy of Pediatrics' Guidelines for Children's Media Use

Douglas A. Gentile, PhD*‡; Charles Oberg, MD§||; Nancy E. Sherwood, PhD¶||; Mary Story, PhD#; David A. Walsh, PhD‡; and Marjorie Hogan, MD§||

ABSTRACT. *Objectives.* The goal of this study was to evaluate awareness of, agreement with, and implementation of the American Academy of Pediatrics (AAP) media use guidelines among pediatricians. Pediatricians' beliefs about several media effects were also measured, as was their own media use. Pediatricians were also asked about how often they make media recommendations as part of anticipatory guidance during well-child visits, as well as the perceived efficacy of and barriers to making such recommendations.

Design. A cross-sectional survey mailed to all members of the Minnesota chapter of the AAP.

Participants. A total of 365 pediatricians completed the survey.

Measures. The 58-item survey assessed familiarity with, agreement with, and implementation of each of 3 AAP recommendations, to limit children's media time, to discourage television (TV) viewing among children <2 years of age, and to encourage alternative entertainment for children. Pediatricians were also asked about the perceived effectiveness of and barriers to guideline implementation. In addition, pediatricians were asked to report their own TV viewing habits and their opinions about how much media affect children's health and behavior.

Results. Most pediatricians were familiar with and also agreed with the 3 AAP recommendations. Their agreement may stem from the fact that pediatricians almost universally believe that children's media use negatively affects children in many different areas, including children's aggressive behavior, eating habits, physical activity levels, risk for obesity, high-risk behaviors, and school performance. Pediatricians were most likely to have encouraged alternative entertainment and were least likely to have discouraged TV viewing for children <2 years of age. The majority of pediatricians provided all 3 recommendations to parents at least sometimes. Most pediatricians reported that their recommendations were at least a little effective when they did make them.

The most frequent barrier pediatricians reported facing was a lack of parental motivation or support for the recommendations, with approximately one-third of pediatricians also citing a lack of time and a sense of futility in affecting patients' media habits as barriers. Finally, pediatricians who watched the greatest amounts of TV were significantly more likely than those who watched less to think that the AAP recommendation to limit children's total media time to no more than 1 to 2 hours per day is unrealistic, whereas those who watched less were more likely to agree with the recommendation.

Conclusions. Results suggest that the efforts of the AAP in reaching pediatricians have been largely successful, with the majority of pediatricians in Minnesota being aware of and agreeing with the 3 major recommendations suggested by the AAP policy statement on children, adolescents, and television. However, implementation of the recommendations could be improved, especially because pediatricians usually think that the recommendations are at least a little effective when made. Strategies for overcoming barriers to making recommendations need to be addressed, including the sense of futility in affecting media use that some pediatricians may feel. *Pediatrics* 2004;114:1235-1241; *media effects, television, recommendations, medical training.*

ABBREVIATIONS. AAP, American Academy of Pediatrics; TV, television.

For 20 years, the American Academy of Pediatrics (AAP) has expressed concerns about the amount of time children and adolescents spend watching television (TV).¹ In addition, media use has increased in the past decade, with video games, the Internet, and audio and video music formats. American children and adolescents average >21 hours of weekly TV viewing; when video games and other media are included, weekly screen times increase to as much as 35 to 55 hours.²⁻⁶ It has been estimated that young people view 10 000 acts of violence each year and nearly 15 000 scenes with sexual references, with <15% dealing at all with topics such as abstinence, birth control, or sexually transmitted infections and/or pregnancy and only 1% having a primary emphasis on sexual risks.⁷⁻¹⁰ Mass media are second only to school sex education as the vehicle for acquiring information about sexuality.¹¹ Moreover, a recent content analysis of TV programming revealed that alcohol, tobacco, and illicit drugs are presented in 70% of prime time network dramatic programming.¹²

Concern about media exposure is based on a large

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body of research that demonstrates the multiple negative effects of media on children's and adolescents' health, including effects on violent or aggressive behavior, substance use, early initiation of sexual activity, obesity, poor body image, and decreased school performance.¹³⁻¹⁷ In the domain of violence alone, >1000 studies have established a connection between media violence and aggressive behavior among children.¹⁸⁻²³ A recent study documented that the negative effects of TV viewing are not restricted to the short term for children and adolescents but increases in violent behavior persist even into adulthood.²⁴ Other studies have confirmed associations between media exposure and adolescent high-risk behaviors, such as substance use and early initiation of sexual activity.²⁵ Media also exert a significant displacement effect. Two to 3 hours of media time translates into less physical activity, with a concomitant increase in obesity, a decrease in reading, and a reduction in interaction with peers.²⁶

Through research policy statements and the launching in 1997 of the Media Matters national public education campaign, the AAP has tried to educate its 57 000 members regarding the effects of media and to provide a means to influence families and their children. The most recent policy statement on media was issued in February 2001 and was titled "Children, Adolescents, and Television,"²⁷ with specific recommendations for pediatricians to incorporate media education and advocacy into their anticipatory guidance and parental education. Recommendations include the following. (1) Parents should discourage TV viewing for children <2 years of age and should encourage more interactive activities that promote proper brain development, such as talking, playing,

singing, and reading together. (2) Parents should limit children's media time (with entertainment media) to no more than 1 to 2 hours of quality programming per day for older children. (3) Parents should monitor programming, view with their children and adolescents, and encourage alternative forms of entertainment, such as reading, athletics, hobbies, and creative play. The present study attempted to evaluate how effective and successful the national AAP efforts have been in increasing awareness of media effects among AAP members in Minnesota and to determine to what degree pediatricians have incorporated these guidelines into their practices.

METHODS

Participants

The sample consisted of the population of physicians registered with the AAP Minnesota chapter. Therefore, every physician who was a current or previous member of the AAP Minnesota chapter had the opportunity to respond to the survey. Among 1035 potential respondents, 84 surveys were returned because they were invalid (eg, the physicians were deceased or had moved) and 52 were completed but not included because the practitioner was ineligible (eg, retired or not practicing). The final sample included 365 valid surveys. This sample size yields results accurate to $\pm 4\%$ with a 95% confidence level when generalizing to Minnesota pediatricians as a group. The overall response rate was 41%. Demographic characteristics of the respondents are presented in Table 1.

Survey Instrument

The survey was designed by the authors and included 58 items. A series of items were designed around 3 of the AAP recommendations, ie, (1) limit children's total media time (with entertainment media) to no more than 1 to 2 hours of quality programming per day, (2) discourage TV viewing for children ≤ 2 years of age and encourage more interactive activities that promote proper brain development, such as talking, playing, singing, and reading

TABLE 1. Demographic Characteristics of Respondents

Years in practice	Mean: 14 y; SD: 10.7 y; range: 0-59
Male, %	50
Female, %	50
Pediatric generalists, %	71
Pediatric specialists, %	29
Primary practice type, %	
Private practice/clinic	57
Hospital-based clinic	23
Community clinic	11
Other clinic/practice type	9
Primary practice location, %	
Urban location	38
Suburban location	49
Rural location	13
No. of pediatricians practicing at their location	Mean: 11; SD: 16.8
Have physician trainees at their clinic/practice (any), %	78
Have residents at their clinic/practice, %	65
Have medical students at their clinic/practice, %	64
Have fellows at their clinic/practice, %	19
Hours spent each week in direct patient care, %	
0-10 h	6
11-20 h	8
21-30 h	21
31-40 h	39
≥ 41 h	26
No. of patients seen in a typical work day, %	
1-5	4
6-10	9
11-15	11
16-20	28
≥ 21	48

Pediatricians' Opinions and Behaviors Regarding the AAP Media Recommendations

Pediatricians were asked how familiar they were with the 3 AAP recommendations regarding children's media use and whether they personally agreed with those recommendations. As can be seen in Table 2, most pediatricians were familiar with the 3 recommendations, and almost all pediatricians agreed with the recommendations. The third recommendation, to encourage alternative entertainment for children (eg, reading and athletics), was most familiar to the pediatricians, and none disagreed with it. The second recommendation, to discourage TV viewing for children <2 years of age, was seen as the most unrealistic recommendation, although few pediatricians (4%) disagreed with it. Female pediatricians were significantly more likely than male pediatricians to be familiar with each of the 3 recommendations (lowest $\chi^2 = 16.4$, $df = 3$, $P < .01$). Female pediatricians were also more likely to agree with the recommendation to limit children's total media time to 1 to 2 hours ($\chi^2 = 8.0$, $df = 2$, $P < .05$).

Very few pediatricians reported being familiar with the AAP media history form (very familiar: 1%; somewhat familiar: 7%; not too familiar: 19%; not at all familiar: 72%), although female pediatricians were more likely to be familiar with it than were male pediatricians ($\chi^2 = 8.1$, $df = 3$, $P < .05$). However, even those who were at all familiar with the media history form were not likely to have asked parents to complete it during the past year (often: 1%; rarely: 11%; never: 88%). Similarly, very few pediatricians provided any of the AAP brochures on media use (eg, *Smart Parent's Guide to Kids' TV, Television and the Family*, and *The Internet and Your Family*) to their patients (often: 1%; sometimes: 8%; rarely: 12%; never: 79%).

Pediatricians were asked how often during the past year they made each of the 3 AAP recommendations to parents or caregivers as part of anticipatory guidance during well-child visits (Table 3). Pediatricians were most likely to have encouraged alternative entertainment (recommendation 3) and least likely to have discouraged TV viewing for children <2 years of age (recommendation 2). However, a majority of pediatricians provided all 3 recommen-

together, and (3) encourage alternative entertainment for children, including reading, athletics, hobbies, and creative play. Pediatricians were asked a series of questions regarding these recommendations, including (1) how familiar they were with each of these recommendations, on a 4-point, verbally anchored, Likert scale (not at all familiar, a little familiar, somewhat familiar, or very familiar); (2) whether they agreed or disagreed with each recommendation, on a 3-point, verbally anchored, Likert scale (I agree with this recommendation, it's a good idea but it is unrealistic, or I disagree with this recommendation); (3) how often they had made each recommendation to parents/caregivers as part of anticipatory guidance during well-child care visits, on a 5-point, verbally anchored, Likert scale (almost always, often, sometimes, rarely, or never); and (4) how effective they think their efforts are when they do make each recommendation, on a 4-point, verbally anchored, Likert scale (very effective, somewhat effective, a little effective, or not at all effective).

Pediatricians were asked about potential barriers to making recommendations regarding media use and about their familiarity with and use of the AAP media history form and AAP brochures. A series of items also asked pediatricians how much they think media use affects several child outcomes at 4 different ages (infant/toddler, preschool age, school age, and adolescence), on a 3-point, verbally anchored, Likert scale (not at all, a little, or a lot). Finally, pediatricians were asked a series of questions for determination of demographic data and assessment of their own media use and exercise habits.

Procedure

The study was conducted with survey methods developed by Berdie et al,²⁸ involving mailing with follow-up surveys. These procedures included the following steps. (1) The initial questionnaire and a cover letter signed by AAP officials were sent via first-class mail. A preaddressed, postage-paid, return envelope was also enclosed. (2) Practitioners who did not respond to the initial mailing were sent a postcard reminder ~2 weeks after the initial mailing. (3) Those who still did not respond were sent an additional mail follow-up reminder ~2 weeks after the postcard, with another copy of the questionnaire and a postage-paid envelope. (4) All members with valid e-mail addresses were sent an additional reminder to complete their surveys 1 month later. Data collection occurred between July and October 2002.

Data Analyses

The data reported below are primarily descriptive, describing the percentages of pediatricians who indicated each response on the survey. The data are accurate to $\pm 4\%$ with a 95% confidence level when generalizing to Minnesota pediatricians as a group. In addition to descriptive statistics, χ^2 analyses were performed to determine whether there were systematic differences between male and female pediatricians. χ^2 analyses were also conducted to determine whether there were systematic differences between pediatricians who themselves watch more versus less TV (weekly viewing divided by tertiles, as described below).

TABLE 2. Familiarity and Agreement With the AAP Media Recommendations ($n = 365$)

	Recommendation 1	Recommendation 2	Recommendation 3
Familiarity with recommendations, %			
Very familiar	43	46	52
Somewhat familiar	36	32	32
A little familiar	13	13	8
Not at all familiar	8	9	8
Agreement with recommendations, %			
I agree with this recommendation	87	71	97
It's a good idea, but it is unrealistic	12	25	3
I disagree with this recommendation	1	4	0

Recommendation 1: limit children's total media time (with entertainment media) to no more than 1 to 2 hours of quality programming per day; recommendation 2: discourage TV viewing for children ≤ 2 years of age and encourage more interactive activities that promote proper brain development, such as talking, playing, singing, and reading together; recommendation 3: encourage alternative entertainment for children, including reading, athletics, hobbies, and creative play.

TABLE 3. Frequency of Making the AAP Media Recommendations to Parents/Caregivers During the Past Year and Perceived Effectiveness of Those Recommendations (*n* = 365)

	Recommendation 1	Recommendation 2	Recommendation 3
Frequency of making recommendations, %			
Almost always	23	12	41
Often	29	21	35
Sometimes	25	28	12
Rarely	12	18	5
Never	11	21	7
Perceived effectiveness of recommendations, %			
Very effective	3	4	4
Somewhat effective	36	30	55
A little effective	49	49	37
Not at all effective	12	19	4

Recommendation 1: limit children's total media time to no more than 1 to 2 hours of quality programming per day; recommendation 2: discourage TV viewing for children ≤ 2 years of age; recommendation 3: encourage alternative entertainment for children.

dations to parents at least sometimes (77%, 61%, and 88% for the 3 recommendations, respectively). Female pediatricians were significantly more likely to have reported providing each of the 3 recommendations to parents or patients (lowest $\chi^2 = 9.7$, $df = 4$, $P < .05$). Pediatricians were also asked to what age groups they typically made media recommendations. Sixteen percent of pediatricians reported typically making the recommendations to parents of infants, 53% to parents of toddlers, 81% to parents of school-aged children, and 61% to parents of adolescents, with only 14% reporting that they did not typically make recommendations.

Pediatricians were asked how effective they thought their efforts were when they did make recommendations to families regarding media use. Table 3 shows the responses for each of the 3 recommendations. Pediatricians were most likely to report that their efforts were somewhat or a little effective. Similar to their previous responses, they were most likely to think that the recommendation to encourage alternative entertainment (recommendation 3) was most effective and the recommendation to discourage TV viewing for children < 2 years of age was least effective (recommendation 2).

Table 4 indicates how frequently pediatricians thought various barriers impeded their ability to make recommendations regarding media use to parents or patients. The most frequent barrier the pediatricians faced was lack of parental motivation or support for the recommendations (51% said this was always or often a barrier). Approximately one-third of pediatricians cited a lack of time with the patient or parent (34% stated always or often), as well as a sense of futility in affecting patients' media habits (31% stated always or often). Even given this sense of

futility that many pediatricians reported, a lack of physician or staff support for the recommendations was the least reported barrier (76% stated rarely or never). Furthermore, pediatricians appeared to have an array of suggestions for alternatives to electronic media when making recommendations (64% reported that this was rarely or never a barrier). Female pediatricians were more likely than male pediatricians to report lack of time with the patient and lack of parental support for the recommendations as barriers (lowest $\chi^2 = 10.9$, $df = 4$, $P < .05$).

Pediatricians' Opinions Regarding Media Effects

Pediatricians were asked how much they think media use affects several dimensions of child development (Table 5). More than 8 of 10 pediatricians (84%) reported that TV watching has a negative effect on infants' and preschool-aged children's brain development. Almost all pediatricians believe that TV watching and other media use affect preschool-aged children's eating habits (98%), that they affect the level of children's overall physical activity (99%), and that they lead to overweight/obesity (98%). Similarly, almost all pediatricians (98%) thought that TV watching and other media use affect preschool-aged children's aggression. Female pediatricians were more likely than male pediatricians to think that TV watching negatively affects brain development for infants and preschool-aged children, preschool overweight/obesity, and preschool aggression (lowest $\chi^2 = 6.0$, $df = 2$, $P < .05$).

For school-aged children (5-12 years of age), almost all pediatricians in this sample thought that media use negatively affects academic achievement (97%), eating habits (99%), overall physical activity levels (100%), overweight/obesity (99%), and ag-

TABLE 4. Perceived Barriers to Making Recommendations Regarding Media Use (*n* = 365)

	Barrier Frequency, %				
	Never	Rarely	Sometimes	Often	Always
Lack of time with patient/parent	8	17	41	27	7
Lack of parent motivation/support for recommendations	3	7	39	45	6
Lack of physician/staff support for recommendations	29	47	18	5	1
Lack of suggestions for alternatives	24	40	28	7	1
Sense of futility in affecting media habits	8	18	43	25	6

TABLE 5. Pediatricians' Beliefs About the Effects of Media on Children (Split by Age Group) (*n* = 365)

	Belief Frequency, %		
	Not at All	A Little	A Lot
Infant/toddler (0–2 y of age) development			
TV watching negatively affects brain development	15	52	33
Preschool-aged child (2–5 y of age) development			
TV watching and other media use negatively affect brain development	14	56	30
TV watching and other media use affect eating habits	2	28	70
TV watching and other media use affect overall physical activity levels	1	11	88
TV watching and other media use lead to overweight/obesity	2	18	80
TV watching and other media use affect aggression	2	30	68
School-aged child (5–12 y of age) development			
Media use negatively affects academic achievement	3	48	49
Media use affects eating habits	1	17	82
Media use affects overall physical activity levels	0	5	95
Media use leads to overweight/obesity	1	8	91
Media use affects aggression	1	26	73
Adolescent (12–18 y of age) development			
Media use negatively affects academic achievement	2	44	54
Media use affects eating habits	1	21	78
Media use affects overall physical activity levels	0	10	90
Media use leads to overweight/obesity	1	9	90
Media use affects aggression	1	32	67
Media use affects high risk behaviors (eg, smoking and drinking)	2	38	60
Media use affects high-risk sexual attitudes/behaviors	2	27	71

gression (99%). Female pediatricians were more likely than male pediatricians to think that TV watching affects schoolchildren's overall physical activity, overweight/obesity, and aggression (lowest $\chi^2 = 7.7$, $df = 2$, $P < .05$).

For adolescents, the findings were similar. Almost all pediatricians thought that media use negatively affects academic achievement (98%), eating habits (99%), overall physical activity levels (100%), overweight/obesity (99%), aggression (99%), high-risk behaviors such as smoking or drinking (98%), and high-risk sexual attitudes and behaviors (98%). Female pediatricians were more likely than male pediatricians to think that TV affects adolescents' academic achievement, eating habits, overall physical activity, overweight/obesity, aggression, and high-risk sexual behaviors (lowest $\chi^2 = 5.9$, $df = 2$, $P < .05$).

Pediatricians' Media Practices

Pediatricians reported personally watching an average of 9.9 hours of TV per week (SD: 7.5). They also reported exercising for 30 minutes an average of 3.2 times per week (SD: 1.9).

One-third of the pediatricians (34%) reported using media in their waiting rooms for entertainment purposes, and 28% reported using media in their waiting rooms for patient or family education purposes. Male pediatricians were more likely than female pediatricians to report using media for patient education (36% and 20%, respectively; $\chi^2 = 10.9$, $df = 1$, $P < .001$).

Interestingly, pediatricians' personal TV-viewing habits appeared to be related to their opinions. Pediatricians were divided into 3 groups (tertiles) on the basis of the amount of time they watched TV each week. Pediatricians who watched the greatest amounts of TV were significantly more likely than those who watched less to think that the AAP recommendation to limit children's total media time to

no more than 1 to 2 hours per day is unrealistic, whereas those who watched less (bottom 2 tertiles) were more likely to agree with the recommendation ($\chi^2 = 11.9$, $df = 4$, $P < .05$). Physicians who watched the greatest amounts of TV themselves were also more likely to report a lack of physician/staff support for the recommendations as a barrier than were physicians who watched less TV ($\chi^2 = 16.0$, $df = 8$, $P < .05$). They were also more likely to report a lack of suggestions for alternatives as a barrier ($\chi^2 = 18.6$, $df = 8$, $P < .05$).

Pediatricians' TV watching was related to many of their beliefs about the effects media may have on children. The more pediatricians watched TV each week, the less likely they were to report that media affect infants' brain development ($\chi^2 = 13.1$, $df = 4$, $P < .05$), preschool-aged children's eating habits ($\chi^2 = 9.7$, $df = 4$, $P < .05$), preschool-aged children's aggression ($\chi^2 = 11.3$, $df = 4$, $P < .05$), schoolchildren's academic performance ($\chi^2 = 20.8$, $df = 4$, $P < .001$), schoolchildren's eating habits ($\chi^2 = 11.8$, $df = 4$, $P < .05$), schoolchildren's physical activity levels ($\chi^2 = 8.6$, $df = 4$, $P < .05$), adolescents' academic performance ($\chi^2 = 14.0$, $df = 4$, $P < .01$), adolescents' eating habits ($\chi^2 = 19.6$, $df = 4$, $P < .001$), adolescents' aggression ($\chi^2 = 9.3$, $df = 4$, $P < .05$), and adolescents' high-risk behaviors ($\chi^2 = 11.6$, $df = 4$, $P < .05$).

A majority of pediatricians reported some interest in receiving training for patient media use reduction through continuing medical education (high interest: 15%; moderate interest: 43%; low interest: 42%). Pediatricians who were most interested in receiving training were also significantly more familiar with the AAP recommendations, agreed with them more, made them to parents or patients more often, thought that the media have greater effects on children, tended to be younger and to be generalists, and were more likely to be female (lowest $\chi^2 = 7.9$, $df = 2$, $P < .05$).

DISCUSSION

The results indicate that the efforts of the AAP in reaching pediatricians have been largely successful, although there is more that can be accomplished. More than 3 of 4 pediatricians in Minnesota are aware of the 3 major recommendations suggested by the AAP policy statement on children, adolescents, and television,²⁷ which was published in 2001. Furthermore, almost all pediatricians agree with the recommendations. It is likely that pediatricians' agreement with the AAP recommendations stems from their concern about the range of negative effects the media can have on children's health and development. Pediatricians almost universally believe that children's media use negatively affects children in many areas, including children's aggressive behavior, eating habits, physical activity levels, risk for obesity, high-risk behaviors, and school performance. These beliefs are in accordance with the preponderance of accumulated research on media's various negative effects on children.¹³⁻¹⁷ The efforts of the AAP to educate its members about the research-based concerns appear to have been successful.

The efforts of the AAP were directed not only at member education but also at influencing children and families by providing a structure for pediatricians to provide recommendations to patients and parents. The results are more mixed on this account. Three of 4 pediatricians (76%) almost always or often recommend that parents encourage alternatives to screen-based entertainment for their children, but only one-half (51%) regularly recommend that children's total screen time be limited to no more than 1 to 2 hours per day, and only one-third (33%) regularly discourage TV viewing for children <2 years of age. These results are somewhat surprising, given that, when pediatricians do make the recommendations, they generally think that they are at least a little effective (although many think that they are very or somewhat effective). Some might argue that a recommendation that is only a little effective is not worth making, but it must be remembered that, in many facets of behavioral health, small effects can have large consequences for public health. For example, the effect of calcium intake on bone mass has an effect size of only ~1%, and the effect size of daily aspirin use in the reduction of the risk of heart attacks is <1%.^{29,30} These effect sizes are quite large when one realizes that, if the recommendations are made to 1 million people, then 10 000 of them might be made healthier. Therefore, health care professionals are used to making recommendations that may have only a little effect, because a little effect may be all that is needed to improve health outcomes.

The low rate of making recommendations is also somewhat surprising because there are few regular perceived barriers to making recommendations. However, lack of parental motivation or support for the recommendations is the barrier most often faced and is likely to be a particularly difficult barrier to surmount.

Given the general familiarity with the AAP recommendations and the frequency of making the recom-

mendations (even if irregularly), it is surprising that pediatricians appear unaware of the more global Media Matters campaign and the specific media resources that are available, such as the media history form. It is unclear from this study why so few pediatricians are aware of the media history form or why so few use it or other AAP brochures.

Female pediatricians are significantly more aware of the guidelines and incorporate them into their practice during anticipatory guidance and parental education. In addition, it is interesting that pediatricians who report watching more TV are more likely to find the recommendations unrealistic, incorporate them less into their practice, and generally find less perceived support for the recommendations from their office/clinic staff.

In their study of pediatric residency programs, Rich and Bar-on³¹ found that less than one-third of accredited programs educate pediatricians-in-training about the influences of media on children and adolescents. However, they also found that pediatric program directors who had been formally trained in media effects on health were significantly more likely to include media education for their residents. Furthermore, they noted that, if we expect pediatricians to include evaluation of and anticipatory guidance about media use during children's health maintenance visits, then these skills must be taught and practiced in their residency training. It is perhaps significant that more than three-quarters of pediatricians have pediatrician trainees in their clinics/practices. Perhaps even without a formal curriculum, pediatricians' knowledge, attitudes, and practices (ie, whether they make recommendations to parents) will be passed on to future generations.

A strength of this study is that it was a state-based survey. However, the response rate of 41% may limit generalization. Response rates are often low when busy health care practitioners are sampled, and the rates observed in our study are similar to those of other physician surveys^{32,33} and higher than the response rate of 19% in a recent survey of pediatricians.³⁴ Furthermore, it is unclear at this time how representative Minnesota pediatricians are of pediatricians nationally. We recommend replication of this study in other states.

It is possible that the high rates of awareness and agreement with the AAP recommendations are the result of a social desirability response bias. However, if pediatricians were highly motivated to provide socially acceptable responses, then we would expect that similarly high percentages of pediatricians would report being familiar with the media history form, would report making recommendations to patients, and would provide brochures. However, this pattern was not found. Therefore, social desirability does not seem to have affected the responses broadly. If this study is replicated, it may be appropriate to insert a false recommendation (eg, children <7 years of age should not view media violence at all) to test for a social desirability bias.

This study also did not measure awareness of and agreement with the recommendation that parents remove TV sets from children's bedrooms. This is

particularly important because of the recent evidence of the wide range of negative effects that appear to be related to bedroom TVs^{6,35} and because this may be an issue that pediatricians can very quickly ask about and recommend a change. Given the increasing prevalence of bedroom TVs even for preschool-aged children, this issue is likely to become more important in the future.^{2,6,36}

Overall, our findings are encouraging, considering the almost universal awareness of and agreement with the recommendations. As part of the recommendations published in 2001,²⁷ pediatricians were challenged to lead efforts within their communities to establish coalitions to promote media advocacy and education. In addition, it is possible to conceptualize an approach that would use the office as a setting for direct interventions to reduce media use. To address the sense of futility identified by some respondents in this survey, pediatricians may need to be shown that interventions designed to reduce TV watching and media use can have clinically significant effects. A recent randomized, controlled study documented the ability to reduce body mass index values with the initiation of a 6-month curriculum, at the elementary school level, designed to reduce children's TV viewing.³⁷ Furthermore, the same intervention reduced aggressive behavior, as measured with peer ratings, and observed verbal aggression.³⁸ These results are particularly notable because the intervention was designed to influence only the amount of screen time and not the content of the media watched/played. Certainly, more research in this area is needed. However, the early results clearly suggest that recommendations to limit the total amount of screen time are not misplaced and may have important effects on several aspects of children's health outcomes. Pediatricians are in a privileged position to have positive effects, and the advocacy of the AAP in these respects appears to be valid and should be continued.

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