First Do No Harm: Why Have Parents and Pediatricians Missed the Boat on Children and Media?

As a society, we are engaged in a vast and uncontrolled experiment with our infants and toddlers, plunging them into home environments that are saturated with electronic media.[1]

Media are like the weather. Everyone talks about the media. Everyone is affected by them. But no one wants to talk about how they are changing and how they can influence us in sometimes extraordinary ways. Just as people—and politicians—seem to be ignoring the threat of global warming, they also seem blithely willing to ignore the impact of media on children and adolescents.

Make no mistake about it: the media *are* changing; in a few short years, your child may be able to click on a pizza commercial on your TV screen and order a pizza directly or go to a website for more information about the shampoo that looks so good. As your teenager passes a McDonald's restaurant, she may receive a text message on her cell phone with a $1 off coupon for that particular day and store. Ten years from now, your wristwatch may actually be a 5-gigabyte computer that can talk to you. There will be no further need to memorize Lincoln's Gettysburg Address or the death scene from *Romeo and Juliet*. Your watch will be able to recite them, probably with an appropriate Midwestern or Royal Shakespearean Company accent, respectively. For interactive toys, the future is now: as of 2000, 60% of the new toys produced by Fisher-Price had a computer chip in them, and toys like Barney Actimate encourage children to play and sing songs along with the TV program that is signaling it[2]—not to mention your child's or teenager's exposure to the current escalation of violent content, sex and sexuality, and smoking in the media.[3]

The average American child spends >6 hours a day with a variety of different media,[4] yet parents and pediatricians seem unwilling or unable to deal with the issue.[5,6] For parents, media seem to rank near the bottom of the list of things to be discussed, negotiated, fought over, and regulated. For pediatricians, discussing media seems to rank far below car seats, bicycle helmets, vaccinations, and household safety. Few residency programs teach about the impact of the media.[7] Nor do continuing medical education courses include, or even mention, the media in discussions of broad child health issues like violence, bullying, or drugs. Yet the media may play a significant role in virtually every concern both groups have about children and teens—sex, drugs, obesity, eating disorders, hyperactivity, school performance, aggressive behavior, and suicide.[6] Research indicates that for aggressive behavior, for example, the media may contribute 10% to 30%.[8] A young teen exposed to a heavy diet of sexual media is twice as likely to begin having sexual intercourse at a young age.[9] A child exposed to R-rated movies is twice as likely to begin smoking cigarettes.[10] Like the weather, the media are certainly not quiet companions who exert little or no influence.

In this issue of *The Journal*, Zimmerman and Christakis[11] extend our knowledge to young babies and once again demonstrate the power of the media and the importance of the basic principle of medicine: "first do no harm." Baby videos are now a $100 million business, with a myriad of unsubstantiated claims being made about how they will improve intelligence and school readiness.[12] Yet Zimmerman and Christakis found highly significant language delays in babies 8 to 16 months old who were exposed to such videos. As they soberly assess, this may not be a cause-and-effect situation, but it is certainly one that demands caution in exposing babies to videos and much more research to elucidate who may be harmed, how, and why. Despite the lofty claims of the producers of baby videos, there is very little evidence that babies <2 years old can learn anything positive from TV,[1] and there is significant evidence from 3 other studies that harm is possible: two studies of children under 2 years old watching *Sesame Street* also found delays in language development,[13,14] as did a large study of 1900 Japanese infants viewing 4 hours or more of TV per day.[15] This is not to say that *Sesame Street* is not one of the finest prosocial programs ever produced for children. It is; but "to everything there is a season," and the season for *Sesame Street* appears to be 2 years and older.[1,16] Why? Television is a complex medium and requires brain maturation and cognitive skills to decipher. Ordinarily, this does not occcur until age 2 or 3 years.[16] At birth, the infant brain is "plastic" and develops in response to genetic and environmental cues.[17,18] Numerous studies indicate that a human face is far more effective in "teaching" an infant than a face on a TV screen.[16]

A second study in this issue by Barradas et al[19] reinforces what the American Academy of Pediatrics (AAP) has been saying for a long time: parents need to control the TV set (and other screen media) and serve as

AAP American Academy of Pediatrics

See related articles, p 364 and p 369

Reprint requests: Victor C. Strasburger, MD, Professor of Pediatrics, Professor of Family and Community Medicine, Chief, Division of Adolescent Medicine, University of New Mexico School of Medicine, MSC 10 5590, 1 University of New Mexico, Albuquerque, NM 87131. E-mail: VStrasburger@salud.unm.edu.

J Pediatr 2007;151:334-6

0022-3476/$ - see front matter

10.1016/j.jpeds.2007.05.040

role models in using media. Parental TV viewing correlated with child TV viewing, and parents who set rules and "obeyed" the AAP recommendations had children who viewed less TV.[19] Unfortunately, several studies show that this is hardly the case. There is nearly a complete disconnect between what the AAP recommends and what parents and pediatricians do[6]:

AAP Recommendation: Parents should control the TV set. **Real world:** The 2005 Kaiser study found that more than half 8- to 18-year-old children report no rules about TV.[4] However, if you ask only parents, you will probably get a very different rendition, as several studies have shown.

AAP recommendation: Children <2 years old should not be watching TV.[20] **Real world:** A 2004 survey of 100 parents of infants found that infants were watching 2 hours of TV per day.[21] The larger 2003 Kaiser study found that more than half of 1-year-old children watch TV, for an average 68 minutes per day.[22] More recently, that figure has risen to nearly an hour and a half per day in 2 national studies.[23,24]

AAP recommendation: Children and teens should not have TV sets in their own bedrooms. **Real world:** In the most recent study, nearly one-fifth of babies had a TV set in their bedroom, as did >40% of all 3- to 4-year-old children.[24] Nearly two-thirds of teenagers have a TV set in their room.[25]

AAP recommendation: Pediatricians should take a media history. **Real world:** Less than one-third of pediatric residency programs teach about media effects.[7] Despite most pediatricians agreeing with the AAP recommendations, only one-fourth always discuss these recommendations with parents.[5]

What should we do about this sad state of events? First and foremost, both pediatricians and parents need to appreciate the power of the media—to educate, to entertain, and to harm. The research is increasingly compelling. Second, the federal government and private foundations need to fund research to fill in the gaps of our knowledge. To date, for such an important influence on child development, there is precious little money available to researchers. Third, the federal government needs to take its responsibility seriously. According to the United States' Communications Act of 1934, which first established policies for television broadcasting, the public owns the airwaves, and they are leased back to the networks to produce programming in the public's best interests. Is that really what is currently happening? Fourth, pediatricians must understand the role that media currently play in their young patients' lives. Asking 2 media questions in a well-child or well-teen visit would only take a minute: How much time do you spend watching screen media per day? Is there a TV set in your bedroom?[6] Fifth, the entertainment community needs to realize that the research has become far more sophisticated since the 1950s and accept that they have a public health role to play in producing prosocial programming. Finally, advertisers and manufacturers of toys and baby videos need to recognize that they, too, have a responsibility—to make prosocial products, to avoid making claims that can not be substantiated, and to limit their advertising aimed at young children.[26]

Sadly, few parents and pediatricians observe the AAP recommendations about children and media. These 2 new reports and numerous other recent studies[27] seem to indicate that they do so at their own—and babies' and children's and teens'—peril.

The author acknowledges the help of Professor Daniel R. Anderson with the preparation of this manuscript.

Victor C. Strasburger, MD
Professor of Pediatrics
Professor of Family and Community Medicine
Chief, Division of Adolescent Medicine
University of New Mexico School of Medicine
Albuquerque, New Mexico

REFERENCES

1. Anderson DR, Pempek TA. Television and very young children. Am Behav Sci 2005;48:505-22.
2. Anderson DR, Evans MK. Peril and potential of media for infants and toddlers. Zero to Three 2001;22:10-6.
3. Strasburger VC. Risky business: what primary care practitioners need to know about the influence of the media on adolescents. Prim Care Clin Office Pract 2006;33:317-48.
4. Rideout V, Roberts DF, Foehr UG. Generation M: media in the lives of 8- to 18-year-olds. Menlo Park, CA: Kaiser Family Foundation; 2005.
5. Gentile DA, Oberg C, Sherwood NE, Story M, Walsh DA, Hogan M. Well-child visits in the video age: pediatricians and the American Academy of Pediatrics' guidelines for children's media use. Pediatrics 2004;114:1235-41.
6. Strasburger VC. "Clueless": Why do pediatricians underestimate the media's influence on children and adolescents? Pediatrics 2006;117:1427-31.
7. Rich M, Bar-on M. Child health in the information age: media education of pediatricians. Pediatrics 2001;107:156-62.
8. Comstock GA, Strasburger VC. Media violence. Adolesc Med Clin 1993;4: 495-509.
9. Brown JD, L'Engle KL, Pardun CJ, Guo G, Kenneavy K, Jackson C. Sexy media matter: exposure to sexual content in music, movies, television, and magazines predicts black and white adolescents' sexual behavior. Pediatrics 2006;117:1018-27.
10. Sargent JD, Beach ML, Adachi-Mejia AM, Gibson JJ, Titus-Ernstoff LT, Carusi CP, et al. Exposure to movie smoking: its relation to smoking initiation among US adolescents. Pediatrics 2005;116:1183-91.
11. Zimmerman FJ, Christakis DA, Meltzoff AN. Associations between media viewing and language development among children under 2 years old. J Pediatr 2007;151:364-8.
12. Garrison M, Christakis D. A teacher in the living room? Educational media for babies, toddlers, and preschoolers. Menlo Park, CA: Kaiser Family Foundation; 2005.
13. Nelson K. Structure and strategy in learning to talk. Monogr Soc Res Child Dev 1973;(1-2, Serial 149).
14. Linebarger DL, Walker D. Infants' and toddlers' television viewing and language outcomes. Am Behav Scientist 2005;48:624-5.
15. Tanimura M, Okuma K, Kyoshima K. Television viewing, reduced parental utterance, and delayed speech development in infants and young children (Letter). Arch Pediatr Adolesc Med 2007;161:618-9.
16. Wartella E, Robb M. Young children, new media. J Child Media 2007;1:35-44.
17. Anderson DR. A neuroscience of children and media? J Child Media 2007;1:77-85.
18. Shonkoff JP, Philipps DA, editors. From neurons to neighborhoods: the science of early childhood development. Washington, DC: National Academy Press; 2000.
19. Barradas DT, Fulton JE, Blanck HM, Huhman M. Parental influences on youth television viewing. J Pediatr 2007;151:369-73.
20. American Academy of Pediatrics. Media education. Pediatrics 1999;104:341-3.
21. Pierroutsakos SL, Hanna MM, Self JA, Lewis EN, Brewer CJ. Baby Einsteins everywhere: the amount and nature of television and video viewing of infants, birth to 2 years. Paper presented at the Biennial International Conference for Infant Studies, Chicago, IL, May 2004.
22. Rideout VJ, Vandewater EA, Wartella EA. Zero to six: electronic media in the lives of infants, toddlers and preschoolers. Menlo Park, CA: Kaiser Family Foundation; 2003.

23. Rideout V, Hamel E. The media family: electronic media in the lives of infants, toddlers, preschoolers and their parents. Menlo Park, CA: Kaiser Family Foundation; 2006.
24. Vandewater EA, Rideout VJ, Wartella EA, Huang X, Lee JH, Shim M. Digital childhood: electronic media and technology use among infants, toddlers, and preschoolers. Pediatrics 2007;119:e1006-15.
25. Roberts DF, Foehr UG, Rideout VJ, Brodie M. Kids and media at the new millenium. Menlo Park, CA: Kaiser Family Foundation; 1999.
26. American Academy of Pediatrics. Children, adolescents, and advertising. Pediatrics 2006;118:2563-9.
27. Strasburger VC, Wilson BJ, Jordan A. Children, adolescents, and the media. 2nd ed. Thousand Oaks, CA: Sage. In press 2008.

Rethinking Herpes Simplex Virus Infections in Children and Adolescents

"In all affairs, it's a healthy thing now and then to hang a question mark on the things you have taken for granted." —
Bertrand Russell

Most physicians have learned that herpes simplex virus (HSV) infections involving the genital tract are caused predominantly by HSV-2 and that infections of the lips and mouth are usually caused by HSV-1. Recent studies show that HSV-1 is an increasingly frequent cause of genital infection.[1]

Even though it is possible for HSV-1 to infect genital sites, this is not its preferred location for replication and establishment of latency. Animal models suggest that preference of anatomic sites may be associated with sequence differences in the latency-associated transcript of HSV-1 and HSV-2.[2] As a result, clinical differences are noted when HSV-1 infects the genital area or HSV-2 infects the mouth. Symptomatic recurrence and asymptomatic viral shedding occur less often with HSV-1 genital infection compared with HSV-2 genital infection.[3] Similarly, although shedding of HSV-2 from oral secretions has been reported, the virus is shed less frequently and in lower amounts than HSV-1 from oral mucosa.[4]

Despite anatomic preferences of the virus for establishment of latency and reactivation, epidemiologic studies show that in some countries and in certain populations in the United States, HSV-1 is becoming an increasingly important cause of genital herpes infection.[5] Studies from Scandinavia and the United Kingdom indicate that HSV-1 is responsible for a substantially higher proportion or even the majority of first clinical episodes of genital herpes in young women.[1] A retrospective study in the United Kingdom found HSV-1 to be the cause of primary genital infection in 71% of individuals presenting to a genitourinary medicine clinic. The high prevalence of HSV-1 infection was most marked in women.[6] HSV-1 accounted for 64% of primary genital HSV infections between 1995 and 1999 at a sexually transmitted infection clinic in Sweden.[7] A study of college students in the mid-western United States found that the proportion of genital herpes infections caused by HSV-1 increased from 31% to 78% between 1993 and 2001.[5] Whether this occurred because there is a larger pool of HSV-1–susceptible adolescents and adults, because of changing sexual practices, or both remains to be determined.

The study by Xu et al[8] in this issue of *The Journal* provides some support for the hypothesis that a decline in oral HSV-1 infections in children may play a role in the increasing proportion of cases of genital HSV-1 infection. The study was designed to explore the epidemiology of HSV-1 infections in the United States. Sera from 2989 children who participated in recent National Health and Nutrition Examination Surveys (NHANES) were tested for antibody to HSV-1.

The NHANES project, conducted by the National Center for Health Statistics, was implemented in the early 1960s to monitor the health and diet of the US population. Individuals who participate in NHANES are selected in a manner so as to be representative of the noninstitutionalized general civilian population. Previous NHANES studies have addressed the seroepidemiology of HSV infection in adolescents and adults.[9,10] The most recent study of HSV-1 and HSV-2 seroprevalence in this older age group, published in 2006, showed, in contrast to earlier surveys, a downward trend in HSV-2 seroprevalence in adolescents and young adults in the United States, as well as an overall decrease in HSV-1 seroprevalence. However, a higher percentage of persons with serologic evidence of HSV-1 but not HSV-2 infection gave a history of being diagnosed with genital herpes compared with previous surveys, suggesting an increase in genital HSV-1 infections compared with previous years.[9]

Xu et al focus on children age 6 to 13 years enrolled in NHANES from 1999 to 2002. Sera were tested for antibodies to HSV-1 in all age groups. In ad-

HSV Herpes simplex virus
NHANES National Health and Nutrition Examination Survey

See related article, p 374

Reprint requests: Kathleen M. Gutierrez, MD, Division of Pediatric Infectious Diseases, Stanford University School of Medicine, 300 Pasteur Drive, Room G312, Stanford, CA 94305. E-mail: mdkat@stanford.edu.

J Pediatr 2007;151:336-8
0022-3476/$ - see front matter

10.1016/j.jpeds.2007.05.052