Don't Ask, They Won't Tell: The Quality of Adolescent Health Screening in Five Practice Settings

ABSTRACT

Objectives. This study examined the extent to which comprehensive, age-appropriate adolescent health screening is undertaken in the clinical setting and whether the extent of such screening varies by setting.

Methods. Charts of adolescents 13 to 17 years old (n = 788) were randomly selected from five practice settings in Minneapolis, Minn. Each was assessed for the number of biomedical and sociobehavioral health risks screened.

Results. In no practice setting was there screening to the level recommended. The two teen clinics screened more extensively for behavioral, psychosocial, substance use and sexual behavior risks than the community family practice setting, which, in turn, screened more extensively than either the private family practice or private pediatric practice settings, which did not differ from each other. Age differences and gender accounted for only small amounts of variance in total number of health risks screened, whereas differences among practice settings accounted for a larger amount.

Conclusions. Results suggest substantive deficiencies in private practice settings' implementation of preventive care screening protocols for adolescents. (*Am J Public Health.* 1996;86:1767–1772)

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Introduction

In 1994, the American Medical Association (AMA) issued a comprehensive set of guidelines—the Guidelines for Adolescent Preventive Screening—intended to provide a framework for adolescent preventive services within the clinical setting.[1] The recommendations addressed not only the biomedical risks of youth but the social, emotional, and behavioral areas that are now acknowledged as the major sources of mortality and morbidity in the second decade of life.[2–8] Recommendations covered 14 topic areas organized into four categories: health services delivery, anticipatory guidance, health screening, and immunizations. More specifically, the topics covered by the guidelines include promoting parent responsiveness to the health needs of youth, pubertal adjustment, injury prevention, physical fitness, dietary habits/eating disorder prevention, and psychosexual adjustment. In addition, the guidelines are directed toward prevention of hypertension, hyperlipidemia, tobacco use, alcohol/drug use, depression/suicide, abuse, learning problems, and infectious diseases.[1]

The guidelines were prompted by a growing awareness of the importance of health screening during adolescence[4–6] and by evidence from practitioner surveys indicating that sociobehavioral health screening is not implemented as uniformly as biomedical screening and may vary across practice settings (unpublished data, American Academy of Pediatrics, Department of Research, 1992). Given the estimation biases inherent in practitioner surveys, the present study was undertaken to determine the extent to which comprehensive, age-appropriate adolescent health screening is actually undertaken on a case-by-case basis in the clinical setting.

A chart review strategy made it possible to test several hypotheses. That is, we hypothesized that the likelihood of an adolescent being asked screening questions would (1) increase with age (because of the increasing developmental appropriateness of the questions),[1,2,9] (2) vary with gender (because of gender differences in the prevalence of some sociobehavioral health risks or the gender bias assumptions of provider groups),[2,9] and (3) increase according to the proportion of adolescents—particularly high-risk adolescents—typically seen in a practice setting (because of increased provider experience).

Methods

Practice Settings

Three types of practice settings were identified that differed in the proportion of adolescents typically seen: pediatric practice settings (relatively few adolescents), family practice settings (moderate numbers of adolescents), and teen clinics (exclusively adolescents). Within these settings, two subtypes were identified: private practices (relatively few adolescent patients from economically disadvantaged backgrounds) and community health centers (relatively higher proportions of low-income adolescents). Thus, five prac-

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tice settings were studied: private pediatric practices, private family practices, community family practices, school-based teen clinics, and community teen clinics. These settings were selected because they represent the major sites where adolescents receive health care services.

As a means of averaging out differences in provider training, experience, and other relevant factors, only sites with four or more practitioners that were located within geographical proximity to each other were considered for inclusion in the study; when possible, two or more sites per setting were invited to participate. Two private pediatric practices, one private family practice, two community family practices, one school teen clinic, and one community teen clinic that met the stated constraints agreed to participate. All seven study sites were based in a large midwestern city.

Screening Measure

Comprehensive, age-appropriate adolescent health screening was operationalized by counting the frequency with which 21 health risks derived from the AMA guidelines protocol were assessed for adolescent patients, as documented in their medical record. Health risks were clustered into five categories: biomedical risks, physical risks, psychosocial risks, substance use, and sexual behavior. Biomedical risks were assessed through six questions on immunization history, family health history, temperature, height, weight, and blood pressure. The five physical risk questions centered on fitness, dietary habits, body image, unintentional injury risk, and violence-related injury. Psychosocial risk questions addressed adjustment to puberty, school adjustment/learning disabilities, relationships, depression/suicide, and abuse (physical, sexual, and emotional). The AMA guidelines propose covering four areas of substance use: tobacco, alcohol, illicit drugs, and abuse of prescription and over-the-counter drugs. Finally, the guidelines propose one sexuality screening question regarding intercourse that, if answered affirmatively, is followed with a set of questions dealing with sexually transmitted diseases, sexual orientation, contraceptive behavior, pregnancy history, and number of partners.

Sample Selection

Power analysis indicated that approximately 150 charts per setting would need to be reviewed in order to detect differences in screening practices among the settings as well as among gender and age subgroups within each setting. With sample sizes of 150 per setting (75 per gender and 50 per age category), an alpha level of .05, and 80% power, conservative estimates of the effect sizes that would be detectable are .25 between genders and age groups within settings and .15 among settings.[10] In instances in which two sites represented a single practice setting, the total number of charts was equally divided between the sites. At each site, the desired quota of charts was randomly selected from a specially prepared, nonordered list of all patients between 13 and 18 years of age who had been seen at least once during a target 12-month period (July 1, 1992, to June 30, 1993).

More than half of the randomly selected patients in each setting had been seen more than once during the target period (55%, 63%, 57%, 82%, and 53% of the samples from the private pediatric practice, private family practice, community family practice, school teen clinic, and community teen clinic settings, respectively). With the exception of the school teen clinic, similar proportions of adolescents in each setting were seen only once, indicating that practitioners faced comparable limitations on their opportunities for screening. *International Classification of Diseases* (9th edition) coding of the purpose of each visit indicated that adolescents were seen for a wide range of health issues, ranging from routine sports physicals and acute illness to medical problems requiring regular follow-up.

Coders

All visit encounters, chart notes, and health history forms completed by the practitioner, nurse, intake worker, or patient during the target 12-month period were reviewed by five professional hospital-based chart reviewers. They used a standardized recording format and the detailed Guidelines for Adolescent Preventive Screening questions,[1] the latter serving as examples of whether a particular issue had been covered (the chart review protocol is available on request). Coders were cross trained at the outset: each individual coded between 5 and 10 charts, exchanged them with a partner who independently coded the charts, and then reviewed, discussed, and resolved, with the partner, any differences in coding and interpretation. These measures, coupled with the expertise of the coders and their history of collaboration, minimized coder variability. Coders worked in groups of two to three at participating sites over a period of 1 to 2 weeks per site. To the extent possible, coder dyads were randomly paired at the various sites to minimize confounding of team "style" with setting. Similarly, an attempt was made to randomize the order in which sites were visited so as to avoid confounding coder practice and fatigue effects with setting. As a consequence, differences among coders were distributed across practice settings.

Coding Scheme

Each health risk in the measure based on the AMA guidelines was counted simply as screened (1) or not screened (0); thus, the total possible score was 21. This additive approach was used, rather than multidimensional scaling and weighting, because the goal of the analysis was to determine the frequency with which age-appropriate health risks were discussed, not to determine the extensiveness of the discussions or the relative importance of various health risks in predicting health outcomes. A lenient scoring criterion was used: if the chart included any evidence, no matter how minimal, that any one of several possible aspects of a health risk issue had been covered at any encounter during the study year, the practitioner was credited with having screened for the issue in its entirety.

At the conclusion of each chart review, the coders rated the difficulty of coding the chart on a five-point scale. These ratings made it possible to control, in subsequent analyses, for differences in screening scores that were attributable to systematic differences among settings in case complexity, amount of information recorded by practitioners, legibility and organization of the charts, and other factors unrelated to the main hypothesis of the study.

Demographics

There were key differences among the five practice settings related to the age, gender, ethnicity, and insurance coverage of their population base. While the private pediatric setting had the largest proportion of young teenagers (13 to 14 years old), the two teen clinic settings had the largest proportion of older adolescents (17 to 18 years old). Within settings, however, the majority of patients were 15 to 16 years old. The smallest proportion of female adolescents was found in the private pediatric and private family practice settings (42% and 53%, respectively), while the largest proportion was found in the school and

community teen clinic settings (67% and 72%, respectively). Across settings, 58% of the sample was female. The majority of adolescents in each setting were European American, with the exception of the community family practice setting, where 61% were non-White. There were substantial differences among settings in the proportion of adolescents from high-risk socioeconomic backgrounds, as estimated from charted information about patient insurance coverage: 3%, 4%, 26%, 11%, and 24% of adolescents in the private pediatric practice, private family practice, community family practice, school teen clinic, and community teen clinic settings, respectively, were covered by Medicaid.

Results

Age

Contrary to the first hypothesis, there was little age variation within two settings, private pediatric and private family practice (Figure 1). In addition, the age variation that occurred within the other three settings was in the direction opposite to that hypothesized: 13- to 14-year-olds were screened for the most risks, and 17- to 18-year-olds were screened for the fewest risks. Analysis of variance indicated that age accounted for only 2% of the variance in health screening across settings, however, $F(2, 785) = 8.3$, $\eta^2 = .02$, $P < .0003$.

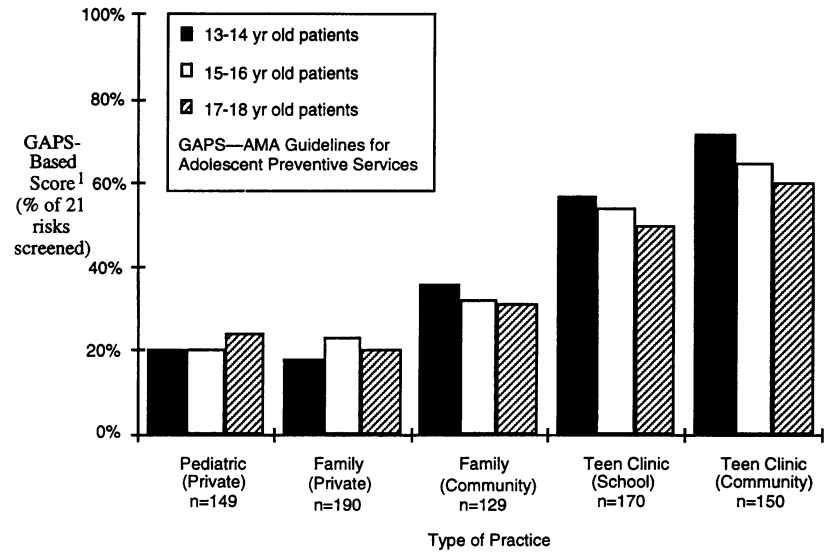

FIGURE 1—Percentage of adolescent preventive health screening questions asked, by age and practice setting.

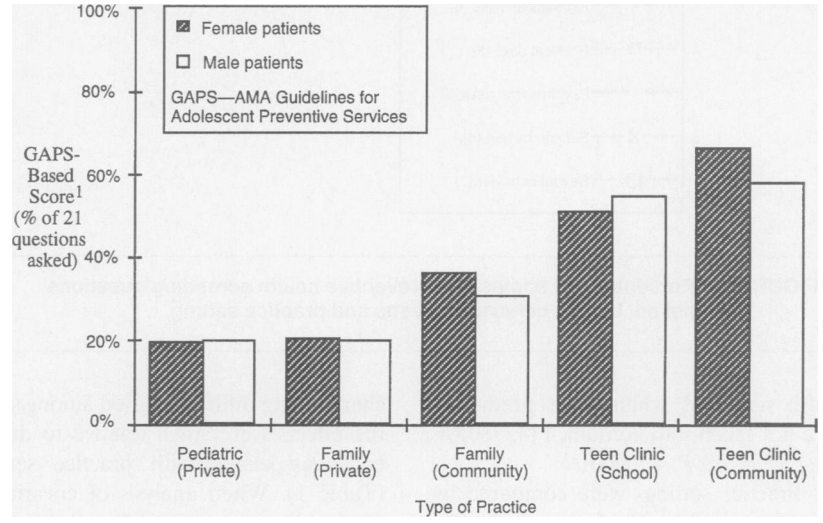

FIGURE 2—Percentage of adolescent preventive health screening questions asked, by gender and practice setting.

Gender

Contrary to the second hypothesis, there was little gender-related variation in screening within practice settings, with the notable exception of the community teen clinic (Figure 2). On average, 67% of the health risks were screened with female adolescents at the clinic, in comparison with 58% of the issues with male adolescents. Analysis of variance indicated that gender-related differences in screening accounted for only 3% of the variance across practice settings, however, $F(1, 774) = 27.1$, $\eta^2 = .03$, $P < .00001$.

Coding Difficulty

Ratings for difficulty of coding the charts ranged from a mean of 3.2 (neither easy nor hard) for the two teen clinics to 4.0 (easy) for the private pediatric practice setting; the community and family practice settings fell in between (3.5 and 3.6, respectively). Analysis of variance indicated that systematic differences in coding difficulty (a proxy for amount of information recorded) accounted for 13% of the variance in screening when other predictors were not taken into account, $F(4, 763) = 27.2$, $\eta^2 = .13$, $P < .0001$.

Practice Setting

Strong support was obtained for the hypothesis that the extent of screening would vary with the proportion of adolescents—particularly high-risk adolescents—typically seen in a practice setting. On average, the private pediatric and private family practice settings screened for only one fifth of the age-appropriate health risks (4 of 21), the community family practice setting screened for one third of the risks (7 of 21), the school teen clinic screened for just over half of the risks (11 of 21), and the community teen clinic screened for two thirds of the risks (14 of 21). Analysis of variance indicated that differences among practice settings accounted for 48% of the overall variance in

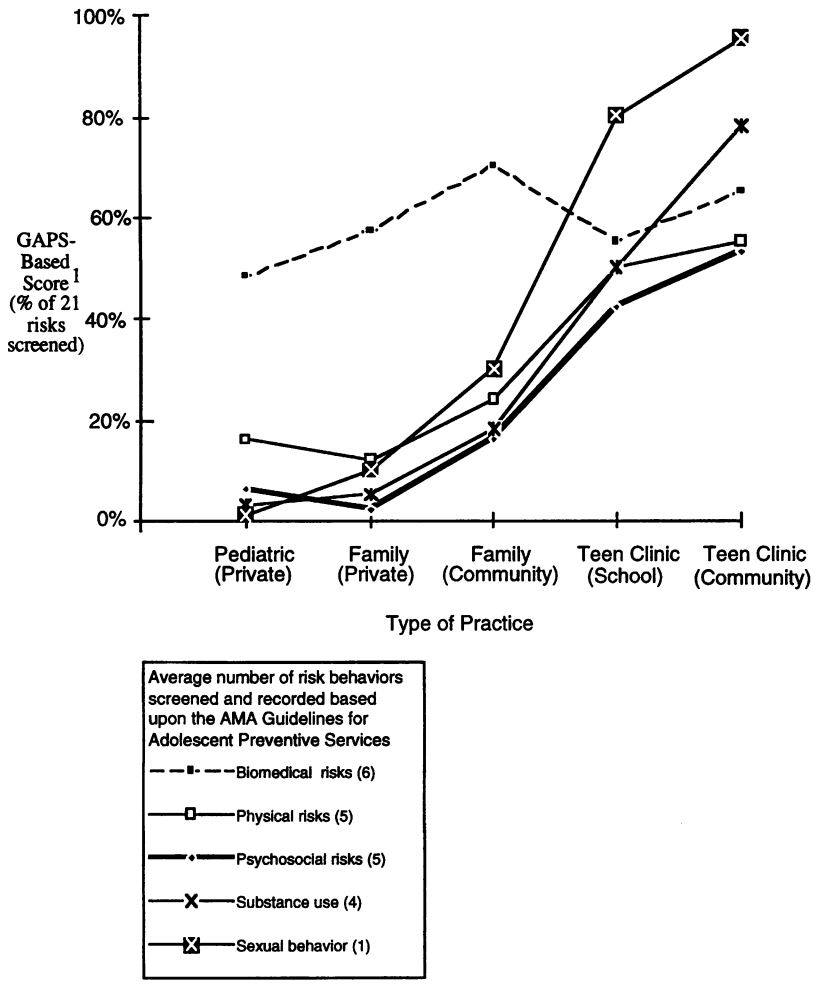

FIGURE 3—Percentage of adolescent preventive health screening questions asked, by risk behavior screens and practice setting.

health screening when other predictors were not taken into account, $F(4, 780) = 183.4, \eta^2 = .48, P < .00001$.

Practice settings were compared by subscale to address the issue of whether charting behavior rather than health screening behavior was being measured (Figure 3). The pattern of variation across settings was similar for each subscale except biomedical risk; differences would not be expected for that subscale because the issues are not specific to adolescence. Across settings, for example, 39% to 66% of the charts recorded information about immunizations and family history and 50% to 81% recorded information about blood pressure, height, weight, and temperature. These findings contrast sharply with the range of substance use issues charted, for example (3% to 78% across settings).

In sum, analysis of variance results indicated that while age, gender, and chart coding difficulty varied among sites, the effects were small relative to differences associated with practice setting (Table 1). When analysis of covariance was used to control for differences among settings in age and gender as well as coding difficulty, practice setting still accounted for 37% of the overall variance in screening behavior. Analyses of covariance conducted separately for each gender and age group revealed the same pattern of results, differences among practice settings accounting for 32% to 49% of the variance in screening behavior.

Practitioner effects were not examined directly because the focus of this study was on settings rather than individuals, and information other than the practitioner's notes was included in the coder's decision to count an issue as having been screened (e.g., patient self-report on the history form, charted notes by a nurse). For purposes of this study, practitioner effects that were not captured by the coding difficulty variable (a proxy measure for the amount of information recorded) contributed to the unexplained variance in screening behavior.

Discussion

The present study of adolescent patients across five clinical practice settings revealed considerable variation in the extent to which prescribed screening questions were asked and recorded. An inherent limitation of this study involves the use of chart review.[11] When this methodology (as opposed to direct observational techniques) is used, documentation of screening activities is treated as a proxy for the actual screening itself. In this analysis, the available record of practitioner–adolescent interaction is what is charted, and, on the basis of what clinicians report in their charts, the AMA Guidelines for Adolescent Preventive Screening are, at best, being implemented on a limited basis.

The explanation that inadequate charting can fully account for the results is undercut by the consistent pattern of intersetting differences on all but the one subscale dealing with biomedical issues. The consistently higher rates with which biomedical health risks, in comparison with social and behavioral risks, were charted challenge the limitations-of-charting argument. This difference (between charting of biomedical and biobehavioral screening questions) may be the result of an individual other than the primary physician recording the biomedical variables prior to the medical encounter. However, it is unlikely that personnel differences explain all of the variance; rather, the consistency with which biomedical screening data were recorded relative to social and behavioral risks suggests that physicians are not screening for psychosocial, substance use, sexual, or physical risks. While it can be argued that sensitive or nonbiomedical variables may not be fully charted even when the questions are asked, it is reasonable to believe that such factors would be equally important in all settings, not systematically different among settings (as was found here).

Another study limitation is the absence of interrater and intrarater reliability analyses assessing the consistency of coding in this cadre of experienced chart reviewers. Several steps were taken to

minimize such inconsistencies; however, rater unreliability contributes to error variance, which statistically masks rather than accentuates differences among settings and thereby underestimates the extent of difference.

Differences in the age and gender composition of the patient population across practice settings did not explain differences in the number or overall proportion of variables positively screened. Clearly, practitioners at the teen-focused settings were consistently more likely to record having asked the social and behavioral screening questions, while practitioners at the private pediatric and private family practice settings were the least likely to indicate that they screened for the same issues.

The greatest source of variation in screening, however, was evident not in the specialty of the practice (pediatric, family, or teen focused) but in the contrasts between private and community settings. While there appears to be a general awareness of the range of risk behaviors in which young people typically engage,[12–16] this general awareness does not appear to translate into age-appropriate screening in physicians' offices.

It is possible that there is a bias in the nature of the clinical encounter between private and community settings that is not fully adjusted for by using random chart selection. Such bias could explain some of the differences found between community and private settings if the community settings were more likely to see adolescents for routine health care than for acute visits (health screening is more likely to occur during routine visits). Two of the three community settings were youth services, and there is evidence that young people disproportionately are seen in those settings for acute, "confidential" problems (e.g., mental health, sexual and reproductive health).[17] Thus, if the nature of the clinical encounter is substantively different between community and private settings, it is unlikely to be in the direction that would explain the differences found.

Another potential source of bias involved within-setting provider differences. As a means of maintaining the anonymity of the providers as well as the patients, no coding of individual providers was attempted; thus, it was not possible to identify within-group differences. It is very possible that there is a self-selection factor such that those most interested in working with adolescents choose to work in community and, especially, youth clinic settings. It is plausible that setting differences may in fact represent, at least in part, a provider self-selection factor.

TABLE 1—Predicting Total Number of Risks Screened and Recorded during Adolescent Health Screenings in Five Practice Settings

Variance in Screening Explained[a]	Overall	Gender		Age, y		
		Male	Female	13–14	15–16	17–18
By age, %	1	4	1	...	...	...
By gender, %	3	...	...	6	2	1
By coding difficulty, %	10	7	12	7	16	5
By practice setting, %	37	42	36	49	32	35
Total variance explained, %	51	53	49	62	50	41
F	113[b]	59[b]	68[b]	61[b]	58[b]	18[b]
df	7	6	6	6	6	6

Note. Data reflect the total number of risk behaviors screened and recorded according to the protocol based on the AMA Guidelines for Adolescent Preventive Services.
[a]Partial η^2 (variance explained by each variable after control for the effects of previous variables).
[b]Test for homogeneity of variance: $P > .05$. All F values for total variance explained were significant at $P < .00001$.

Thus, differences found in practice sites are probably not due to the study methodology. Such variation between types of practice raises several important questions. How do assumptions regarding youth behavior differ in private and community settings? Are there differences in financial incentives and imperatives that influence the extent of screening questions? To what extent does familiarity with youth problems influence the likelihood that young people will be appropriately screened?

Regional and national surveys of practitioners have revealed high levels of discomfort on the part of many physicians when dealing with the complex psychosocial issues of young people. Many physicians working with youth have reported being inadequately trained to address some of the most prevalent adolescent health issues related to physical, social, and emotional health; sexual orientation; and health-compromising behaviors.[18–20]

Variation among practice settings such as that found in the present study may be due in part to variation in training, prior experiences, and attitudes of the providers. While this issue was not examined specifically, it is reasonable to hypothesize that those who work in youth-focused settings have a higher degree of comfort addressing the social and behavioral issues screened in the Guidelines for Adolescent Preventive Screening. Blum[19] found that most primary care physicians feel insufficiently trained in addressing the problems of youth, including substance use, unprotected heterosexual intercourse, same-sex relationships, emotional difficulties, and abuse. Likewise, Resnick et al.[21,22] showed that pediatricians, internists, and family physicians who felt uncomfortable with the social and psychological concerns of youth were more likely to avoid seeing them as patients. Such provider discomfort seems less related to specialty and more associated with training in adolescent health, year of licensure, sensitivity to the needs of youth, and provider-perceived competency in addressing interpersonal issues.[23]

Conclusion

The present study, to our knowledge, is the first report of the extent to which the Guidelines for Adolescent Preventive Screening or any adolescent health screening recommendations are being implemented in a variety of practice settings. The plan envisioned for translating the recommendations of the guidelines into routine practice calls for the development of practical screening formats and specific training of practitioners to increase their ability and willingness to provide comprehensive screening services to adolescents. Such efforts at implementation should be accompanied by a follow-up assessment of the translation of that training into actual routine practice. The protocols used in the present study could provide a methodology to be used in such future assessments.

The finding that non-teen-focused practice settings in this study typically failed to screen for sociobehavioral health risks, regardless of patient age or gender, suggests that primary care providers may still be reluctant or ill prepared to address the social and behavioral etiologies that

underlie the major causes of adolescent morbidity and mortality. In addition, difficulties may arise in the time available during a patient encounter to record responses to these screening issues. This issue and the reluctance to raise social and behavioral screening questions can be addressed concurrently by using self-report health history forms and provider recording forms. While provider recording forms were not used at any site in the present study, both the school and community teen clinics used adolescent self-report health history forms that screened for sociobehavioral as well as biomedical risks. Likewise, in both teen settings, clinic policies mandated that those forms be updated annually. Clinicians in these settings acknowledged their awareness of the social and behavioral risks to which many of their adolescent patients are exposed.

Attitudes of providers in private practice settings that limit screening may also include the bias that high-risk behaviors are less likely to occur among the predominantly middle- and upper-income youth in their practices than among the inner-city youth often seen in school and teen clinics. In fact, such risks are common among middle- and upper-class adolescents and among patients in rural and suburban settings, not just among inner-city youth from impoverished backgrounds.[18] If the pertinent screening questions are not asked, appropriate services cannot be offered to those who need them most. Perhaps that is why adolescence is viewed by so many as the healthiest stage of life. □

Acknowledgments

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