

SAFE TEENS: Facilitators of and Barriers to Adolescent Preventive Care Discussions

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Background and Objectives: *This study's goal was to describe the topics discussed during adolescent preventive care visits and to identify facilitators and barriers of these discussions among physicians in family medicine residency programs. **Methods:** Forty-six family physicians in five residency programs used SAFE TEENS study cards to record data during 321 visits with adolescents ages 11–21 years. The study cards included a checklist of 31 potential topics organized under 10 categories. Closed- and open-ended questions were used to explore facilitators and barriers. **Results:** The topics most frequently discussed were under the categories of toxins (tobacco, alcohol, and drugs), environment (school, home, and friends), sexuality, and exercise. Physicians were more likely to conduct preventive care discussions in the clinical context of a physical examination and with a new patient. Parents being present for part of the visit, a reminder system, and the recognition of developmental stage were also significant facilitators. The presence of competing demands was the strongest barrier. **Conclusions:** To increase the number of adolescent preventive care discussions, family medicine educators should stress that visits with established patients and visits for reasons other than a physical examination are also opportunities to provide preventive care. The development of electronic reminder systems would also be useful.*

(Fam Med 2008;40(2):125-31.)

Adolescents are at risk for engaging in behaviors that have lifelong negative health consequences. Among the consequences are sexually transmitted infections, unwanted pregnancies, motor vehicle accidents, and suicide.¹ To reduce adolescent morbidity and mortality, the Guidelines for Adolescent Preventive Services (GAPS) recommend the use of various primary and secondary interventions. The GAPS consist of 24 recommendations that include health guidance, screening, and immunizations.^{2,3}

Unfortunately, the long list of recommendations is aimed at a relatively healthy population who rarely come to a medical clinic. Adolescents' visits to physi-

cians are generally limited to 1.9 visits per year for acute, short-term biomedical problems.^{4,5} In a busy primary care office setting with multiple competing demands, preventive care discussions with teens can be easily missed or delayed.

Despite the dissemination of guidelines such as GAPS, the rate implementation of adolescent preventive care discussions remains below recommended levels.⁶ Among the barriers to conducting adolescent preventive care discussions are physician, patient, and health system factors. Physicians frequently report lack of time and insufficient training as barriers.⁷ Adolescents themselves may be reluctant to talk with their doctors about behaviors such as tobacco, alcohol, drugs, depression, or sex.⁸ In addition, the amount and type of adolescent preventive care provided has been shown to vary dependent on the clinical practice setting.⁹

When family physicians have preventive care discussions with adolescents, what topics are addressed? What helps family physicians conduct preventive care discussions with adolescents, and what gets in the way? We designed this study to describe the preventive care

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topics that family physicians discuss with adolescents and to explore the facilitators and barriers to those discussions.

The specific aims of this study were (1) to describe the topics addressed during adolescent preventive care discussions in family medicine residency programs, (2) to identify facilitators of and barriers to adolescent preventive care discussions, and (3) to identify significant independent predictors of adolescent preventive care discussions.

Methods

Setting

The study was conducted in the Residency Research Network of Texas (RRNeT), a collaboration of nine family medicine residency programs located in eight cities in Texas. Together, these programs have approximately 90 faculty and 260 residents who conduct more than 250,000 patient visits per year. The patients in these clinical sites are primarily Hispanic (62%), non-Hispanic White (21%), and African American (15%). At the time of this study there were only five residency programs in RRNeT. The five programs located in Corpus Christi, Harlingen, McAllen, and San Antonio participated in this study.

Participants

Forty-six family medicine residents and faculty members in the five residency programs participated in this study. The physicians collected data on 321 office visits conducted with adolescents ages 11 to 21 years. The Institutional Review Board of the University of Texas Health Science Center at San Antonio approved this study.

Data Collection

The data collection instrument for this study was a 4x10-inch SAFE TEENS pocket card. Physicians carried pocket cards with them during a 4-week period and were asked to record data during or immediately after providing clinical care with any eligible adolescent.

The SAFE TEENS pocket card included a checklist to capture the major outcome variable—adolescent preventive care discussions. The checklist contained 31 adolescent preventive care topics organized under 10 categories using the acronym SAFE TEENS: Sexuality, Accidents, Firearms/Violence, Emotions, Toxins (tobacco, alcohol, drugs) Environment (school, home, friends), Exercise, Nutrition, and Shots

(immunization status). An additional “General Issues” category included doctor-patient confidentiality and normal human development (Table 1). Participants were asked “Which of the following did you discuss today?” and were prompted to “Check all that apply.”

Five closed- and six open-ended questions explored contextual factors that were potential facilitators of or barriers to adolescent preventive care discussions. We hypothesized that five factors would influence the delivery of adolescent preventive care and developed closed-ended questions to address them. These five factors included visit and demographic characteristics. The two visit characteristics were type of patient (new, continuity, or not my patient) and parent presence (none, part, or entire visit). The three demographic characteristics were age, gender, and ethnicity of the patient.

Six open-ended questions were used to generate additional information with the goal of discovering other contextual factors that influence adolescent preventive care discussions. Participating physicians wrote in the “reason for the visit” and “other health/social issues.” The back of the SAFE TEENS pocket card was divided into four quadrants each with one of the following four questions: (1) What HELPED YOU or motivated you to discuss prevention issues today? (2) What things ABOUT THIS PATIENT prompted you to have a prevention discussion today? (3) What were YOU thinking or feeling that prompted you to initiate a prevention

Table 1

Proportion of Visits That Included Preventive Care (n=321)

<p>General Issues (36%) 21% Doctor-Patient Confidentiality 27% Normal Human Development</p> <p>S—Sexuality (54%) 35% Sexual Abstinence 23% Condom Use 28% Contraception Use 30% Preventing STDs or HIV/AIDS 16% Protecting Partners</p> <p>A—Accidents (35%) 28% Drinking and Driving 26% Safety Devices (seatbelts, helmets)</p> <p>F—Firearms/Violence (17%) 11% Gun Safety 8% Nonviolence/Conflict Resolution 9% Victimization</p> <p>E—Emotions (41%) 29% Depression 11% Suicide 21% Body Image 9% Anger</p>	<p>T—Toxins (61%) 57% Tobacco Use 59% Alcohol Use 55% Drug Use 5% Steroid Use</p> <p>E—Environment (56%) 34% Relationships With Intimate Others 28% Relationships With Friends 35% Relationships With Family 29% School Performance or Problems</p> <p>E—Exercise (53%) 53% Exercise 14% Limit television and computer games</p> <p>N—Nutrition (47%) 41% Healthy Snacks and Meals 29% Safe Weight Mgmt 8% Eating Disorders</p> <p>S—Shots (29%) 29% Immunizations 5% Tuberculosis</p>
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STDs—sexually transmitted diseases

discussion today? (4) What GOT IN YOUR WAY of doing more prevention care during this visit?

Analysis of Open-ended Data

Content analysis was conducted with the written responses to the six open-ended questions.¹⁰ Four investigators, including two family physicians, a research nurse, and a doctoral-level behavioral scientist, conducted individual and group analysis. Each investigator independently read all participants' answers to the six open-ended questions, coded text, and sorted text units into provisional categories that captured major conceptual areas related to the central question: "What are the facilitators of and barriers to adolescent preventive care discussions?" Investigators then met as a group to compare their provisional categories. After discussing the content of each one of the provisional categories, the investigators reached consensus on criteria for nine categories that represented contextual factors that could be either facilitators of or barriers to adolescent preventive care discussions. The nine constructed categories included lack of time, physical exam, recognition of a developmental stage, prenatal visit, reminder system, competing demands, identification of a sexual issue, identification of a cardiovascular risk factor, and identification of a mental health issue. Examples of text data included in each category are presented in Table 2.

Using the developed criteria for the nine categories, the investigators individually returned to each case and made a decision about the presence or absence of each one during that visit. The decision was based on written responses present in all six open-ended questions. Discrepancies between coders were resolved at a group meeting through consensus.

Statistical Analysis

Frequency statistics described topics addressed in adolescent preventive care discussions in family medicine residency programs. Bivariable analyses examined associations between the 10 SAFE TEENS preventive care categories (outcome variables) and the 14 facilitators and barriers (predictors). Next, 10 backward stepwise logistic regression analyses, one for each outcome variable, determined the strongest independent predictors of adolescent preventive care discussions. Finally, a backward stepwise linear regression analysis examined the relationship between the 14 predictor variables and the number of preventive care categories addressed at each visit.

Results

Frequency of Topics Addressed in Adolescent Preventive Care Discussions

In more than 50% of the visits, the physicians reported discussing topics under the categories of Toxins

Table 2
Exemplars of Written Responses Included Within the Constructed Categories

<i>Constructed Category</i>	<i>Exemplars</i>
Lack of Time	"time," "time constraints," "time was limiting," "I ran out of time," "no extra time," "time management," "not enough time," "lack of time"
Physical Exam	"physical," "school physical," "pre-participation physical," "I usually do this during physicals," "annual exam," "well visit," "well woman exam," "well child," "well adolescent"
Developmental Stage	"teenager," "13 is a very susceptible age," "age," "young adolescent," "about to go into junior high," "entering high school"
Prenatal Visit	"OB prenatal," "prenatal visit," "OB follow-up," "OB check-up," "initial OB," "new OB," "OB problem," "teen pregnancy," "pregnant," "pregnancy"
Reminder System	"school form," "well woman template," "form from Texas Health Steps," "flow sheet," "HEADS format," "encouragement from faculty," "handouts from faculty," "this teen study," "this survey," "this card"
Competing Demands	"focused on chief complaint," "caught up in acuity of the issue," "patient not feeling well," "discussion of anything else seemed kind of insensitive," "I did not feel the patient was interested in preventive care discussion"
Sexual Issue	"sexually active with possible STD," "positive for chlamydia," "prevent STDs," "mother knows that child is sexually active," "family planning," "she asked about OCPs"
Cardiovascular Risk	"obvious morbid obesity," "mild obesity," "patient with diabetes mellitus," "risk for DM," "dark mark on neck, wondered about DM," "DM Type 1," "hypertension," "high BP," "lack of exercise"
Mental Health Issue	"depressed mood," "feeling of sadness due to her disease," "dealing with two good friends that moved away," "patient looked sad and nervous," "anxiety," "social phobia," "patient use of illicit drugs to self-medicate," "abuse by spouse"

OB—obstetrics
 STD—sexually transmitted disease
 OCP—oral contraceptive pills
 DM—diabetes mellitus
 BP—blood pressure

(tobacco, alcohol and drugs), Environment (school, home, and friends), Sexuality, and Exercise. The least commonly discussed category was Firearms/Violence (Table 1). Physicians addressed a median of four preventive care categories at each of the visits.

Frequency of 14 Facilitators and Barriers

The majority of the visits were conducted with patients who were Hispanic (77%) and female (68%). The mean age of the patients was 16.1 years (Table 3).

In almost half of the visits (46%) the physician reported that a lack of time was a barrier to adolescent preventive care discussions. A third of the visits (33%) were for physical exams. New patients were seen in 30% of visits, a developmental stage was recognized in 29% of the visits, 27% of the visits were for prenatal care, and the parent was present for part of the visit in 21% of the total visits. The remaining five facilitators and barriers were present in less than 20% of the visits.

Bivariable Analysis—Associations with Adolescent Preventive Care Discussions

All of the 14 factors were associated with adolescent preventive care discussions. Ten were facilitators (positively associated with preventive care), three were barriers (negatively associated with preventive care), and one had mixed effects (Table 4).

Table 3

Frequency of 14 Potential Facilitators and Barriers (n=321)

Variable	n	%
Ethnicity—Hispanic	248	77
Gender—Female	219	68
Time—Lack of	147	46
Physical examination	105	33
Patient type—New patient	97	30
Developmental stage	92	29
Prenatal visit	85	27
Parent presence—Parent present part of the visit	66	21
Reminder system	50	16
Competing demands	51	16
Sexual issue	50	16
Cardiovascular risk factor	48	15
Mental health issue	41	13
Age—Mean	16.1 years (SD=2.9)	

SD—standard deviation

Facilitators

Ten facilitators of adolescent preventive care discussions were the context of physical exam, new patient, parent presence during part of the visit (compared to none or all of the visit), reminder system, recognition of a developmental stage, younger patient age, female gender, identification of a cardiovascular risk factor, identification of a mental health issue, and Hispanic ethnicity.

Six of the facilitators were significantly related to at least 8 of the 10 preventive care categories. Physicians were significantly more likely to discuss those categories in the context of a physical exam and with a new patient. The parents being present for part of the visit, reminder systems, recognition that the adolescent was going through a developmental stage, and a younger patient age were also statistically significant facilitators of adolescent preventive care discussions.

Barriers

Three barriers to adolescent preventive care discussions included competing demands, prenatal visit, and lack of time. Competing demands created a barrier for discussion of topics within all of the 10 categories, while the context of a prenatal visit was a barrier in seven of the 10 categories. Lack of time, while frequently reported as a barrier, was correlated only with two categories.

Mixed Effects

One predictor that had mixed effects was identification of a sexual issue. This predictor was positively associated with discussion of sexual issues but negatively associated with discussion of exercise.

Multivariable Analysis—Predictors of Adolescent Preventive Care Discussions

A total of 280 of the SAFE TEENS pocket cards contained data on all 14 predictors examined in this study. We conducted 10 backward stepwise logistic regression analyses, using each SAFE TEENS preventive care category (done or not done) as the dependent variable. All 14 predictors were entered into the models. Results from these 10 analyses are summarized in Table 5. All 14 predictors were significant and independent facilitators of or barriers to at least one of the 10 adolescent preventive care categories. Seven of the factors were consistent facilitators, three were barriers, and four had mixed effects.

Facilitators

Seven independent facilitators of preventive care discussions were the contexts of physical exam, new patient, presence of the parent for part of the visit, reminder system, recognition of a developmental stage, female gender, and the identification of a cardiovascular risk factor.

Table 4

Bivariable Analysis—Significant Facilitators of and Barriers to Adolescent Preventive Care Discussions

	General Issues	Sexuality	Accidents	Firearms/Violence	Emotion	Toxins	Environment	Exercise	Nutrition	Shots
Facilitators										
Physical exam	***	***	***	***	**	***	***	***	***	***
New patient	***	***	***	***	*	***	***	***	***	***
Parent present part of visit	***	***	*	**	**	***	**	*		***
Reminder system	**	***	***	**		***	**	*		***
Developmental stage	***	***	***	*	*	***	***	***		
Age	***		**	***	*	*	**	**		***
Gender		*						**		***
Cardiovascular risk								***	***	
Mental health issue					***		**			
Hispanic									*	
Barriers										
Competing demands	***	***	**	***	**	*	***	***	***	***
Prenatal visit	*		*	**	*	***		**		***
Time				*		*				
Mixed Effects										
Sexual issue		***						***		

* P<.05, ** P<.01, *** P<.001

Two predictors were independent and significant facilitators of preventive care within all of the 10 categories. Physicians were more likely to use a physical exam and a visit with a new patient as the context for adolescent preventive care discussions. The next most frequent predictor was the parent being present for part of the visit.

Barriers

Three barriers of adolescent preventive care discussions were the context of competing demands, a lack of time, and a prenatal visit. Competing demands was the most important barrier, creating a barrier within six of the 10 categories. Lack of time, while frequently reported as a barrier, was correlated only with two categories. A prenatal visit was an independent barrier in only one category.

Mixed Effects

Four predictors that had significant but mixed effects were age, identification of a mental health issue, identification of a sexual issue, and Hispanic ethnicity. Older age was a facilitator of discussions of sexuality, toxins, and nutrition but was a barrier to discussing general issues and firearms/violence. The identification of a mental health issue facilitated the discussion of emotions and environment but was a barrier to discussing accidents and immunizations. The identification

of a sexual issue facilitated the discussion of general issues and sexuality but was a barrier to discussions of exercise and nutrition. The patient being of Hispanic ethnicity facilitated discussions of firearms/violence and nutrition but was a barrier to the discussion of toxins.

Multivariable Analysis—Predictors of the Amount of Adolescent Preventive Care

A final analysis examined the influence of the 14 predictors on the number of adolescent preventive care categories discussed during each visit (Table 6). In this regression model with an adjusted R²=.474, six predictors were independent facilitators, and two predictors were independent barriers to the number of categories discussed. Facilitators of more categories discussed were the contexts of a physical exam, a new patient, reminder systems, parent present for part of the visit, recognition of a developmental stage, and identification of a cardiovascular risk factor. Barriers to addressing more preventive care categories were the contexts of competing demands and lack of time.

Discussion

Physicians in family medicine residency programs do conduct adolescent preventive care discussions. In this study, the most frequently discussed topics were in the categories of toxins (tobacco, alcohol, and drugs),

Table 5

Logistic Regression Analysis—Significant Predictors of Adolescent Preventive Care Discussions

	<i>General Issues</i>	<i>Sexuality</i>	<i>Accidents</i>	<i>Firearms/Violence</i>	<i>Emotion</i>	<i>Toxins</i>	<i>Environment</i>	<i>Exercise</i>	<i>Nutrition</i>	<i>Shots</i>
Facilitators										
Physical exam	OR=1.72 P=.091	OR=8.54 P=.000	OR=4.20 P=.000	OR=8.42 P=.000	OR=2.17 P=.012	OR=21.5 P=.000	OR=3.13 P=.001	OR=10.7 P=.000	OR=5.65 P=.000	OR=5.78 P=.000
New patient	OR=2.77 P=.001	OR=2.97 P=.003	OR=1.70 P=.092	OR=4.21 P=.000	OR=1.76 P=.057	OR=3.92 P=.000	OR=2.06 P=.027	OR=2.78 P=.002	OR=4.51 P=.000	OR=2.56 P=.005
Parent present part of the visit	OR=2.68 P=.006	OR=5.22 P=.001			OR=4.21 P=.000	OR=2.87 P=.028	OR=2.33 P=.036			OR=2.77 P=.014
Reminder systems		OR=3.17 P=.027	OR=8.42 P=.000			OR=6.83 P=.001				OR=2.16 P=.063
Developmental stage		OR=2.43 P=.019	OR=1.70 P=.092			OR=2.59 P=.014	OR=3.99 P=.000			
Gender—Female		OR=2.44 P=.004			OR=2.33 P=.010				OR=2.00 P=.056	
Cardiovascular risk	OR=2.07 P=.059							OR=4.48 P=.000	OR=11.0 P=.000	
Barriers										
Competing demands	OR=0.39 P=.066	OR=0.18 P=.002		OR=0.18 P=.109			OR=0.30 P=.003	OR=0.44 P=.056	OR=0.39 P=.037	
Time	OR=0.56 P=.049			OR=0.31 P=.006						
Prenatal visit										OR=0.37 P=.067
Mixed Effects										
Age	OR=0.88 P=.018	OR=1.24 P=.001		OR=0.87 P=.075		OR=1.14 P=.031			OR=1.11 P=.065	
Mental health issue			OR=.43 P=.086		OR=8.37 P=.000		OR=3.79 P=.003			OR=0.37 P=.030
Sexual issue	OR=2.26 P=.034	OR=12.1 P=.000						OR=0.38 P=.017	OR=0.46 P=.061	
Hispanic				OR=4.30 P=.004		OR=0.43 P=.030			OR=3.41 P=.001	

environment (school, home, and friends), sexuality, and exercise.

Preventive care discussions were facilitated by the clinical context of a physical examination and a new patient. The most consistent facilitator of preventive care discussions was thus the context of an appointment already conceptualized to be committed to that purpose. We encourage family physicians to continue to use physical examination visits and visits with new patients as appropriate opportunities to conduct preventive care discussions.

The parent being present for part of the visit was also a facilitator. A private discussion of potentially sensitive and confidential issues is already standard practice in adolescent medicine.¹¹ Our study supports the idea that the optimal role of a parent during preventive service delivery is to be present for only part of the visit.

While a lack of time was frequently perceived as a barrier to conducting preventive care discussions, it was not a significant barrier for discussion of most topics. The concept of competing demands better captured the

most significant barrier to adolescent preventive care discussions. The competing demand was frequently the acuity or severity of the health issue being addressed. There may be clinical situations where it would be more appropriate to defer preventive care discussions for a later time.

Limitations

A limitation of this study is that it was conducted in only one type of family practice setting, clinics associated with family medicine residency programs. Caution should be exercised in generalizing the findings to other settings where family physicians practice. The study also relied on physician self-report, raising the possibility of biased data, as the content or quality of the preventive care discussions was not actually observed or recorded. Finally, we do not have information on the total number of potentially eligible adolescent visits that were not included in the study, so we cannot exclude the possibility of selection bias.

Table 6
Linear Regression, Significant Predictors of Number of Prevention Topics

Predictor	B	SE	Beta	t Statistic	P Value
Physical exam	2.591	.308	.408	8.410	.000
New patient	1.561	.293	.235	5.317	.000
Reminder system	1.182	.374	.143	3.156	.002
Parent present Part of the visit	1.002	.348	.136	2.877	.004
Developmental stage	0.656	.302	.098	2.176	.030
Cardiovascular risk	0.508	.365	.062	1.391	.165
Competing demands	-1.388	.378	-.168	-3.673	.000
Time	-.459	.271	-.076	-1.697	.091

Model F (6,273)=42.93, $P=.000$
Adjusted $R^2=.474$

SE—standard error

Conclusions

This study suggests an area in which family medicine residency programs can be strengthened. Violence is a leading cause of morbidity and mortality among Hispanic youth.¹² In this study, in which 77% of the visits were with Hispanics, topics related to violence were among the least frequently addressed. We recommend that educational programs focus on increasing the ability and desire of family physicians to address the prevention of violent injuries.

To increase the frequency of adolescent preventive care discussions, we suggest that family medicine educators emphasize to their learners that non-physical examination visits with continuity patients can also be opportunities to deliver routine preventive care. With the increasing use of electronic health records, an investment in the creation of electronic reminder systems during all visits will also serve to promote preventive care discussions.

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