

ORIGINAL CONTRIBUTION

Adolescent Medicine: Attitudes, Training, and Experience Of Pediatric, Family Medicine, and Obstetric-Gynecology Residents

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Purpose: Several studies have documented a deficiency in the delivery of preventive services to adolescents during physician visits in the United States. This study sought to assess and compare pediatric, family medicine (FM[†]), and obstetrics and gynecology (OB/GYN) resident perceptions of their responsibility, training, and experience with providing comprehensive health care services to adolescents.

Methods: A 57-item, close-ended survey was designed and administered to assess resident perceptions of the scope of their practice, training, and experience with providing adolescent health care across a series of health care categories.

Results: Of the 87 respondents (31 OB/GYN, 29 FM, and 27 pediatric), most residents from all three fields felt that the full range of adolescent preventive and clinical services represented in the survey fell under their scope of practice. Residents from all three fields need more training and experience with mental health issues, referring teenagers to substance abuse treatment programs, and addressing physical and sexual abuse. In addition, OB-GYN residents reported deficiencies in training and experience regarding several preventive counseling and general health services, while pediatric residents reported deficiencies in training and experience regarding sexual health services.

Conclusions: Our results indicate that at this time, residents from these three specialties are not optimally prepared to provide the full range of recommended preventive and clinical services to adolescents.

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[†]Abbreviations: FM, family medicine; OB/GYN, obstetrics and gynecology; STI, sexually transmitted infections; NAMCS, National Ambulatory Medical Care Survey; NHAMCS, National Hospital Ambulatory Medical Care Survey; AAP, American Academy of Pediatrics; AAFP, American Academy of Family Physicians; ACOG, American College of Obstetricians and Gynecologists.

Keywords: adolescent medicine; internship and residency; obstetrics; gynecology; pediatrics; family practice

INTRODUCTION

The major causes of morbidity and mortality experienced by adolescents in the United States can be attributed to preventable causes, including sexually transmitted infections (STI), suicide, unintended pregnancy, accidents, and obesity. However, only 39 percent of adolescents received any type of preventive counseling during ambulatory visits as documented by the National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) in 1997-2000 [1]. Similarly, in the 1997 Commonwealth Fund Survey of the Health of Adolescent Girls, 71 percent of teens reported at least one potential health risk, yet only 37 percent of these teens reported discussing any of these risks with their provider [2].

The relationship between physician training in adolescent health care and the delivery of comprehensive health services to teenagers has been well documented [3-8], and professional societies, including the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetricians and Gynecologists (ACOG), have recommended increased adolescent medicine training in primary care residencies.

There is insufficient data to evaluate whether an increased emphasis on adolescent health care has altered resident attitudes, knowledge, comfort, and effectiveness administering health care to adolescents. Additionally, assessments of resident experience and training in administering care to adolescents in the United States have been sparse. The primary aim of this study was to assess and compare pediatric, family medicine (FM), and obstetrics and gynecology (OB/GYN) resident perceptions of their responsibility, training, and experience with providing preventive services and health care to adolescents.

METHODS

Sample

We conducted a cross-sectional study with convenience sampling of all residents

present during resident educational sessions on a given day at participating residency programs between February 19 and March 16, 2007. The Yale University School of Medicine Human Investigation Committee determined that this protocol was exempt from review. OB/GYN, FM, and pediatric residency programs in Connecticut were contacted to request participation of their residents in the study. An additional FM program in New York was contacted in order to increase the sample size for family medicine. FM, pediatrics, and OB/GYN were chosen since these specialties see the greatest number of adolescent patients in the United States [1,9-12]. Participating residencies included the FM programs of the University of Connecticut and Montefiore/Albert Einstein College of Medicine; the pediatrics programs of the University of Connecticut and Yale-New Haven Hospital; and the OB/GYN programs of Danbury Hospital, Bridgeport Hospital, Stamford Hospital/Columbia University College of Physicians and Surgeons, and Yale-New Haven Hospital.

Survey instrument

The questionnaire consisted of 57 close-ended questions about which adolescent health services the residents considered part of their scope of practice in their respective field; the perceived adequacy of training they had received with regard to select adolescent health services; and the experience they had performing select clinical activities with adolescents. The questions were not based on any prior survey instrument, because a validated instrument addressing the range and specific focus of these questions does not exist.

Study variables

Survey questions regarding scope, training, and experience covered five main topics in adolescent medicine, including general adolescent health, mental health, substance abuse, physical and sexual abuse, and sexual health. A greater number of sexual health questions were included in each category in deference to the recent national survey of adolescents performed by the Kaiser Family Foundation that demonstrated

Table 1. Characteristics of Residents Surveyed*

Resident Characteristics	All (n=87) n (%)	OBG (n=31) n (%)	FM (n=29) n (%)	Peds (n=27) n (%)	p value
Level of training					0.580
Intern	27 (31.0)	9 (29.0)	10 (34.5)	8 (29.6)	
2nd year resident	27 (31.0)	10 (32.3)	11 (37.9)	6 (22.2)	
3rd or 4th year resident	33 (37.9)	12 (38.7)	8 (27.6)	13 (48.2)	
Sex					0.037
Female	52 (62.7)	24 (80.0)	14 (48.3)	14 (58.3)	
Male	31 (37.2)	6 (20.0)	15 (51.7)	10 (41.7)	
Intention to specialize					0.002
Generalist	46 (58.2)	13 (48.2)	23 (85.2)	10 (40.0)	
Specialist	33 (41.8)	14 (51.9)	4 (14.8)	15 (60.0)	
Program affiliation					< 0.001
Non-religious hospital	55 (63.2)	31 (100)	14 (48.3)	10 (37.0)	
Religious hospital	32 (36.8)	0 (0)	15 (51.7)	17 (63.0)	

OBG, Obstetrics/Gynecology; FM, Family Medicine; Peds, Pediatrics.

* Numbers do not add to total if missing responses.

adolescents are more concerned about sexual health than any other health topic [13]. In addition, several studies of practicing physicians have demonstrated specialty-specific differences, particularly in the provision of care related to sexual health [7,8,14,15].

Statistical analysis

Data analysis was performed using SAS 9.1 (SAS Institute Inc., Cary, N.C.) statistical analysis software package. Resident responses to each survey question were the primary outcome variables. The primary exposure variable was specialty. Chi-squared tests or Fisher's exact test were used to examine the relationship between resident specialty and survey responses for each item on the questionnaire. Potential confounders (sex, hospital religious affiliation, plans to specialize, and level of training) were investigated by stratified analyses.

RESULTS

Of the 88 subjects approached during the resident education session, 87 (99 percent)

agreed to complete the survey. Thirty-six percent of the residents were from an OB/GYN program, 33 percent from a FM program, and 31 percent from a pediatrics program. Table 1 displays demographic data by field using chi-square analysis. Across all three fields, 31 percent were interns, 31 percent were second-year residents and 38 percent were third- or fourth-year residents. The number of residents in each level was approximately equal between the three different fields. A greater number of females (63 percent) were represented compared to males (37 percent). A significantly ($p = 0.037$) greater percentage of OB/GYN residents (80 percent) were female compared to the number of female residents surveyed in FM (48 percent) and pediatrics (58 percent). More than half (58 percent) planned to practice as general physicians, and 42 percent planned to specialize. Intention to specialize differed across fields, with the majority of OB/GYN and pediatric residents planning to specialize, compared to the majority of family medicine residents who planned to practice as generalists ($p = 0.002$). Approximately 37 percent of residents were

Table 2. Resident perceptions of the scope of their practice

Topic	Scope of Practice*	All (n = 87) n (%)	OBG (n=31) n (%)	FM (n=29) n (%)	Peds (n = 27) n (%)	p value
Activity with Adolescent Patients						
General						
Define confidentiality	Yes	87 (100)	31 (100)	29 (100)	27 (100)	‡
Counsel about eating habits and physical activity	Yes	86 (98.9)	30 (96.8)	29 (100)	27 (100)	0.356
Psychiatric						
Identify depression and suicidal ideation	Yes	84 (96.6)	28 (90.3)	29 (100)	27 (100)	0.105
Substance abuse						
Counsel about tobacco, alcohol, and drug abuse	Yes	87 (100)	31 (100)	29 (100)	27 (100)	‡
Refer to substance abuse treatment programs	Yes	85 (97.7)	30 (96.8)	29 (100)	26 (96.3)	0.224
Sexual health						
Discuss number and gender of sexual partners	Yes	87 (100)	31 (100)	29 (100)	27 (100)	‡
Conduct pelvic exams with sample collection	Yes	84 (93.1)	30 (96.8)	28 (96.6)	23 (85.2)	0.239
Counsel about STD prevention	Yes	87 (100)	31 (100)	29 (100)	27 (100)	‡
Teach correct condom use	Yes	82 (94.3)	28 (90.3)	28 (96.6)	26 (96.3)	0.614
Counsel about pregnancy prevention	Yes	87 (100)	31 (100)	29 (100)	27 (100)	‡
Prescribe contraception	Yes	85 (98.8)	31 (100)	29 (100)	25 (96.2)	0.302
Prescribe emergency contraception	Yes	76 (88.4)	30 (96.8)	25 (89.3)	21 (77.8)	0.081
Counsel about pregnancy termination options	Yes	81 (94.2)	31 (100)	28 (96.6)	22 (84.6)	0.023
Inform where to go to obtain an abortion	Yes	74 (86.1)	31(100)	23 (79.3)	20 (76.9)	0.006

OBG, Obstetrics/Gynecology; FM, Family Medicine; Peds, Pediatrics.

*"Yes" indicates residents believe activity is part of the scope of their practice.

‡ P value not calculated.

from programs with religious hospital affiliations; no OB/GYN residents were from programs with religious hospital affiliations.

Scope

Overall, residents from different fields were largely in agreement about what adolescent services they considered to be part of their scope of practice (Table 2). Prescribing emergency contraception to teens and referring adolescents to clinics where they could receive an abortion, along with counseling about pregnancy termination options, were the only practices that varied significantly between different fields. OB/GYN residents (97 percent) were the most likely to consider

prescribing emergency contraception as part of their scope of practice and pediatric residents (78 percent) least likely, with FM residents (89 percent) falling in the middle. OB/GYN (100 percent) and FM (97 percent) residents most often considered counseling about pregnancy termination options their responsibility, while pediatric residents (85 percent) were less likely to consider such counseling their responsibility. In regard to providing teens information about where they could obtain abortions, OB/GYN residents unanimously felt it fell under their scope, while FM (79 percent) and pediatric (77 percent) residents were less likely to feel it was part of their responsibility.

Table 3. Resident perceptions of their training in adolescent medicine.
Percent of residents within a given field that answered adequate or excellent training (Adequate) with the remainder (not shown) answering either no or minimal training.

Topic	Training	All (n = 87) n (%)	OBG (n=31) n (%)	FM (n=29) n (%)	Peds (n = 27) n (%)	p value
Activity with Adolescent Patients						
General						
Define confidentiality	Adequate	71 (81.6)	20 (64.5)	26 (89.7)	25 (92.6)	0.009
Counsel about eating habits and physical activity	Adequate	65 (74.7)	13 (41.9)	26 (89.6)	26 (96.3)	< 0.001
Psychiatric						
Counsel about eating disorders and body image	Adequate	53 (60.9)	12 (38.7)	23 (79.3)	18 (66.7)	0.004
Screen for depression and suicidal ideation	Adequate	65 (74.7)	16 (51.6)	27 (93.1)	5 (81.5)	0.001
Substance abuse						
Screen and counsel about tobacco, alcohol, and drug use	Adequate	73 (83.9)	22 (71.0)	28 (96.6)	23 (85.2)	0.022
Abuse						
Screen for physical abuse	Adequate	61 (70.1)	18 (58.1)	23 (79.3)	20 (74.1)	0.172
Screen for sexual abuse	Adequate	58 (66.7)	18 (58.1)	21 (72.4)	19 (70.4)	0.443
Sexual health						
Discuss number and gender of sexual partners	Adequate	70 (80.5)	21 (67.7)	27 (93.1)	22 (81.5)	0.046
Conduct pelvic exams with sample collection	Adequate	73 (83.9)	26 (83.9)	29 (100)	18 (66.7)	0.001
Counsel about STD prevention	Adequate	80 (92.0)	27 (87.1)	28 (96.6)	25 (92.6)	0.437
Teach correct condom use	Adequate	46 (52.9)	17 (54.8)	17 (58.6)	12 (44.4)	0.548
Counsel about contraception	Adequate	71 (81.6)	25 (80.7)	27 (93.1)	19 (70.4)	0.089
Prescribe contraception	Adequate	71 (81.6)	26 (83.9)	28 (96.6)	17 (63.0)	0.005
Counsel about emergency contraception	Adequate	62 (71.3)	24 (77.4)	26 (89.7)	12 (44.4)	0.001
Prescribe emergency contraception	Adequate	60 (69.0)	24 (77.4)	25 (86.2)	11 (40.7)	0.001
Counsel about pregnancy termination options	Adequate	58 (66.7)	25 (80.7)	23 (79.3)	10 (37.0)	< 0.001

OBG, Obstetrics/Gynecology; FM, Family Medicine; Peds, Pediatrics.

Training

Overall, counseling about STI risk and prevention was the only service for which greater than 90 percent of residents felt they had received adequate training (Table 3). Several significant differences exist between fields in regard to their reported level of training (Table 3). OB/GYN residents reported significantly less training than FM or pediatric residents in several preventive services, including counseling about diet/exercise, eating disorders/body image and substance abuse, screening for depression/suicide, and discussing sexual partners. Pediatric residents, on the other hand, reported significantly less training than OB/GYN or FM

residents in several services pertaining to sexual health, including conducting pelvic exams; counseling and prescribing contraception; counseling and prescribing emergency contraception; and counseling about pregnancy termination. When interns are excluded from the analysis (Table 5), the difference in the training reported by pediatric residents in regard to pelvic exams and counseling and prescribing contraception is diminished, but the trend remains the same.

Experience

Significant differences by field were found for the majority of survey items (Table 4). Similar to the deficiencies noted

Table 4. Resident experience with adolescent patients. Percent of residents within a field that answered "yes" to having had at least one encounter of a given activity.

Topic	EXP*	All (n = 87) n (%)	OBG (n=31) n (%)	FM (n=29) n (%)	Peds (n = 27) n (%)	p value
Activity with Adolescent Patients						
General						
Define confidentiality	Yes	82 (94.3)	26 (83.9)	29 (100)	27 (100)	0.010
Evaluated positive aspects of life	Yes	62 (84.9)	9 (52.9)	27 (93.1)	26 (96.3)	< 0.001
Counseled obese adolescent about weight loss	Yes	71 (81.6)	18 (58.1)	26 (89.7)	27 (100)	< 0.001
Psychiatric						
Counseled adolescent with eating disorder	Yes	38 (43.7)	10 (32.3)	15 (51.7)	13 (48.2)	0.269
Counseled adolescent with depression	Yes	61 (70.1)	17 (54.8)	25 (86.2)	19 (70.4)	0.030
Counseled suicidal adolescent	Yes	37 (42.5)	9 (29.0)	11 (37.9)	17 (63.0)	0.028
Substance abuse						
Counseled about tobacco cessation	Yes	79 (90.8)	26 (83.9)	27 (93.1)	26 (96.3)	0.267
Counseled about alcohol use	Yes	76 (87.4)	22 (71.0)	28 (96.6)	26 (96.3)	0.003
Counseled about drug use	Yes	78 (89.7)	23 (74.2)	28 (96.6)	27 (100)	0.002
Referred to substance abuse treatment program	Yes	23 (26.4)	14 (45.2)	5 (17.2)	4 (14.8)	0.013
Abuse						
Counseled adolescent who experienced physical abuse	Yes	27 (31.0)	12 (38.7)	11 (37.9)	4 (14.8)	0.090
Counseled adolescent who experienced sexual abuse	Yes	36 (41.9)	13 (41.9)	11 (37.9)	12 (46.2)	0.827
Sexual health						
Discussed number and gender of sexual partners	Yes	76 (87.4)	23 (74.2)	27 (93.1)	26 (96.3)	0.035
Counseled about STD risk and prevention	Yes	84 (96.6)	28 (90.3)	29 (100)	27 (100)	0.105
Taught correct condom use	Yes	42 (48.8)	14 (46.7)	16 (55.2)	12 (44.4)	0.694
Counseled about contraception options	Yes	78 (89.7)	26 (83.9)	29 (100)	23 (85.2)	0.057
Prescribed emergency contraception	Yes	45 (51.7)	17 (54.8)	18 (62.1)	10 (37.0)	0.158
Counseled about pregnancy termination options	Yes	46 (52.9)	22 (71.0)	17 (58.6)	7 (25.9)	0.002
Number of times performed pelvic exam						
	0	7 (8.1)	2 (6.7)	1 (3.5)	4 (14.8)	0.060
	1-10	28 (32.6)	7 (23.3)	10 (34.5)	11 (40.7)	
	11-20	18 (20.9)	7 (23.3)	3 (10.3)	8 (29.6)	
	21-50	22 (25.6)	8 (26.7)	10 (34.5)	4 (14.8)	
	> 50	11 (12.8)	6 (20.0)	5 (17.2)	0 (0)	
Number of times prescribed contraception						
	0	10 (11.6)	2 (6.7)	1 (3.5)	7 (25.9)	0.003
	1-10	32 (37.2)	6 (20.0)	14 (48.2)	12 (44.4)	
	11-20	17 (19.8)	9 (30.0)	3 (10.3)	5 (18.5)	
	21-50	14 (16.3)	4 (13.3)	8 (27.6)	2 (7.4)	
	> 50	13 (15.1)	9 (30.0)	3 (10.3)	1 (3.7)	

* EXP, experience. 'Yes' refers to having had at least one clinical encounter of a given activity, except for the last two items in which percentages reflect resident reports of having had the # of clinical encounters as categorized in the table.

Table 5. Survey items for which differences by field are altered when intern level residents are excluded from the analysis.

Question Topic	Answer	All (n = 60) n (%)	OBG (n=22) n (%)	FM (n=19) n (%)	Peds (n = 19) n (%)	p value
Training						
Conduct pelvic exams with sample collection	Good	53 (88.3)	18 (81.8)	19 (100)	16 (84.2)	0.174
Counsel about contraception	Good	55 (91.7)	19 (86.4)	19 (100)	17 (89.5)	0.357
Prescribe contraception	Good	53 (88.3)	19 (86.4)	19 (100)	15 (78.9)	0.137
Experience						
Define confidentiality	Yes	57 (95.0)	19 (86.4)	19 (100)	19 (100)	0.102
Counseled adolescent with depression	Yes	46 (76.7)	14 (63.6)	17 (89.5)	15 (78.9)	0.148
Counseled about drug use	Yes	57 (95.0)	19 (86.4)	19 (100)	19 (100)	0.102
Discussed number and gender of sexual partners	Yes	55 (91.7)	18 (81.8)	18 (94.7)	19 (100)	0.118
Counseled about contraceptive options	Yes	59 (98.3)	21 (95.5)	19 (100)	19 (100)	1.000
Prescribed emergency contraception	Yes	42 (70.0)	16 (72.7)	17 (89.5)	9 (47.4)	0.019*

OBG, Obstetrics/Gynecology; FM, Family Medicine; Peds, Pediatrics.

*In this item, the difference between fields becomes significant when interns are excluded. For other items in table, significance is lost when interns are excluded from analysis.

in responses to training questions, OB/GYN residents were significantly less likely than FM and pediatric residents to have had at least one experience with an adolescent patient in defining confidentiality in the patient-doctor relationship; evaluating positive aspects of life; counseling about weight loss, depression, suicide, and alcohol or drug use; and discussing sexual partners. The significance of the difference noted for defining confidentiality, counseling a depressed adolescent, counseling about drug use, and discussing sexual partners is diminished when interns are excluded from the analysis but the trend remains the same (Table 5). While OB/GYN residents were significantly less likely to have counseled a teen about alcohol or drug use, they were significantly more likely to have referred an adolescent to a substance abuse program as compared to FM and pediatric residents.

Pediatric residents were significantly less likely than FM and OB/GYN to have had at least one encounter in which they counseled an adolescent who experienced physical abuse. Likewise, they were less likely to have counseled about pregnancy termination. Moreover, pediatric residents

report significantly less experience than FM and OB/GYN residents in prescribing emergency contraception when interns are excluded from the analysis (Table 5). Pediatric residents also reported significantly lower rates of conducting pelvic exams and prescribing contraception compared to OB/GYN and FM residents. Around 15 percent of pediatric residents reported they had never conducted a pelvic exam on an adolescent, and 56 percent conducted fewer than 11. Approximately 26 percent of pediatric residents reported they had never prescribed contraception, and 70 percent had prescribed contraception fewer than 11 times. FM residents were more likely to have counseled adolescents about contraceptive options than OB/GYN or pediatric residents. However, this difference is diminished when interns are excluded from the analysis (Table 5). FM residents were less likely than pediatric residents but more likely than OB/GYN residents to have counseled a suicidal adolescent. In addition, FM residents were less likely than OB/GYN residents but more likely than pediatric residents to have counseled about pregnancy termination options.

Potential confounding variables

Survey items for which differences by field are altered by excluding intern level residents from the analysis are described in each section as appropriate and illustrated in Table 5. Interns in all three fields are less likely to have encountered the full breadth of training and experience in their training programs. Subsequent experience in later years may serve to even out these initial differences. However, for many survey items, trends and differences between specialties remain when interns are excluded from analysis.

Three other demographic variables (namely, gender, hospital religious affiliation, and intention to specialize) were noted to be significantly different between fields and thus had the potential to confound survey results by field. For the majority of survey items for which religious affiliation was identified as having a potential significant influence, the pattern among residents within non-religiously affiliated hospitals mirrored the patterns observed in the full data set. Nonetheless, careful consideration of the results of stratified analysis suggests a religious affiliation effect occurred with regard to FM residents and items concerning abortion. FM resident positive responses to abortion questions concerning scope and experience increased substantially, matching the level of positive response observed in OB/GYN residents, when FM residents in programs with religious affiliation were excluded.

Female providers have been documented to provide more preventive services in several studies [6,8,14,16-18]. We did not observe this trend in our study. However, given the low number of male OB/GYN residents, we would need a larger sample size to fully evaluate the effect of gender. Stratified analyses by "intention to specialize" revealed no significant differences from the non-stratified analysis.

DISCUSSION

The primary aim of this study was to assess and compare pediatric, FM, and OB-GYN resident perceptions of their

responsibility, training, and experience in providing comprehensive preventive health services to adolescents. Our results identify strengths and weaknesses in each field and lend insight into how each specialty training program could improve resident training and experience in adolescent services.

Understanding adolescent health care patterns helps in both understanding the needs of the group and explaining some differences between the perceptions of FM, pediatric, and OB/GYN residents noted in this study. While the proportion of teens visiting either FM, pediatric, or OB/GYN providers changes significantly across early (11-14 years), middle (15-17 years), and late (18-21 years) adolescence, very few make use of multiple specialties at a single time [19,20]. Since the average adolescent is likely to have a limited number of visits to a single health provider, it is important for all adolescent health professionals to provide comprehensive care.

Family Medicine

Based upon these survey results, FM residents consider the broadest range of preventive adolescent health care subjects within the scope of their practice and also report the most experience and training across the greatest number of subjects. These findings were expected, given that FM as a field seeks to provide comprehensive primary care for all age groups, genders, and health needs, whereas pediatrics and OB/GYN are limited in scope by age, content, and patient gender. Teen visit patterns also support the ability of FM physicians to gain experience with all adolescent health issues. According to the National Ambulatory Medical Care Survey data from 1994 to 2003, FM physicians care for a relatively constant percentage of adolescents across the age groups, providing 22 percent of early adolescent visits and 29 percent of late adolescent visits [21]. This consistency in visits across the age groups is unique to FM physicians, as pediatricians are less likely to care for older adolescents, and OB/GYNs care for very few teens younger than 14. Because the needs of adolescents

change as they age, FM residents are likely to encounter a broad range of health needs and potentially benefit the most from having comprehensive and adequate training across the various adolescent health topics.

Overall, FM residents in this survey reported high levels of training across all of the surveyed subjects, with only screening for sexual abuse and teaching of correct condom use falling below 75 percent. Perceived adequacy in training was higher for FM residents across more subjects than for the other two residency programs. However, fewer than 55 percent of the FM residents reported any experience counseling about eating disorders, physical and sexual abuse, pregnancy termination, making referrals to substance abuse programs, and counseling a suicidal teen. Possible reasons for deficiencies in experience in residency training programs could be related to patient demographics, clinical care settings, time and preparation for adequate screening, and availability of adequate resources to deal with the above subjects. Residency programs within religiously affiliated hospitals also may affect both the training and experience of residents in subject areas related to contraception and pregnancy termination. Identifying ways to improve resident experiences with these subjects should be a goal of all residency training programs.

Pediatrics

For many adolescent patients, pediatricians are their only medical care provider when they enter their teen years. Pediatricians are in a unique position to build upon the continuity, trust, and familiarity that this relationship fosters and initiate patient education and counseling regarding the primary health concerns faced by teens. In our study, pediatric residents reported general health concerns, counseling about substance abuse, and STI prevention as strengths in their training and experience and often fell between FM and OB/GYN in terms of reported adequacy across most health topics.

However, sexual health-related topics were less universally considered as part of the scope of pediatric practice. Particularly,

fewer pediatric residents considered the performance of pelvic exams (85 percent), prescribing emergency contraception (77 percent), counseling about pregnancy termination options (84.6 percent), and instructing patients where they could obtain an abortion (76 percent) within the scope of their practice, compared to FM or OB/GYN residents. This trend in sexual health carried over for both training and experience for pediatric residents.

Deficiencies in sexual health care is consistent with patterns observed among practicing pediatricians [4,6,9,15,22,23]. The deficiencies seen in training and experiences in adolescent reproductive and sexual health may be a reflection of health care visit patterns of adolescents. In the NAMCS, pediatricians steadily decrease as the primary providers for teens as they age. Pediatricians care for the greatest percentage of early adolescents, providing 41.2 percent of the visits, 21 percent of visits to middle adolescents between 15 and 17 years of age, and only 4.1 percent of late adolescents ages 18-21 years [19]. Late adolescent females, who primarily seek care for pregnancy and gynecologic complaints, are more likely to visit OB/GYN and FM providers [19,24]. This is likely to impact the experiences of pediatric residents as well as perceptions of the scope of pediatric care with respect to sexual and reproductive health. The responses obtained in our survey suggest the increased emphasis on adolescent medicine during the past decade, and the creation of a required rotation in adolescent medicine may not be providing adequate training and experience in sexual health issues and pelvic exams for all pediatric residents.

New guidelines recommending that PAP smear screening for cervical dysplasia need not begin until three years after the initiation of sexual intercourse [25], the ability to screen for gonorrhea and chlamydia in the urine [26,27], and recommendations that contraception can be prescribed without a PAP smear or a pelvic exam [28] should be taught to all residents and should encourage all pediatricians to continue to provide care and counseling in these venues for their ado-

Adolescent Medicine Survey for Residents (OB/GYN)

Please circle the answer that applies to you:

I am a INTERN 2nd YR RESIDENT 3rd YR RESIDENT 4th YR RESIDENT

I am MALE FEMALE

At this point in my training, I intend to be a GENERALIST SPECIALIST in _____

Do you believe that the following items fall under the scope of Obstetric-Gynecology practice:

1. Defining confidentiality within the doctor-patient relationship with adolescents	YES	NO
2. Counseling adolescents about healthy eating habits and physical activity.	YES	NO
3. Counseling adolescents about tobacco, alcohol and drug use.	YES	NO
4. Referring adolescents with substance abuse problems to treatment services.	YES	NO
5. Identifying depression and suicidal ideation in adolescents.	YES	NO
6. Discussing sexual relationships with adolescents including number and gender of sexual partners.	YES	NO
7. Conducting pelvic exams with sample collection for female adolescents.	YES	NO
8. Counseling adolescents about STD-prevention.	YES	NO
9. Instructing adolescents how to correctly use condoms.	YES	NO
10. Counseling adolescents about pregnancy prevention.	YES	NO
11. Prescribing contraception for adolescents.	YES	NO
→If you answered "No" to 11: Instructing adolescents where to go to get prescriptions for contraception	YES	NO
12. Prescribing Emergency Contraception for adolescents.	YES	NO
→If you answered "No" to 12: Instructing adolescents where to go to get prescriptions for Emergency Contraception	YES	NO
13. Counseling adolescents about pregnancy termination options.	YES	NO
14. Instructing adolescents where to go to get an abortion.	YES	NO

For questions 15-30: On a scale of 1-4, please select the answer that best describes the level of training you have received in residency to perform the following tasks with adolescents:

Task with adolescents	1	2	3	4
	No training	Minimal training	Adequate training	Excellent training
15. Define confidentiality within doctor-patient relationship	1	2	3	4
16. Counsel about healthy eating habits & physical activity	1	2	3	4
17. Counsel about eating disorders and body image	1	2	3	4
18. Screen for depression and suicidal ideation	1	2	3	4
19. Screen and counsel about tobacco, alcohol, & drug use	1	2	3	4
20. Screen for physical abuse	1	2	3	4
21. Screen for sexual abuse	1	2	3	4
22. Discuss number and gender of sexual partners	1	2	3	4
23. Counsel about STD risk and prevention	1	2	3	4
24. Perform a pelvic exam with sample collection	1	2	3	4
25. Teach how to correctly use condoms	1	2	3	4
26. Counsel about contraception	1	2	3	4
27. Prescribe contraception	1	2	3	4
28. Counsel about Emergency Contraception	1	2	3	4
29. Prescribe Emergency Contraception	1	2	3	4
30. Counsel about pregnancy termination options	1	2	3	4

For questions 31-49, select the answer that reflects your experience in residency with adolescents.

31. I have defined confidentiality within the doctor-patient relationship	YES	NO
32. I have counseled an obese adolescent about weight loss.	YES	NO
33. I have counseled an adolescent with an eating disorder.	YES	NO
34. I have counseled an adolescent with depression.	YES	NO
35. I have provided care for a suicidal adolescent.	YES	NO
36. I have discussed number and gender of sexual partners with an adolescent	YES	NO

37. I have counseled an adolescent about tobacco cessation	YES	NO		
38. I have counseled an adolescent about alcohol use	YES	NO		
39. I have counseled an adolescent about drug use	YES	NO		
40. I have referred an adolescent to a substance abuse treatment program	YES	NO		
41. I have counseled an adolescent who has been physically abused	YES	NO		
42. I have counseled an adolescent who has been sexually abused	YES	NO		
43. I have counseled an adolescent about STD risk and prevention	YES	NO		
44. I have taught an adolescent how to correctly use condoms	YES	NO		
45. I have counseled an adolescent about contraceptive options	YES	NO		
46. I have prescribed an adolescent Emergency Contraception	YES	NO		
47. I have counseled an adolescent about pregnancy termination options	YES	NO		
48. The number of adolescent females for whom I have performed pelvic exams is:				
0	1-10	11-20	21-50	>50
49. The number of times I have prescribed contraception for an adolescent is:				
0	1-10	11-20	21-50	>50
	Strongly			Strongly
50. I am comfortable providing health care to adolescents.	Agree	Agree	Disagree	Disagree
51. I am comfortable discussing eating habits and body image with adolescents.	Strongly	Agree	Disagree	Strongly
	Agree	Agree	Disagree	Disagree
52. I am comfortable discussing tobacco, alcohol and drug use issues with adolescents.	Strongly	Agree	Disagree	Strongly
	Agree	Agree	Disagree	Disagree
53. I am comfortable discussing depression and suicide with adolescents.	Strongly	Agree	Disagree	Strongly
	Agree	Agree	Disagree	Disagree
54. I am comfortable discussing sex-related issues with adolescents.	Strongly	Agree	Disagree	Strongly
	Agree	Agree	Disagree	Disagree
55. I am comfortable asking adolescents about physical and sexual abuse.	Strongly	Agree	Disagree	Strongly
	Agree	Agree	Disagree	Disagree
56. A teen can consent for contraception in the state of your residency without parental involvement	True	False	I don't know	
57. A teen can consent for abortion in the state of your residency without parental involvement	True	False	I don't know	

lescent patients. However, any provider caring for teens should be prepared to conduct a gynecologic exam when indicated by patient concern or symptoms.

Obstetrics and Gynecology

The OB/GYN specialty is unique in its care of female patients only and its traditional focus on medical and surgical concerns related to pregnancy, gynecology, and reproductive endocrinology. However, in 2006, ACOG recommended that all adolescent females undergo an initial reproductive health visit, during which the physician is expected to provide comprehensive preventive care on the items included in this survey [29].

While OB/GYN residents report good training and experience in all sexual health-related issues, they identified a number of areas in general and mental health that would need to receive greater attention in training programs in order for OB/GYN practitioners to serve as comprehensive providers for adolescents. OB/GYN resi-

dents are less likely than FM or pediatric residents to consider areas of general health, psychiatric health, and substance abuse, included in this survey, as part of the scope of their practice. Their reported levels of training and experience in defining confidentiality, counseling about weight and exercise, eating disorders, depression/suicide, and screening and counseling for substance abuse were all significantly lower than FM and pediatric residents. Deficits in these areas have been reported both among other OB/GYN residents and practicing physicians [30]. These observations may be related to the relatively recent nature of the ACOG-initiated emphasis on providing comprehensive adolescent health care in the field of OB/GYN, whereas adolescent care is well established within the fields of FM and pediatrics. Additionally, as the data have well supported, adolescents primarily seek OB/GYN care for issues related to pregnancy and gynecologic health and are typically older than teens visiting FM and pediatric practices. These patterns likely

limit the opportunities for experiences in general health care available to OB/GYN residents. This study suggests that residency programs may need to broaden their training and expectations of resident experiences in general and psychiatric care in order to meet the goals set out by ACOG. Identifying barriers to expanding this care is a subject for further research.

Limitations

Our study had several limitations, including sample size; sample characteristics, including small geographic location; inaccuracies possible with self-report; and inconsistencies in the manner in which different fields interpreted survey questions. Our ability to analyze the effect of religious affiliation and gender was limited by our sample as discussed previously. Trends reported in the study should be substantiated by sampling residents from a greater diversity of programs. Inconsistent patterns of accuracy have been observed with physician self-report; it is possible that the survey responses provided an inflated view of the level of resident training and experience [31]. However, a recent study focused on resident self-assessment found good internal consistency between resident self-report and external chart review [32], suggesting self-report can provide valuable information about general trends. The manner in which resident experience was queried may have further contributed to an inflated view of resident experience, since a single experience of a given activity was enough to qualify as experience. This does not necessarily correlate to the experience required for competency and the incorporation of the given activity into future practice. Finally, there appears to have been some inconsistencies in the manner in which residents in different fields interpreted survey questions, in particular with regard to sexual health items. OB/GYN resident training is focused on sexual health topics; thus, it was surprising to note the occasional report of inadequate training for conducting pelvic exams and counseling about and prescribing contraception by upper level OB/GYN residents. While this may reflect real inadequa-

ties, it also could reflect a more specific interpretation by OB/GYN residents in terms of training.

CONCLUSIONS

Ideally, residents in the primary specialties who provide health care to teenagers should receive training and experience that prepares them to deliver comprehensive health services to adolescents as indicated by GAPS, AAP, AAFP, and ACOG. While there were some areas in which residents reported consistent positive responses regarding scope, training, and experience, there were multiple services for which resident training and experience was limited. Several studies have noted a connection between inadequate physician provision of preventive and clinical services to adolescents and physician training and experience with such [3-8,33]. Therefore, it is important to provide residents with training and experiences that reflect the stated goals of comprehensive health care for adolescents in order to improve delivery of health services to adolescents in the future. This study has helped identify areas within each of these three training programs in which greater emphasis, training, and experience will benefit trainees in regard to adolescent health care, so that future practicing physicians from these three specialties will be more prepared to provide the full range of recommended preventive and clinical services to adolescents.

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