

Policy Versus Practice: Comparison of Prescribing Therapy and Durable Medical Equipment in Medical and Educational Settings

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ABSTRACT. *Objective.* The American Academy of Pediatrics (AAP) has promoted pediatrician involvement in the care of children with special health care needs (CSHCN), including the prescription and/or supervision of therapies and durable medical equipment (DME) for children in both medical and educational settings, such as schools and early intervention programs. Through this survey, we attempted to quantify objectively how pediatricians direct and coordinate therapy and DME for CSHCN and how these efforts correlate with AAP recommendations.

Methods. A survey was mailed to a random sample of 500 physicians listed in the AAP directory, resulting in a final sample of 217 responding physicians who indicated that they provide services to CSHCN. Results of the survey were reported as proportions, means with standard deviations, or medians with interquartile range. Comparisons of proportions among certain subgroups of interest were made using Fisher exact tests.

Results. The most recent AAP policy revision addressing the role of physicians in prescribing therapy services for children with motor disabilities appeared in *Pediatrics* 1996. It listed 6 key items that should be part of a therapy prescription: diagnosis, precautions, type, frequency, anticipated goals (educators may prefer the term "objectives"), and duration. The policy addressed and emphasized the need for what may be additional objectives, namely regular communication between all parties involved, ongoing supervision and reevaluation of the program and problem, and awareness of other community resources for possible referrals. Except for providing a diagnosis, the majority of surveyed pediatricians do not regularly comply with AAP policy recommendations on prescribing therapies and DME in medical and educational settings. Physicians who were trained before 1980 tend to follow AAP recommendations more closely than later graduates. Decreasing involvement of private outpatient pediatricians in coordinating and supervising CSHCN's care was noted. Furthermore, the majority is willing to defer decisions about treatment and goals to nonphysician health care providers (NPHCPs) and, in some cases, even equipment vendors. More than two thirds of the respondents indicated that they would sign a prescription for therapy without their previous initiation if it had been initiated by a therapist. Likewise, most respondents said that they would sign a wheelchair pre-

scription sent to them by a therapist. Few expressed confidence in determining the appropriateness of leg brace (orthosis) prescriptions and arm/hand brace prescriptions. The majority of survey participants said that they give open-ended length of time (no limits under 1 year) on prescriptions for therapy services as part of school-based programs. However, patients' conditions and their therapeutic or equipment needs may change during the school year. Because open-ended prescriptions do not require periodic renewal, they do not provide opportunities for periodic feedback that helps to ensure that the pediatrician is kept abreast of the patient's status and progress. The majority of respondents indicated that they would see a patient before signing either a therapy or DME prescription if they had not seen that patient in the past year. A little more than half of survey respondents said that they would participate initially in recommending which professional services or therapies should be performed as part of early intervention programs most of the time, but one third said that they participated less than half the time and ~14% said that they never participated. A majority would require being involved before authorizing therapy services as part of a school-based program, but a substantial minority would provide retroactive authorization for services that they did not initiate themselves. More than three quarters of respondents would prefer to let the therapist or educator set the goals. Only 58% of pediatricians reported receiving a detailed progress report once or twice a year, and approximately one fifth received no reports on patients in school-based programs. A literature review suggested that there are different perceptions among physicians and educationally based service providers regarding the physician's role in initiating and supervising educationally based services and equipment, which may influence the extent of physician involvement. AAP and other professional organizations, such as the American Medical Association and the American Academy of Physical Medicine and Rehabilitation, as well as federal guidelines and third-party payers emphasize the important role of physicians in initiating, determining the medical necessity, and ordering of services as well as in ongoing patient treatment. If therapists through their states' scope of practice guidelines have autonomy of practice or if the school self-funds educationally based services, then there may be no issues regarding physician authorization. However, if a physician's authorization is required for reimbursement, then the physician's professional, legal, and practice guidelines come into play. Physicians should be conscientious about fulfilling their responsibilities in serving as the medical home and supervising and monitoring medical services for their patients in both community and educational settings. Failure to properly fulfill the responsibilities inherent in signing a prescription may bring adverse consequences for the patient as well subject the physician to legal liability if adverse events occur.

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Conclusions. Ideally, there should be a seamless continuity and cooperation among the environments of medicine, home, community, and education rather than separate and perhaps conflicting domains. All health care professionals and other service providers involved should be acknowledged as collaborative team members. Except for provision of the diagnosis, the majority of surveyed pediatricians do not comply with AAP policy recommendations on prescribing community/medical-based and educationally based services for CSHCN. Furthermore, the majority are willing to defer these decisions to other NPHCP. This raises issues regarding overall continuity of care versus care of the child in a variety of environments, the concept of the medical home, and legal risk as a result of failure to follow federal and state practice guidelines. Also, there seem to be different cultural perceptions among physicians and educationally based service providers regarding the physician's role in educationally based services. These cultural differences should be explored further to promote a greater collegial cooperation and understanding. Decreasing involvement of private outpatient pediatricians in coordinating and supervising CSHCN care and a trend toward greater deference to NPHCP since 1979 were noted. If the numerous policies and guidelines previously promoted by AAP have not had a significant impact on pediatrician practices in these fields, then other, more effective alternatives should be explored. *Pediatrics* 2004;114:e612–e625. URL: www.pediatrics.org/cgi/doi/10.1542/peds.2004-1063; *disabled children, rehabilitation, physician's practice patterns, special education, early intervention (education)*.

ABBREVIATIONS. DME, durable medical equipment; CSHCN, children with special health care needs; AAP, American Academy of Pediatrics; EIP, early intervention program; IFSP, individual family service plan; IEP, individualized education program; NPHCP, nonphysician health care provider.

Studies about physicians' practices are as important as studies of physiologic or pharmacologic science. The latter are of little use unless the results are applied effectively in practice. Recognizing this, we developed an ongoing project to review physician training and practice patterns in prescribing and supervising therapy services and durable medical equipment (DME), such as braces and wheelchairs, for children with special health care needs (CSHCN). We previously surveyed the training of pediatricians as follows: pediatricians' general training in meeting the therapy and DME needs for CSHCN,¹ how practicing pediatricians meet these needs,² and the availability of specialists in pediatric rehabilitation medicine.³ Information from the first study,¹ along with information from others^{4–11} that suggest a lack of training in these areas, subsequently prompted us to submit a resolution to the American Academy of Pediatrics (AAP) 2000 Annual Chapter Forum regarding the need for greater training in these areas. This resolution was adopted.¹²

Perhaps one of the most frequent contacts that pediatricians have in the community is with the educational system, from early intervention programs (EIPs) through high school, in which physicians frequently authorize or prescribe therapies and DME for CSHCN. Msall¹³ et al recently documented that

there is a large number of school-aged children with functional disabilities that limit their school activities and that many are not receiving adequate ongoing medical services. Through its recommendations and policies, the AAP has consistently promoted pediatrician involvement in the care of CSHCN,^{14–17} the provision of "the medical home,"^{18–20} case management,^{21–26} and the educational system.^{27–34} In addition to medically based services for therapy and DME, interactions between physicians and the educational system regarding school-based therapies and DME have not been well studied and are not clearly defined processes in the medical literature. The question then arises, "Does the strong support by AAP policies influence routine daily practice by pediatricians, including their interactions with the patient/student in both medical and educational settings?" Through this survey, we attempted to quantify in a more objective way how physicians deliver care to ensure community and educational enhancement for CSHCN.

METHODS

We contacted a commercial firm, Medical Marketing Services, Inc, which retains a frame of ~45000 members of the AAP under the auspices of AAP, and requested a random sample of 500 names and addresses. A survey of community/medically based practices was a portion of this survey to provide a follow-up to our earlier survey² and as a comparison with specific educationally based practices. We mailed surveys to all prospective participants in April 2002 with follow-up mailings to nonresponders in June and August 2002. We received 304 responses for a final return rate of 60.8%. Among those who returned the survey, 58 (19.1%) indicated that they do not provide therapy and DME services and 29 (9.5%) declined to fill out the survey. Therefore, the results reported are based on the 217 respondents who provided at least partial information. Ideally, our target population would have consisted of physicians who provide services to CSHCN. The list maintained by Medical Marketing Services did not contain information that is specific enough to determine, before mailing, whether individual physicians fit into our target population. Therefore, some surveys were sent to physicians who may not provide such services. However, we believe that the results based on the 217 responses are a reflection of those members of the AAP who see CSHCN in their practices.

Responses are reported as proportions (in % of total), medians with the range, and means \pm standard deviation, where appropriate. Comparisons of the proportions among subgroups were accomplished using either χ^2 or Fisher exact test. We considered $P < .05$ significant for comparing the subgroups.

Limitations

This is a self-reporting study and may not reflect true practice patterns but rather respondents' impressions of how they practice. By surveying a larger number of physicians across the nation, it is hoped that minor differences between perception and actual practice were minimized. Also, the survey was formatted to elicit principally yes or no answers. Although this may be somewhat limiting, we believe that this format lent itself best to objective analysis. Informants were encouraged to provide the most likely and predominant answer for their practice in each category. As with most surveys, some questions remain unanswered by our results. For example, we were unable to assess differences in responses for specialists versus primary care pediatricians, suggesting that future studies might be warranted to address issues that are not covered in the current work.

RESULTS

Demographic results are summarized in Table 1. The sample of 217 responses was nearly equally represented by men (55.8%) and women (44.2%). Nearly

TABLE 1. Demographics

Demographics	Unit
Age, mean ± SD	47.8 ± 10.3
Gender, % Male	55.8
Type of physician, %	
MD	97.2
DO	1.8
No response	1.0
Year of medical school graduation, %	
1954–1959	3.1
1960–1969	13.4
1970–1979	30.0
1980–1989	27.7
1990–1997	25.8
Primary practice site	
Private outpatient office	71.0
Government outpatient office	3.7
Hospital based, private	13.4
Hospital based, government	5.1
Other venues	6.8
Type of pediatric training, %	
Full-time pediatrics	94.5
Combined with another specialty	5.5
Received postresidency training, %	33.2
Board certified in a pediatric subspecialty, %	17.1
Graduated from a US medical school, %	80.6
State of medical school graduation, <i>n</i>	
DE, HI, ID, ME, MT, NV, NH, NM, RI, SD, UT, WA, WV, WY	0
AL, AK, AZ, AR, CO, CT, FL, GA, IN, IA, KS, KY, MD, MA, MN, MS, NE, NJ, ND, OK, OR, SC, TN, VT, WI	1–5
CA, DC, IL, LA, MI, MO, NC, OH, VA	6–10
NY, PA, TX	>10
Foreign	42
State of current practice, <i>n</i>	
AK, ID, KS, ME, ND, NH, WY	0
AL, AR, AZ, CO, DE, HI, IA, IN, KY, LA, MN, MO, MS, MT, NC, NE, NM, NV, OK, OR, RI, SC, SD, TN, UT, VT, WA, WI, WV	1–5
CT, FL, GA, MA, MD, MI, NJ, PA, VA	6–10
CA, IL, NY, OH, TX	>10

all held an MD degree (97.2%) with the remainder holding the DO degree (1.8%) or not answering (1.0%). The median year of graduation from medical school was 1981, with a range from 1954 to 1997. The average age was 47.8 ± 10.3 years. The majority (71.0%) listed their primary practice site as a private outpatient office, with the remainder split between hospital-based private office (13.4%), hospital-based government office (5.1%), government outpatient office (3.7%), and other venues (6.8%). The majority (94.5%) indicated that they had received full-time pediatric training, but a few (5.5%) indicated that they had received pediatric training combined with another specialty. Approximately one third (33.2%) indicated that they had received postresidency training. A small percentage (17.1%) indicated that they were board certified in a pediatric subspecialty.

With the exception of a few of the states with smaller populations, the sample seems representative with respect to the place of graduation from medical school. Most (80.6%) graduated from a medical school within the United States, but several (19.4%) indicated that they had graduated from a foreign medical school. In addition, the state of current practice seems to be representative of the entire United States with a few exceptions (AK, ID, KS, ME,

ND, NH, and WY). The number from each state seems to be relatively well associated with the states' populations.

Although our major interest is in quantifying preparedness, prescribing practices, and confidence of those who are responsible for prescribing therapies and DME for pediatric patients in community and educational settings, we also made a few comparisons of interest. To assess whether there is a temporal shift in attitudes and training, we compared responses from those who graduated from medical school before 1980 with those who graduated after that year, the approximate median graduation year. Second, we compared those who practice in private outpatient offices with those who practice in other settings.

Responses to questions are summarized in Tables 2 to 4. If asked to provide physical, occupational, or speech therapy, the majority (85.5%) would specify a diagnosis at least half the time, but the proportions that would specify frequency of treatment (42.5%), duration (34.0%), goals (36.0%), or precautions (29.3%) at least half the time are smaller, indicating that physicians may feel comfortable with diagnosing conditions but less comfortable with handling other details of treatment. With the exception of diagnosis, it seems that those who graduated before 1980 are more comfortable with the details. We did not find significant differences between those who practice in a private outpatient office and those who practice in other settings.

Fewer than one third of the respondents indicated that they would not sign a prescription for therapy without their previous initiation if it had been initiated by a physical therapist (32.2%), an occupational therapist (33.2%), or a speech therapist (29.2%). For each type of therapy, it seems that those who graduated before 1980 are less likely to sign than those who graduated afterward. If sent a wheelchair prescription by a therapist, few respondents (18.3%) indicated that they would not sign. Most (75.8%) would not sign a wheelchair prescription from a vendor without previous initiation. It seems that those who graduated before 1980 are less likely to sign if a therapist initiated the prescription, but we did not find differences in the proportions who would sign vendor-initiated prescriptions. However, those who practice in a site other than a private outpatient office are less likely to sign wheelchair prescriptions initiated by either a therapist or a vendor.

Few respondents expressed confidence in determining the appropriateness of leg brace (orthosis) prescriptions (24.8%) and arm/hand brace prescriptions (26.6%), but nearly half felt confident in their ability to prescribe wheelchairs (47.9%). We did not find statistically significant differences between those who graduated before 1980 and those who graduated in 1980 or later. However, those who practice in private outpatient offices seem to be more confident in prescribing wheelchairs than others (*P* = .031). Among those who reported lack of confidence in at least 1 of the 3 types of prescriptions (*n* = 160), a little more than one quarter (25.6%) would not

TABLE 2. General Prescribing/Supervision Practices

	All Respondents, %	Year of Graduation			Primary Practice Site		
		Before 1980, %	1980 or After, %	P Value	Private Outpatient, %	Other, %	P Value
If asked to provide for therapy (PT, OT, or ST), would you specify (at least 50% of the time)							
Diagnosis (yes)	85.5	86.7	84.5	.641	84.1	88.9	.365
Frequency of treatment (yes)	42.5	50.0	36.2	.042*	41.7	44.4	.714
Length or duration of treatment (yes)	34.0	43.8	25.9	.006*	32.7	37.1	.536
Goals of treatment (yes)	36.0	50.0	24.1	<.001*	33.8	41.3	.298
Precautions in treatment (yes)	29.3	37.8	21.9	.012*	26.0	37.1	.106
If sent a prescription for therapy without your previous initiation, would you sign if initiated by							
A physical therapist (yes)	67.8	57.3	76.8	.003*	70.3	61.7	.229
An occupational therapist (yes)	66.8	54.7	77.0	<.001*	70.5	57.6	.076
A speech therapist (yes)	70.8	57.3	82.3	<.001*	76.5	56.7	.004*
If sent a prescription and all forms completed for a wheelchair for your patient without your previous initiation, would you sign if sent by							
A therapist (yes)	81.7	73.4	88.6	.005*	86.1	70.2	.008*
A vendor (yes)	24.2	20.0	27.7	.198	27.7	15.3	.059*
Would you feel confident to determine the appropriateness of							
Leg brace (orthosis) Rx (yes)	24.8	21.0	28.1	.232	25.8	22.2	.578
Arm or hand brace Rx (yes)	26.6	24.0	29.0	.414	27.8	23.8	.546
Wheelchair Rx (yes)	47.9	45.5	50.0	.510	52.7	36.5	.031*
If NOT confident in at least 1 of the above (DME), would you trust the recommendation of the vendor and sign (yes; among N = 160)	74.4	64.5	83.3	.006*	80.7	58.7	.004*
If you would NOT sign, would you refer to a specialist? (yes; among N = 40)	97.5	96.2	100.0	.457	95.2	100.0	.335
If you have not seen the patient in the past time frame, would you first see before signing for therapy?							
If not in 1 y (yes)	85.6	81.4	88.9	.140	84.9	87.5	.661
If not in 6 mo (yes)	47.4	51.2	44.4	.353	39.0	70.6	<.001*
If not in 3 mo (yes)	19.9	27.2	14.3	.029*	15.4	32.0	.012*
Always see first (yes)	23.7	32.2	16.5	.011*	18.3	37.7	.005*
If you have not seen patient in the past time frame, would you first see before signing for DME?							
If not in 1 y (yes)	73.8	70.2	76.6	.318	70.1	85.1	.043*
If not in 6 mo (yes)	45.7	55.6	38.3	.019*	36.9	72.3	<.001*
If not in 3 mo (yes)	25.4	38.6	15.1	<.001*	20.0	40.8	.004*
Always see first (yes)	26.6	39.8	15.0	<.001*	21.5	39.6	.001*
Who do you believe should be best to provide training to physicians in ordering and supervising							
Therapies							
Therapists	26.7	18.8	33.6	.055	28.0	23.2	.621
Physicians	72.3	80.2	65.5		71.3	75.0	
Others	1.0	0.0	1.0		0.7	1.8	
DME							
Therapists	17.2	21.9	31.8	.229	28.3	24.6	.392
Vendors	0.5	0.0	1.0		0.0	1.8	
Physicians	69.4	74.0	65.4		69.1	70.2	
Others	2.9	4.1	1.8		2.6	3.5	

PT indicates physical therapy; OT, occupational therapy; SP, speech therapy; Rx, prescription.

* $P < .05$.

sign on the basis of a vendor's recommendation alone. Those who graduated before 1980 would be less likely to defer to a vendor. Those who practice in a setting other than a private outpatient office are less likely to sign. Among the minority (25.6%) who did not report confidence in at least 1 of the 3 areas but would not defer to a vendor ($n = 40$), most (97.5%) would refer to a specialist.

The majority (85.6%) of respondents indicated that they would see a patient before signing a therapy prescription if they had not seen that patient in the past year. Almost 74% would expect to see a patient whom they had not seen for 1 year before signing a prescription for DME. Smaller proportions would request a patient visit before signing therapy (47.4%) or DME (45.7%) prescriptions if they had not seen the

TABLE 3. School-Based Prescribing/Supervision Practices

	All Respondents, %	Year of Graduation			Primary Practice Site		
		Before 1980, %	1980 or After, %	<i>P</i> Value	Private Outpatient, %	Other, %	<i>P</i> Value
For school programs, do you							
Give open-ended length of time (no limits under 1 year) for therapy services? (yes)	81.1	75.9	85.4	.093	80.0	84.8	.458
Specify specific goals in Rx? (yes)	25.5	31.8	20.4	.075	23.9	30.4	.380
Prefer to let therapist or educator set all goals or Rx? (yes)	76.7	67.8	84.3	.008*	76.2	78.3	.776
Receive periodic reports (>5 words) from therapist (average/y)							
0/y	21.4	25.6	17.8		20.0	25.5	.806
1/y	39.0	41.8	36.6		39.3	38.3	
2/y	19.3	15.1	22.8		20.7	14.9	
3/y	17.1	14.0	19.8		17.9	14.9	
>3/y	3.2	3.5	3.0		2.1	6.4	
If a therapist from school called requesting a prescription, would you confer with a guardian before authorizing? (at least 50% of the time)	72.0	72.6	71.4	.848	70.7	75.4	.495
If a guardian called saying a therapist from school wants a prescription, would you request that the therapist contact you first to discuss? (at least 50% of the time)	66.8	81.1	54.9	<.001*	60.9	82.5	.003*
If a therapist contacted you saying a request for therapy has been initiated by the family, would you sign based on this alone? (at least 50% of the time)	42.3	38.5	45.5	.304	43.0	40.7	.765
If a therapist has autonomy of practice and already has provided treatment and if another agency requires a physician's signature for reimbursement, would you sign?	59.2	46.2	70.5	<.001*	64.5	45.5	.015*

* *P* < .05.

patient in the past 6 months. Still smaller percentages of survey participants would require a patient visit for therapy (19.9%) or DME (25.4%) if it had been 3 months. Fewer than one fourth (23.7%) said that they would always see the patient before signing for therapy, and just over one quarter (26.6%) always would before signing a DME prescription. Those who graduated before 1980 are more likely to expect a patient visit before signing if they had not seen the patient in the past 3 months or would always request to see the patient before signing. Similarly, those who practice in settings other than private outpatient offices are significantly more likely to see the patient first if they had not seen the child in the past 3 or 6 months or would always request to see the patient first.

For school-based programs, the majority (81.1%) of survey participants said that they give open-ended length of time (no limits under 1 year) on prescriptions for therapy services. Although we failed to find statistically significant differences, there is a borderline trend indicating that those who graduated before 1980 are less likely to give open-ended time limits (*P* = .093). A few (25.5%) would specify specific goals of treatment, and, again, there is a borderline indication that those who graduated before 1980 are more likely to specify goals (*P* = .075). A large proportion (76.7%) would prefer to let the therapist or educator set the goals, but those who graduated after 1980 are somewhat more likely to have this

preference (*P* = .008). The respondents reported that they would receive periodic reports 1.4 times per year on average, although 21.4% said that they would expect to receive no reports and 39% said that they would expect 1 per year.

Most (72.0%) survey participants would confer with a guardian before authorizing a prescription at least half the time. If a guardian said that a therapist from the school wants a prescription, however, then approximately two thirds would first request contact with the therapist at least half the time. A larger proportion of those who graduated before 1980 (*P* < .001) or who practice in a setting other than a private outpatient office (*P* = .003) would request therapist contact first. More than half (57.7%) of the participants said that they would sign at least 50% of the time if a therapist indicated that the request was initiated by family. If a therapist has autonomy of practice and has already provided treatment, then 40.8% indicated that they would not sign if another agency requires a physician's signature. Those who graduated before 1980 (*P* < .001) as well as those who practice at other than private outpatient offices (*P* = .015) would be less likely to sign.

Regarding physician training in the ordering and supervision of therapies, most (72.3%) respondents said that such training should be done by physicians, but a few (26.7%) said that therapists should train. Similarly, regarding physician training in the order-

TABLE 4. EIP Prescribing/Supervision Practices

	All Respondents, %	Year of Graduation			Primary Practice Site		
		Before 1980, %	1980 or After, %	<i>P</i> Value	Private Outpatient, %	Other, %	<i>P</i> Value
Do you participate initially in recommending which professional services/therapies will be performed? (at least 50% of the time)	52.2	45.7	57.7	.089	55.3	43.4	.136
Do you review recommendations of the EIP team within 6 wk or less? (at least 50% of the time)	67.1	73.1	62.2	.097	68.4	63.5	.511
Do you alter or input further the recommendations after review? (at least 50% of the time)	12.3	17.2	8.1	.049*	11.8	13.5	.759
Do you receive detailed follow-up progress evaluations (>5 words) on your patient? (at least 50% of the time)	52.0	53.2	50.9	.745	56.3	39.6	.037*
If in EIP, foster care program, or other child care type of program required a physician's signature on a Rx or POC for "therapeutic case management," would you sign after services were rendered?							
Sign if received? (yes)	45.8	51.4	57.6	<.001*	51.8	30.9	.009*
Insist on being informed before signing? (yes)	65.6	78.2	55.6	.001*	63.3	71.4	.281
Require periodic reports every 3 mo	43.6	40.9	45.7	.530	41.7	48.0	.456
every 6 mo	68.8	79.0	61.0	.011*	66.9	73.9	.379
every 12 mo	66.5	70.0	64.1	.470	65.2	69.6	.598

* *P* < .05.

ing and supervision of DME, most (69.4%) respondents said that the training is best done by physicians, but a few (17.2%) indicated that therapists would be best. Only a small proportion (0.5%) indicated that vendors should train.

For EIPs 52.2% said that they would participate initially in recommending which professional services or therapies should be performed as part of the EIP most of the time. Thirty-four percent said that they participated less than half the time, 13.7% said that they never participated, and 12.7% always participated. Approximately 67% indicated that they would review recommendations of the EIP team within 6 weeks or less at least half the time. Only a few (12.3%) would alter the recommendations or offer additional input after review most of the time. Those who graduated before 1980 are more likely to alter the reports (*P* = .049). Approximately 52.0% indicated that they would expect to receive detailed follow-up progress reports (>5 words) most of the time. Those in private outpatient offices are more likely to receive follow-up reports (*P* = .037).

DISCUSSION

One of the most common situations in which primary care pediatricians are requested to authorize

therapies or DME for CSHCN is in the provision of medical services to patients in schools or other educational settings. Beginning with Section 504 of the Rehabilitation Act of 1973, federal legislation has required schools to provide special-needs children with educational and related services that enable the child to function as independently as possible. These requirements were later reauthorized in Public Law 94-142, the Education for All Handicapped Children Act of 1975, and extended to infants and toddlers and their families through EIPs by Public Law 99-457 of 1986, with additional amendments through Public Law 101-476, the Individuals With Disabilities Education Act of 1990.^{27,30-34} Related services include speech, occupational, and physical therapy; mobility services; and other medical interventions.^{27,30-34}

Every CSHCN must have a written plan of educational and related services, an individual family service plan (IFSP) for children from birth through 3 years of age,^{27,30,31,34} an individualized education program (IEP) for children 3 to 21 years of age,^{27,30-34} or a transitional service outcome plan for young adults at 16 years age.^{29,32} In addition, every CSHCN must be evaluated by a multidisciplinary team, which may include therapists, educators, the pa-

tient's guardians, and the child's pediatrician among others. The AAP promotes a team-based approach with the involvement of a physician (preferably a pediatrician) who can coordinate patient/student care and interact with nonphysician health care providers (NPHCPs), such as therapists, who are part of the team.¹⁴⁻³⁴

Physician's Role in School-Based Teams

The exact nature of the primary care physician's role in the provision of related services has been described and interpreted differently by different parties. For example, the Individuals with Disabilities Education Act specifically refers only to the physician's role in providing a diagnosis and an evaluation of the disability or consulting.^{27,31} Some interpret this to mean that these are the only roles that physicians should play in regards to educationally related services. However, the AAP has stated that "This interpretation becomes problematic in its failure to recognize the physician's role in the medical management, supervision, and program planning process for these children." [italics authors]²⁷ Both the AAP²⁷⁻³⁴ and physicians in practice³⁵⁻⁴⁰ have historically promoted the importance of physician involvement with the care of CSHCN in educational and other nonmedical settings. According to the AAP, the pediatrician should provide ongoing coordination and "supervision of medical care and home-related services for children with chronic and disabling conditions . . . regardless of the location or source for payment of these services"³¹ and that "this responsibility extends to the services provided by the school system [with] careful collaboration and coordination by the medical home professional with the educational authorities."³¹ Furthermore, "the pediatrician should determine if the health-related services proposed are appropriate and sufficiently comprehensive. He/she should assist parents in performing their advocacy task when there is evidence of inappropriate planning."³⁰ Physicians bear these responsibilities as they participate in the multidisciplinary team environment that characterizes the provision of services to CSHCN in the educational setting.^{27,30,31}

There are a number of reasons that physicians play a key role in coordinating and supervising therapies and DME in educational settings as well as medical environments. Although most physicians see themselves as primarily serving and advocating for their patients, they also have been placed in the role of "gatekeepers" by third-party payers and by state and federal mandates.^{21-25,41} Physicians who do not receive direct reimbursement for the cost of therapy services or DME and who avoid gifts or commercial tie-ins to providers serve as "honest brokers" to ensure fair and appropriate services at fair and appropriate costs in the best interest of the student/patient.⁴²⁻⁴⁴

This gatekeeper role is important in the educational environment because although the educational system is obligated to provide CSHCN educationally based services free of charge, it is not necessarily required to provide medical services.⁴⁵⁻⁴⁹ There is

ongoing debate—even within cities and districts within the same state as well as among states—as to what constitute "educationally based" services and what are "medically based" services.^{27,31,48,50} Parents, physicians, students, and other members of the care team as well as officials in the educational system may have different interpretations of what is medically necessary versus educationally requisite as well as different opinions on the type, amount, intensity, frequency, and endpoint of services or equipment. This situation can lead to conflicts among the wishes of the various parties involved, and physicians must serve as mediators when their authorizations are required. Moreover, as some states have expanded certain professionals' scope of practice, state and local guidelines can be inconsistent about which health care professional should prescribe services or DME.²⁷ Therapists who provide services in the educational system also report feeling caught in this dilemma.^{48,50,51} Physicians should encourage that every appropriate need of their patients be met, but care must be taken to ensure that if a private insurer provides reimbursement for therapies in the school, then this usage does not lower the patient's yearly or lifetime medical benefits, as there may be limitations on the total amount of reimbursements that the private carrier will provide.^{24,25,27,31} Likewise, because resources are limited and managed care has led to greater cost controls, pediatricians should ensure that unnecessary or inappropriate expenditures are not incurred. Inappropriate or overuse of resources in one area may lead to fewer resources for other, equally needy children. Hays's article⁵² on ethics in pediatric rehabilitation, as well as others reflecting general rehabilitation ethics,^{53,54} offers an in-depth discussion on approaching the dilemmas of conflicting expectations about services.

Physicians moreover ultimately assume both legal and medical responsibility for prescriptions and plans of care that bear their signature. Through their scope-of-practice guidelines, many states have granted therapists autonomy of practice or role release to evaluate patients and/or initiate and provide therapy services without physician authorization.⁵⁵⁻⁶⁸ However, it should be noted that state and federal regulations and third-party payers frequently mandate a physician's signature on prescriptions and treatment plans. If physicians sign off on prescriptions or plans without proper review or supervision, then they should be aware that they could be held legally responsible if adverse events, such as injuries, occur or if fraudulent practices, such as delivery of unauthorized or improper services, take place. Even when the physician intends no ill, by his or her laxity he or she may still be drawn into legal jeopardy by lack of proper oversight.⁶⁹⁻⁸³ Physician liability for improper certification of therapy and DME has become an increasing interest of state and federal regulatory agencies, such as the Office of the Inspector General.^{69,72,73} Despite these legal and ethical responsibilities and despite the AAP's policy recommendations and its strong voice support for physician involvement in supervising therapies and DME for pediatric patients in all settings, including

the educational environment, the results of our survey suggest that this level of involvement in educationally based teams is not occurring among practicing pediatricians.

Prescribing Practices

The AAP's policies clearly emphasize the important role of physicians in prescribing therapy services. Also, federal Medicaid and Medicare regulations^{69,72,73} and the guidelines issued by the American Medical Association^{70,71} and by the American Academy of Physical Medicine and Rehabilitation⁷⁴ indicate physicians' important role in determining the medical necessity and length of treatment(s) as well as the ordering of treatment(s) or DME in collaboration with NPHCPs. Specifically, federal guidelines expect and professional organizations encourage physician involvement in the initial authorizations and before services and DME are rendered.⁶⁹⁻⁷⁴

Several policies from the AAP,^{14,17} as well as papers by Rothery et al⁸⁴ and Levine and Kliebham,⁸⁵ address the role of physicians in prescribing therapy services for children with motor disabilities. The most recent AAP policy revision—and probably the current “gold standard”—appeared in *Pediatrics* 1996.¹⁷ It listed 6 key items that should be part of a therapy prescription: 1) diagnosis, 2) precautions, 3) type of therapy, 4) frequency of therapy, 5) anticipated goals (educators may prefer the term “objectives”), and 6) duration of therapy. The policy statement also addressed and emphasized the need for what may be additional objectives, namely 7) regular communication between all parties involved, 8) ongoing supervision and reevaluation of the program and problem, and 9) awareness of other community resources for possible referrals. Although the AAP has not clearly defined the physician's role in obtaining DME for CSHCN through its policies or statements, many of the principles described in its policy on therapy supervision would and should apply equally well to the ordering and supervision of DME.

Physicians should be aware that the same principles that govern other, more familiar types of prescriptions also apply to therapy and DME prescriptions. For example, prescriptions for therapies and DME share many similarities to antibiotic prescriptions, and just as there have been questions about unnecessary or inappropriate prescribing of antimicrobials,⁸⁶⁻⁸⁹ there may be questions about the appropriateness of some prescriptions of therapies and DME. Simply writing “physical therapy” or “wheelchair” and/or providing no additional review or input to ensure successful treatment often is unacceptable.^{17,34,69-74} Only a minority of respondents to our survey meet all of the essential elements of prescriptions when it comes to prescribing therapies and DME for CSHCN. The results of our survey show that a large proportion of respondents provide only the diagnosis. Survey participants specify the other 5 key elements less than half to none of the time. Moreover, a large majority of the respondents often were willing to defer prescription details to therapists or other NPHCPs and to authorize therapies

and DME initiated before or without their involvement. The majority of those who did not feel comfortable prescribing DME themselves would defer decisions to therapists or even vendors. A large majority (76.7%) said that they preferred to let the NPHCP set all of the treatment goals. The only exception was that the majority of survey participants would not authorize a wheelchair prescription initiated by a vendor, although one quarter of the respondents would, in violation of Medicare/Medicaid guidelines.⁷³

Physician's Role in Team Participation

As noted previously, this lack of physician participation may be in conflict with federal guidelines and the AAP's long-standing policy recommendations. The Office of the Inspector General of the Department of Health and Human Services has stated, “In determining what services are medically necessary, Medicare primarily relies on the professional judgment of the beneficiary's treating physician, since he or she knows the patient's history and makes critical decisions, such as . . . ordering tests, drugs, and treatments; and determining the length of treatment. In other words, the physician has a key role in determining both the medical need for, and utilization of, many health care services, including those furnished and billed by other providers and suppliers” [italics authors']; Medicaid generally follows Medicare guidelines.⁷² If the complexity of a patient's rehabilitation needs surpasses the general physician's knowledge, then it is appropriate to refer to a specialist to provide consultation and thereby ensure adequate physician input.^{17,24,25,30,31,34}

Ideally, decisions about equipment and services that will enhance the ability of CSHCN to participate more fully in their education should be a collaborative effort among all of the professionals involved, with mutual agreement among the various parties reached through joint information sharing and understanding of each professional's responsibilities and practice parameters. Statements have been made that physicians should trust the professionalism of therapists in the educational system and furthermore that therapists alone should define the goals/objectives and determine the frequency, intensity, and duration of treatment and any alterations. The majority of survey participants indicated that they would sign prescriptions for services that have already been provided if their state's laws or regulations give therapists autonomy of practice and an agency (private, educational, or government) says that it requires a physician's signature to reimburse the therapist. Although therapists bring professional knowledge and insights to the decision-making process, physicians must bear in mind that failure to fulfill their responsibilities inherent in signing a prescription may bring adverse consequences for the patient as well subject the physician to legal liability if adverse events occur. Although high standards and professionalism by all parties most often characterize these treatment decisions, at times services may not meet professional criteria as a result of inadequate attention and/or knowledge of the pro-

vider and, at worst, actually may be fraudulent.^{69–83} Thus, deferring treatment decisions entirely to others, even trained therapists, carries a large caveat for the prudent physician unless legislative practice guidelines shift the medical and legal responsibilities completely to other professionals.

At least a modest majority (52.2%) of survey participants report participating in initial recommendations for therapies or other medical services that are part of an EIP, receiving recommendations from the EIP team for review within 6 weeks (67.1%), and receiving detailed follow-up progress reports (52.0%). However, approximately half received no reports, either assessment or progress reports. Thirty-four percent said that they participate in initial recommendations less than half the time, and 13.7% say that they never participate. Similarly, only 12.7% report always participating. Thus, there seem to be a number of pediatricians who have had no input with their patients in their initial evaluations in the EIP. Similarly, for older-aged children in school-based programs, only 58.3% of pediatricians reported receiving a detailed progress report only 1 to 2 times a year, and 21.4% received no reports. At the same time, a majority of survey respondents said that they would require a conference with the guardian and/or NPHCP involved in planning and delivering medical services to students before prescribing any services requested through the school at least half or more of the time. In part, ensuring inclusion of pediatricians in team activities and providing initial assessment reports and periodic updates are the responsibility of the other team members and the school system. However, it is equally significant that pediatricians in the survey do not seem to act as more forceful advocates to ensure that this contact and inclusion occur regularly.

We have heard anecdotal accounts of pediatricians' receiving requests from members of the school-based service teams for signatures on prescriptions for services that were already rendered and that the physician did not recommend or for patients whom the physician has not seen for considerable time, if ever. If schools self-fund the educationally based services, then there may be no issue; but if a physician's authorization is required for reimbursement, then the physician's professional, legal, and practice guidelines come into play. Physician involvement should be sought up front, rather than after the fact. Almost two thirds (65.6%) of survey respondents indicated that they would insist on being informed of the types of services to be performed and the frequency before initiating plans of care or signing prescriptions for services that have been initiated or performed without their previous authorization as part of an EIP, but >65% said that they would sign a prescription after the services had been performed if requested. Thus, a majority would require being involved before authorizing, but a substantial minority would provide retroactive authorization for services that they did not initiate themselves.

Because IEPs are generally written for an entire school year, educational personnel and therapists

often request that prescriptions for therapies be written for a full year of services. A large majority (81.1%) of our survey participants indicated that they would write open-ended (no limits under 1 year) prescriptions. In addition, the majority of respondents said that they received only 1 or no reports within 1 year from the school in response to their prescriptions. Although open-ended prescriptions may eliminate unnecessary delays in continuing therapy, patients' conditions may change during the school year and their therapeutic or equipment needs also may change. IEPs may require additional revision through input from professionals, including physicians, as the child's conditions alter. For example, conditions such as acquired brain injury and incomplete spinal cord injury may undergo resolution and improvement during the school year. Because open-ended prescriptions do not require periodic renewal, they do not provide opportunities for periodic feedback that helps to ensure that the pediatrician is kept abreast of the patient's status and progress. Rehabilitation therapy or DME needs rarely require an urgent response within a few days. Even so, with collaborative communication, there should not be any greater lag time in response than for a drug renewal prescription, for example.

A significant majority of the survey participants said that they would see their patients before prescribing therapies or DME if they had not seen the child within 1 year. However, the question arises as to whether 1 year is an adequate time frame for growing children whose bodies change relatively rapidly or for those who may have changing treatment needs, such as children with newly acquired conditions such as traumatic brain injury or conditions such as spinal cord injury in the recovery phase. Even in the case of older children, it may be desirable to have direct physical review more frequently to ensure the ongoing appropriateness of treatment. However, the majority of respondents would not require a patient visit if they had not seen the child within 6 months with the exception of those who graduated before 1980 and pediatricians in non-private outpatient practice sites. Fewer than one quarter of respondents said that they would always wish to evaluate the patient before prescribing therapies. Currently, there are no official recommendations for direct physical review time frame, although continued supervision is recommended.^{27,30,31} This may be an issue for future review by the AAP.

"Cultural differences"^{27,31,90} seem frequently to characterize the interactions between those in the educational system and those in medical professions. These differences include variations in terminology, such as a child's being a "patient" from a medical perspective, whereas in educational parlance, he or she is a "student." In the educational setting, therapists may be considered "service providers," a category that may include a number of NPHCPs. Articles on interdisciplinary teams produced by therapists^{45–51,55–60,63–67,91–96} seem to recognize physicians as team members less frequently than those produced by physicians.^{1,2,12–40} It has been suggested that physicians who assert their role in therapy and

equipment decisions and ongoing involvement with the patient's treatment are seeking "power" or "control."^{55,65} However, given the liability issues previously noted, the prudent physician must be conscientious about fulfilling his or her responsibilities in serving as the medical home and supervising and monitoring medical services for his or her patients in both community and educational settings.

Regardless of authority and funding issues, the larger philosophical issue is determining what is best for the student/patient in a holistic continuity of care. Although care of CSHCN traditionally has fallen primarily to specialists, primary care pediatricians increasingly are involved in both the acute and long-term rehabilitative process for patients.^{14–20,97,98} Positive benefits of acute rehabilitation may be lost if not practiced and reinforced through the treating primary care physician.⁹⁹ Ideally, all health care professionals and other service providers involved should be acknowledged as collaborative team members, as in the model espoused by Farmer et al⁴⁰ for overall life-care plans for children with acquired traumatic brain injury.

In general, our results showed that pediatricians who practice in private outpatient settings tended to follow the AAP and federal guidelines less closely than those who practice in other settings. Our data provided no specific explanation for the differences, other than that those in the "other" category included some subspecialists who might have greater familiarity with therapies and DME. Perhaps the most intriguing results are the differences between those who graduated from medical school before 1980 and later graduates. When statistically significant differences existed, those who graduated before 1980 almost uniformly were more in compliance than those who graduated in 1980 or later. Even when figures were not statistically significant, there was a consistent trend of greater numbers of older graduates in compliance. The increasing number of AAP policies and guidelines in these areas over the past 2 decades might have been expected to have influenced greater compliance by newer graduates, not less, as our data suggest. Possible factors such as changing training patterns, greater experience of older physicians, greater numbers of therapists trained in pediatrics, and increasing promotion of autonomy of practice by NPHCPs may affect physicians' compliance.

Recommendations

The AAP has repeatedly promoted the concept of pediatrician involvement in the medical home, coordination of ongoing care and transition into adulthood, and provision of therapies or equipment to students as part of an interdisciplinary team. However, this study suggests that despite the increasing number of policies and recommendations, actual performance and involvement by pediatricians has become less, not greater, since the 1980s. If pediatricians and the AAP believe that this is not a role in which they wish to participate, then they should advocate for transfer of these responsibilities to other health care professionals. Otherwise, they only inter-

fere with the process of care and open themselves to medical-legal liability and risk for the actions of others. However, if both pediatricians and the AAP believe that pediatricians should have a significant role in the provision and supervision of therapies and DME for their patients, then every effort should be made to ensure full and competent participation. If policy statements alone are not sufficient, then the AAP should proactively address additional avenues.

All health care providers, both physicians and nonphysician providers, should be familiar with their state's medical practice guidelines.³¹ As discussed above, there may be autonomy or role release for therapists to evaluate, diagnose, and treat without prescription or physician involvement, whereas in other states, a physician's prescription is always needed, at least for therapist or provider reimbursement. Even when a physician prescription is not required, communication among all parties would establish a seamless continuity between the child's services within the educational system and services received in the medical/community setting, thus avoiding duplication of services, conflicting recommendations, unnecessary expense, and time impingement on all parties.

The question is how to incorporate this practice responsibility into residency training^{10,12} and evaluate the adequacy of the training.¹⁰⁰ Appropriate education may alter therapy and DME prescribing practices, as it has antibiotic prescribing practices. We have previously noted that information on developmental, learning, and behavioral disorders in CSHCN is imparted during residency training, but there is little information given on meeting patients' physical medicine and rehabilitation needs.¹ Similar findings were noted by Paul and Kathirithamby and by Camp et al^{6,8} The Camp surveys of pediatric residency as preparation for primary care practice showed that although graduates of primary care tracks are better trained than graduates of non-primary care tracks in learning disabilities, attention deficit disorders, and school difficulties (behavioral/developmental related disabilities), both groups rated themselves less than adequately prepared for caring for physically disabled children and providing orthopedics.⁷ The AAP's Future of Pediatric Education II and the AAP Annual Chapters Forum have acknowledged this deficit.^{10,12} Pediatric training programs for medical students and residents and the Accreditation Council for Graduate Medical Education should seek to incorporate a knowledge base in these areas, and the American Board of Pediatrics should incorporate materials in their evaluations to ensure competency in these areas. This should include increased training in medical school and residencies not only in the provision and supervision of therapies, as recommended by the adopted Resolution 54 at the 2000 National Chapter forum,¹² but also increased participation and training in comprehensive team management for chronic health care conditions.

Students and residents should be taught to work in multidisciplinary teams. Many acute medical illnesses in pediatrics require only a limited number of

personnel for treatment. CSHCN often require multidisciplinary participation between various professionals in health care delivery and in educational services. In a previous study, more than two thirds of the physicians reported no training in leading a team.¹ Furthermore, half to two thirds of physicians indicated that they had no training in prescribing therapeutic exercises, physical therapy, occupational therapy, or speech-language pathology. Thus, it is not surprising to find in our current survey that large numbers of physicians are willing to defer decision making to other health care providers or NPHCPs in the education system. However, they do so in variance with the AAP's stated policies on physician involvement in these areas.

Postgraduate training and reviews in continuing medical education courses, such as the AAP's PREP course, and on national and state levels should be developed. Ideally, such training is probably best done in a forum with both therapists and physicians present. Whereas therapists provide valuable information on the techniques and practices of their individual professions, physicians who are trained in providing and supervising therapy and DME prescriptions would be more familiar with the medical management, care coordination, responsibilities, and legal issues from the physician's perspective. The respondents seemed clearly to agree that both for therapy training (72.3%) and for DME training (69.4%), physicians should be the first choice in training programs. Training personnel may include pediatric physical medicine and rehabilitation specialists (pediatric physiatrists). We have previously shown that 79.5% of the American Academy of Physical Medicine and Rehabilitation's Pediatric Rehabilitation Special Interest Group are associated with academic training programs³ and would be a resource for physical medicine issues, along with other specialists in orthopedics, developmental medicine, and neurology.

For practicing pediatricians whose expertise or interests are not in the care of CSHCN, they could serve as a "medical home" for these patients by developing knowledge of community resources, such as pediatric physical medicine and rehabilitation specialists, for periodic consultations to assist them in care. Pediatricians and their AAP state chapters should be socially active in these areas to clarify the roles of physician interaction and provide mutual 2-way communication and education with the educational and EIP systems. In the principal author's own state, a multidisciplinary committee that included physicians, allied health care providers, educational professionals, social workers, and Medicaid officials was formed to identify issues; educate each other on their roles, practice guidelines, and constraints; and develop a set of best practice guidelines applicable for provision of therapies and DME to CSHCN in the educational system. The guidelines have been formulated, and plans are to disseminate them to school-based educators and therapists and to physicians in the state.¹⁰¹

Although there seems to be little training for physicians in the prescribing of DME, resources for guid-

ance are available to physicians. The AAP has developed *Guidelines for Pediatric Home Health Care*¹⁰² with a chapter on assisted technology in the home care setting that could be equally applicable in the educational system. Other resources are available, such as the American Spinal Injury Association's *Justification for the Prescription of Durable Medical Equipment for Spinal Cord Injured Individuals*¹⁰³ and Molnar's and Alexander's *Pediatric Rehabilitation*.¹⁰⁴ The information on DME in this text can be extended to many types of patients. Producers of pediatric textbooks should consider developing sections on physical medicine rehabilitation needs. Most general pediatric textbooks currently have no section on this area, although *Rudolph's Textbook of Pediatrics* has added such a section for the first time in its 21st addition.¹⁰⁵ In addition, the AAP should develop recommendations for the role of the physician in DME provision for CSHCN, as has been done for therapies for children with motor disabilities.

The AAP may need to interact more with other nonphysician health care organizations, educational systems, and professional organizations to promote the role of the physician beyond simply providing a diagnosis and medical history. In addition, perhaps under the Accreditation Council for Graduate Medical Education, both therapists who teach physicians-in-training and physicians who teach NPHCPs should be jointly promoted. The AAP recommends that "standards of scientific evidence should be applied to assess the outcome of all areas of clinical practice delivered by all providers of pediatric care."⁶² Physicians in ongoing collaboration can play a significant role in research and documentation of evidence-based practices and outcomes for pediatric rehabilitation and their application to actual therapy and DME provision.^{62,106-109} These results should also be a part of residency and continuing medical education programs.

CONCLUSIONS

Ideally, there should be a seamless continuity and cooperation among the environments of medicine, home, community, and education rather than separate and perhaps conflicting domains. Except for provision of the diagnosis, the majority of surveyed pediatricians do not comply with AAP policy recommendations on prescribing community/medical-based and educationally based services for CSHCN. Furthermore, the majority are willing to defer these decisions to other NPHCPs. This raises issues regarding overall continuity of care versus care of the child in a variety of environments, the concept of the medical home, and legal risk as a result of failure to follow federal and state practice guidelines. Also, there seem to be different cultural perceptions among physicians and educationally based service providers regarding the physician's role in educationally based services. These cultural differences should be explored further to promote a greater collegial cooperation and understanding. Decreasing involvement of private outpatient pediatricians in coordinating and supervising CSHCN care and a trend toward greater deference to NPHCPs since 1979

were noted. If the numerous policies and guidelines previously promoted by the AAP have not had a significant impact on pediatrician practices in these fields, then other, more effective alternatives should be explored.

NOTE ADDED IN PROOF

Since the research was done and submission/acceptance occurred for this report, the AAP updated ref 17 in June 2004.¹¹⁰ Review of this report seems to reconfirm the conclusions of this research and recommendations including the key items for therapy prescriptions and supervision.

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