

Final Report of the FOPE II Financing of Pediatric Education Workgroup

Authors: M. Douglas Jones, Jr, MD*; Thomas Boat, MD‡; Robert Adler, MD§; Harlan R. Gephart, MD||; and Lucy M. Osborn, MD, MSPH¶

Consulting Authors: Holly J. Mulvey, MA; Errol R. Alden, MD; Jimmy L. Simon, MD; and Russell W. Chesney, MD

ABSTRACT. Some of the challenges of financing pediatric medical education are shared with all medical education; others are specific to pediatrics. The general disadvantage that funding of graduate medical education (GME) is linked to reimbursement for clinical care has uniquely negative consequences for freestanding children's hospitals because they therefore receive little Medicare GME support. This represents both a competitive disadvantage for such hospitals and an aggregate federal underinvestment in children's health care that now amounts to billions of dollars. The need to subsidize medical student and subspecialty education with clinical practice revenue jeopardizes both activities in pediatric departments already burdened by inadequate reimbursement for children's health care and the extra costs of ambulatory care. The challenges of funding are complicated by rising costs as curriculum expands and clinical education moves to ambulatory settings. Controversies over prioritization of resources are inevitable. Solutions require specification of costs of education and a durable mechanism for building consensus within the pediatric community. *Pediatrics* 2000;106(suppl):1256–1269; *medical student education, continuing medical education, medical subspecialties, children, pediatrics, health maintenance organizations, managed care, hospital finances, children's hospitals.*

ABBREVIATIONS. GME, graduate medical education; CME, continuing medical education; DME, direct costs of graduate medical education; DRG, Diagnosis-Related Group; IME, indirect costs of medical education; FY, fiscal year; ABMS, American Board of Medical Specialties; ACGME, Accreditation Council for Graduate Medical Education; AAP, American Academy of Pediatrics; DSH, disproportionate share; ABP, American Board of Pediatrics; IMG, international medical graduate; AMG, American medical graduate; HCFA, Health Care Financing Administration; NIH, National Institutes of Health; AAMC, Association of American Medical Colleges; AAPCC, adjusted average per capita cost; RRC, residency review committees; FTE, full-time equivalent resident; COGME, Council on Graduate Medical Education; IOM, Institute of Medicine; AMA, American Medical Association.

Received for publication Feb 28, 2000; accepted Feb 28, 2000.

From the *University of Colorado School of Medicine, Children's Hospital, Denver, Colorado; ‡University of Cincinnati College of Medicine, Children's Hospital Medical Center, Cincinnati, Ohio; §University of Southern California School of Medicine, Children's Hospital Los Angeles, Los Angeles, California; ||Group Health Cooperative of Puget Sound, University of Washington School of Medicine, Seattle, Washington; and ¶University of Utah School of Medicine, Salt Lake City, Utah.

PEDIATRICS (ISSN 0031 4005). Copyright © 2000 by the American Academy of Pediatrics.

INTRODUCTION

The 1978 Task Force Report

The Task Force on Pediatric Education, in their 1978 document, *The Future of Pediatric Education*,¹ devoted relatively little space to financing. They recommended moving pediatric care from inpatient to ambulatory settings, with greater emphasis on preventive care, and suggested a corresponding increase in educational activity in ambulatory settings. They acknowledged that this was apt to increase the cost of education. They suggested support through better reimbursement for ambulatory preventive services along with increased direct federal support.

They noted that knowledge of the cost of education was minimal, mentioning that "the costs of educating medical students and pediatric residents are difficult to estimate because of the overlapping of service, research and teaching in university health sciences centers."¹ They also noted that "the future of pediatric education can no longer be dependent on antiquated in-hospital reimbursement mechanisms."¹ Little has changed in either knowledge of costs or in methods of reimbursement since 1978.

Summary of Directives to the Financing of Graduate Medical Education (GME) Workgroup

The charge to the Financing of GME Workgroup is broader than the title implies. This report will discuss the financing of medical student and continuing medical education (CME) as well. With regard to GME, the report will review funding mechanisms for general and subspecialty residency training and discuss possible effects of interacting changes in health care economics, federal support, and curriculum. It will discuss cost-analysis as it applies to pediatric education and review proposals to use GME funding to effect such policy goals as changes in physician number and specialty distribution.

CURRENT STATUS OF THE FUNDING OF GME

Overview and Immediate Challenges

Medicare GME Funding

Before Medicare, GME was sponsored by hospitals in the form of modest payments for room and board. Beginning in 1966, Medicare payments included reimbursement for so-called direct costs of graduate medical education (DME), defined as the cost of

residents' salaries and benefits and the costs of faculty and staff salaries and benefits and miscellaneous expenses (including allocated hospital overhead) needed to operate the training program.^{2,3} Diagnosis-Related Group (DRG)-based Medicare reimbursement was instituted in 1983. To adjust for anticipated underreimbursement of teaching hospitals, policymakers devised a percentage add-on to DRG-based payments as reimbursement for what was called indirect costs of medical education (IME). Although IME payments were based on the number of residents, they were intended to pay for more than just the indirect or overhead costs of GME. They also compensated teaching hospitals for the estimated cost of increased severity of illness, greater numbers of indigent patients, and maintenance of specialized services.

By 1997 IME payments had come to represent nearly two thirds of total Medicare GME payments of nearly \$7 billion.³ Thus, the provision of the Balanced Budget Act of 1997 (PL 105-33) that will reduce IME payments by nearly one third by fiscal year (FY) 2002⁴ will reduce overall Medicare GME payments by ~25%. Although the Consolidated Appropriations Act for FY 2000 slows implementation of these provisions,⁵ full implementation will almost certainly result in a decrease in resident education. Other payers are unlikely to make up the shortfall.

Medicare and Free-Standing Children's Hospitals

Medicare GME payments depend on the percentage of inpatient days attributable to Medicare patients.² Because the payment formula applies to any resident in an American Board of Medical Specialties (ABMS)- or Accreditation Council for Graduate Medical Education (ACGME)-approved training program, pediatric residents in a general hospital qualify for GME reimbursement along with residents in adult specialties.

Freestanding children's hospitals have their own Medicare provider numbers and only report the patient days for Medicare patients at their institution. Because the only Medicare patients in a children's hospital are the few receiving chronic renal dialysis therapy, the result is almost no Medicare GME reimbursement. This is a serious problem. Freestanding children's hospitals train 30% of general pediatric residents and nearly 50% of pediatric medical and surgical subspecialty residents.⁶ Moreover, mandated pediatric experiences for adult residencies often take place in freestanding children's hospitals. The awkward result is that Medicare provides GME reimbursement to the general hospital but not for the same resident at the children's hospital. The failure of the Medicare system to reimburse GME in freestanding children's hospitals, thus, not only undermines pediatric training. If financial pressures force children's hospitals to reduce GME support, adult residency programs will be required to curtail pediatric training or to fund it themselves.

In December 1999, the President signed a bill creating spending authority for up to \$565 million (over 2 years) of federal GME funding for freestanding children's hospitals. This would provide GME sup-

port per resident comparable to that provided for other teaching hospitals. However, just \$40 million was appropriated under the Consolidated Appropriations Act.⁵ The size of the spending authority emphasizes the reality that freestanding children's hospitals have had to draw over \$280 000 000 a year from clinical care reimbursement and philanthropic contributions, to the exclusion of investments in clinical programs and research, to make up for the lack of Medicare GME reimbursement. This shortfall has occurred over many years and now amounts to many billions of dollars of federal underinvestment in children's health care.

Medicaid GME Funding

The majority of states (43) and the District of Columbia make some level of payment for GME under their fee-for-service Medicaid programs.⁷ However, a large number of states reimburse at a lower rate than Medicare. Hospitals must cross-subsidize with Medicare reimbursement, increase their charges, or cut back their GME program. (Cross-subsidization with Medicare funds is of course impossible in freestanding children's hospitals.) Most states (42 and the District of Columbia) include GME payments as part of the capitated managed care payments. At the time of this writing, only 3 states required that GME reimbursement be passed along to teaching hospitals.⁷ Thus, if a contract is awarded to a provider with no GME program, funds meant to reimburse GME represent a financial windfall. State-to-state variations in reimbursement methodologies make GME funds hard to identify. They also add to the complexity of influencing reimbursement policy through the political process.

Ten states link Medicaid GME payments to policy goals.^{7,8} These include the geographic distribution of providers, physician specialty mix, racial and ethnic mix of providers, the percentage of residents remaining in the state after training, and the total number of residents. States are also experimenting with creation of state GME-funding pools, incentives to promote educational consortia (see "Educational Consortia" section below), and assessment of insurers and purchasers to support GME.⁸

Up-to-date information on Medicaid GME reimbursement policies may be obtained from the Division of State Government Affairs of the Department of Member and Chapter Services at the American Academy of Pediatrics (AAP) and from the National Conference of State Legislatures in Washington, DC.

Disproportionate Share (DSH) Payments

Hospitals with a high proportion of poor patients qualify for federal and state DSH payments⁹ to supplement Medicare and Medicaid payments for hospital services. DSH payments are not intended to provide for GME, but because teaching hospitals tend to serve large numbers of low-income patients, they commonly qualify for such payments. The amount and formula for allocation vary from state to state. In general, payments are based on the percentage of patients covered by Medicaid plus the percentage of patients for whom no compensation is

available. Medicare and Medicaid DSH payments are calculated separately. The Balanced Budget Act of 1997 provides for incremental reductions in both,⁴ although implementation has been slowed by provisions of the Consolidated Appropriations Act for FY 2000.⁵

Reductions in IME and DSH payments may decrease the number of indigent patients, the variety of medical conditions, and the quality of care to which trainees are exposed. They are virtually certain to decrease the number of residents and faculty and the amount of time available for teaching.

Other Sources of GME Funding

Because Medicare pays only for GME costs attributable to Medicare patients, it covers only approximately one third of total GME costs. The remainder is reimbursed as part of hospital operational costs by private insurance or by Medicaid or other governmental programs (including the Department of Defense [through CHAMPUS], Veterans Health Administration, and Health Resources Service Administration grants to support training in primary care).² The ability of hospitals to recover their teaching costs from all payers, but especially private insurance, is declining, leaving GME costs to be borne increasingly by the hospital, the faculty, and philanthropy.

Summary and Preliminary Recommendations

A number of proposals to reform funding of GME have been advanced (see below). In the meantime, highest priority should be given to modification of the current system. Freestanding, corporately separate children's hospitals receive little GME reimbursement from Medicare. Although recent legislation has taken steps toward correction of this inequity, given the importance of these hospitals in medical education and society's documented need for primary care physicians, much more remains to be done.

Funding for Subspecialty Training in Pediatrics

The Current Status of Subspecialty Training in Pediatrics

Subspecialty care of children is an important element of pediatric training at all levels and a necessary ingredient in child health research programs. Moreover, pediatric subspecialists provide a large proportion of both direct and consultative care for children with complex, chronic, and/or life-threatening disorders. Subspecialists in neonatology and adolescent medicine address age-related special health care needs. Although pediatric subspecialists constitute the majority of pediatric academic faculties, they constitute a minority of pediatricians. Only 23% of pediatricians were certified in a subspecialty between 1985 and 1994. In contrast, 68% of internists were certified in subspecialties over the same period.¹⁰ In further contrast to adult subspecialists, all pediatric subspecialists are trained with the intent of developing future academic pediatricians,¹¹ whereas most internal medicine specialists practice outside academic medical centers.

The organization of pediatric subspecialty care is

an important matter. The relatively small number of children with certain disorders speaks for regional centers of excellence in pediatric subspecialty care and education. This has been discussed recently.^{12,13}

Declining Interest in Pediatric Subspecialty Training

Approximately 11 000 certified pediatric subspecialists were registered by the American Board of Pediatrics (ABP) in 1998; one half in neonatology, cardiology, and hematology/oncology.¹⁴ Although jobs are currently available in many subspecialty areas, both the percentage and the absolute number of pediatric residents entering subspecialty training is falling. The change in resident preferences at the time of the ABP-certifying examination¹⁴ is illustrated in Table 1. Because the total number of residents has increased, the number choosing subspecialty training has not fallen as dramatically as the percentage. Nevertheless, the absolute number has fallen by 21% over the past 8 years.

Because international medical graduates (IMGs) choose subspecialty training nearly twice as often as American medical graduate (AMGs), a decrease in IMG trainees could have a substantial impact on the pediatric subspecialty workforce of the future, particularly in neonatal-perinatal medicine, gastroenterology, and endocrinology, where IMGs constitute the majority of the trainees.¹⁴

There are a number of possible reasons for the declining numbers of subspecialty trainees. Generalist careers have recently received a great deal of attention. Prolonged subspecialty training (3 additional years plus several more transitional years for an academic career) in the face of continuing low compensation undoubtedly discourages some applicants. The challenges of an academic career, including difficulties in achieving and maintaining research funding and the uncertain position of academic medicine in a market-driven health care system, are intimidating to some. Funding for training positions has diminished, especially in freestanding children's hospitals. Finally, given the increasing scarcity of intramural research funding, academic jobs may be scarce for those who are unlikely to be competitive for extramural funding.

The influence of educational debts has been difficult to estimate.^{15,16} Anecdotal information from department chairs suggests that large education debts dissuade otherwise interested residents from pursuing subspecialty training. The effect of gender needs to be investigated. Although the majority of pediatric residents are women, women constitute a minority

TABLE 1. The Percentage and Number of Candidates Intending to Pursue Subspecialty Training of Those Taking the ABP Examination for Certification in General Pediatrics for the First Time

	1990	1998
Overall percentage	33%	20%
AMG	Not available	16%
IMG	Not available	31%
Total number	721	571
AMG		340
IMG		231

of subspecialty trainees.¹⁴ Clearly, talented women are not choosing subspecialty training. One possible reason is that faculties have relatively few senior women mentors.¹⁷ Another is that cultural pressures to excel in a variety of roles may dissuade women from the time demands of academic subspecialty medicine. This is suggested by 1997 data showing that 49% to 54% of those taking the Subboard examinations in emergency medicine, adolescent medicine, and endocrinology, specialties with either predictable or traditionally light on-call responsibilities, were women, while the percentages in cardiology, pulmonology, and critical care, specialties with generally heavier and less predictable night and weekend call, were 29% to 34%.¹⁴

Funding for Subspecialty Training in Pediatrics

Funding for subspecialty training has come from hospitals, faculty practice plans, and extramural grants. In a general hospital, Medicare supports subspecialty training, although DME payments are decreased by 50%.² As discussed above, far fewer Medicare dollars are available to freestanding children's hospitals.

Faculty practice revenue has supported subspecialty training because of the academic value and because subspecialty trainees have been able to help with patient care. This changes when a trainee becomes a resident in an ACGME- or ABMS-approved training program leading to board certification. Current Health Care Financing Administration (HCFA) regulations specify that subspecialty residents cannot bill and collect even for nonspecialty services for which their peers, with whom they completed general pediatric training, bill and collect as general pediatricians. Furthermore, current HCFA guidelines specify that teaching physicians cannot bill for services delivered by any resident unless the service is directly supervised.¹⁸ The combination of HCFA regulations and decreasing patient care reimbursement will decrease the willingness of academic physicians to support subspecialty training.

The National Institutes of Health (NIH) is the major source of subspecialty training grants. These grants have remained the same in terms of constant dollars for the past decade and are not anticipated to increase.¹⁹ Of even more concern, NIH training grants currently provide just 12% (estimation) of salaries and benefits for pediatric trainees, and, measured in constant dollars, funds awarded to pediatric departments have decreased over the past decade (T. F. Boat, personal communication, 1999).

A dwindling candidate pool and diminishing financial resources for subspecialty training will create workforce shortages, with negative consequences for the care of children, especially those with chronic and complex illnesses. It will also adversely affect generalist education and research in child health.

Summary and Preliminary Recommendations

The declining number of pediatric residents entering subspecialty training is concerning. The GME Workgroup suggests that pediatricians advocate for full Medicare GME reimbursement for the clinical

portion of subspecialty training and for increased NIH and other federal funds for research training. The Workgroup further suggests that financial obstacles to the selection of academic pediatric subspecialty careers should be addressed through the use of financial incentives, eg, payment of interest on student loans during subspecialty training, increased stipends, and/or loan abatement. The length of training is a major determinant of training expense. Although it is possible to shorten the total training period using the special alternative pathway, this is seldom used. Options to address shortening the total training period need to be explored.

Funding of Medical Student Education

The costs of medical student education have been estimated in a number of studies.²⁰ Direct instructional costs fall within the relatively narrow range of \$40 000 to \$50 000 per student per year. Total costs, including the costs of providing an educational milieu, are more variable, ranging between \$72 000 and \$93 000 per student per year.

The sources of revenue to support those costs have changed over time.¹⁹ Thirty-five years ago just 6% of medical school revenue came from faculty professional services (faculty practice, hospital reimbursements, and service contracts). In 1995, the figure was 50%, with faculty practice income alone accounting for 33%. The remainder was supplied by federal grants and contracts (21%); state and local appropriations (10%); tuition and fees (4%); and a combination of industry sponsorship, foundation grants, gifts, and endowment (15%). Thus, the largest single source of medical school revenue is faculty practice income. Data from 1997–1998 show little change.²¹ A dean's tax and/or department tithe is an obvious use of faculty practice income for educational purposes, but the major use is to pay the salaries of faculty whose teaching time is not otherwise compensated. This represents a substantial faculty expense. An Association of American Medical Colleges (AAMC) study²² indicated that 28% of faculty practice income is used to subsidize teaching and research, with 8% directly supporting medical student education and the rest supporting GME, research, and other scholarly activities. Volunteer faculty provided an additional subsidy, equal in dollars to approximately one fifth of the full-time faculty subsidy.

Because residents spend a portion of their time supervising and teaching medical students, GME reimbursement may contribute nearly 5% of the costs of student teaching.²³ In addition, IME reimbursement covers a variety of the costs of operating a teaching hospital including, by implication, some of the costs of medical student teaching.

The amount of money a medical school spends on pediatrics will vary with the duration of the pediatric experience, the specifics of the curriculum, and the degree to which community-based faculty volunteer their time. The reasons for these features are highly local and often buried in history. The amount of money that a department of pediatrics receives for teaching may have little to do, for similar reasons, with the amount of teaching done.

Summary and Preliminary Recommendations: See III, F

Funding of Postgraduate CME

Undergraduate and graduate medical education are insufficient to guarantee a consistent level of excellent practice throughout a career. Despite the growing importance of CME, its costs, revenues, and efficacy have received little attention.²⁴ Registration fees for formal courses are typically borne by individual physicians or their employers. However, registration fees do not reflect the true costs of providing such educational experiences. Moreover, the costs of the considerable amount of continuing education that occurs during one-on-one consultations and lectures (eg, grand rounds) have not been analyzed.

Summary and Preliminary Recommendations: See III, F

SPECIFIC TOPICS

Health Care Economics and Medical Education

Professional Education in a Business Environment

Medical schools differ from other professional schools^{25,26} in a way that is not always appreciated. Law schools and engineering schools, for example, stand apart from law firms and construction companies. In contrast, except for the first 2 years of medical school (and that is changing), undergraduate and graduate medical education occur entirely within the health care marketplace. The result is that the organization and financial state and, to an increasing extent, the culture of medical education closely and uniquely among professional schools mirror the marketplace. This has become especially apparent with the growth of clinical programs. To cite just one example, an increasingly business-like character of medical schools has meant increasing pressure to account for the time of full-time faculty.^{25,27} This is just as apparent with volunteer faculty.²⁸ The long-term trend is for solo practitioners and small group practices to consolidate into large corporate entities.²⁹ Corporations manage physician time like any other asset. One increasingly finds that both full-time and volunteer faculty are available for education only to the extent acceptable to business entities, as employer or client.³⁰ With regard to volunteer faculty, replacement of the personal generosity of the professional with the culture of corporate accountability means that if the medical school or residency training program cannot pay, either directly or by providing such services as night call (H. R. Gephart, personal communication, 1999), teaching tends to disappear. In summary, business approaches create considerable challenges for medical education.

Effects of Market-Driven Health Care Reimbursement on Medical Education

A principal goal of a market-driven system of health care reimbursement is to manage expense.^{31–34} This has had a disproportionate impact on AMCs committed to funding a milieu emphasizing education and research and to caring for indigent patients. The costs of education, research, and indigent care have been subsidized by public payers and by higher premiums for private insurance.^{9,26,33,35–39}

In a competitive market, subsidies mean higher costs and higher costs can mean loss of patients and market share.^{33,39} Indigent care, education, and research are not the only public goods subsidized by clinical revenue in an AMC. AMCs also tend to have patients with more complex and costly illnesses. This is both because indigent patients are associated with higher costs^{40,41} and because AMCs attract patients referred for unique and expensive services.^{36,42} The common wisdom is that another reason for high cost is that housestaff make excessive use of diagnostic tests and that lengths of stay are longer because of care by inexperienced trainees.⁴³ This was more a feature of the past than of the present.⁴⁴ Current HCFA regulations mandate close housestaff supervision by teaching physicians¹⁸ (see “Effect of HCFA Documentation Guidelines on GME Costs” section below). This, along with a general increase in cost-consciousness, may explain the results of recent studies in academic children’s hospitals showing that care by residents was associated with neither excessive diagnostic tests nor increased lengths of stay.^{44,46}

Movement of patients into managed care risk-sharing plans also threatens AMCs by reducing GME reimbursement.⁹ The historical total per capita spending on Medicare patients for each county, including reimbursement for DME, IME, and DSH, has been used to calculate an adjusted average per capita cost (AAPCC) as the basis for payments to a risk-sharing plan. Yet plans have no obligation to use IME and DME funds for their original purpose. The result is that DME and IME payments are moved from hospitals that incur GME costs to organizations with no obligation to support GME. The Balanced Budget Act of 1997 provides for a 5-year carve out of GME funds.⁴ DSH payments, however, remain in AAPCC calculations.

This federal legislative remedy applies only to Medicare. As mentioned previously, only a handful of states carve GME funds out of Medicaid managed care payments.⁷ Even if funds are carved out, they decrease. Federal regulations specify that Medicaid managed care contracts may be written for no more than 95% of the applicable fee-for-service payment.

Some AMCs have responded by teaming with managed care organizations (MCOs).⁴⁷ This can be problematic if the MCO sees medical education as a hindrance to market competitiveness. Fortunately, some, such as the Group Health Cooperative in Seattle and Kaiser, see it as a community responsibility and as an opportunity to recruit and train physicians for their organizations.

The Effects of Market Fragmentation on Pediatric Medical Education

Market-driven approaches to health care financing also tend to fragment medical care.³⁴ This has particularly negative consequences for pediatric medical education.

First, health care organizations fragment the population as they compete for covered lives and treat them in a proprietary way. This poses a serious difficulty for pediatric medical education^{48,49} because only 25% of the general population are chil-

dren and the incidence and prevalence of children's diseases are low. In order for a comprehensive general pediatric training program to have access to the 500 000 children necessary to provide pediatric education, it must have access to a total population of at least 2 million.^{49,50} The population needed to support some subspecialties is even greater.⁴⁹ This demographic and epidemiologic reality is seldom appreciated, even by medical schools and university teaching hospitals. Family medicine, general internal medicine, general surgery, and many adult subspecialty training programs can thrive with total populations (including children) of 500 000.⁵⁰

Second, managed care may fragment pediatric care even within a single organization. Referral protocols sometimes direct routine pediatric subspecialty problems to adult subspecialists,¹² with referrals to pediatric subspecialists limited to the youngest or most complicated patients. This deprives pediatric subspecialists of patients for teaching purposes. It also threatens their financial viability. A system that diverts routine cases to adult subspecialists, while routing complex cases to pediatric subspecialists will tend to overreimburse the adult subspecialist and underreimburse the pediatric subspecialist.

Third, market-driven approaches tend to fragment pediatricians among adult-dominated delivery systems, thus dividing the constituency best able to speak for the health care needs of children and for pediatric education. It is difficult enough for children to get a hearing in a market-dominated health care system: although they account for ~25% of the population, they comprise a much lower percentage of health care expenditures. Even within Medicaid, they represent just 16% of expenditures.⁵¹ No market will spontaneously serve a small percentage of its clients. The influence of children is likely to diminish even further. By 2030, people over 65 years of age are predicted to outnumber those under 18 years of age.⁵²

Finally, market-driven reimbursement tends to fragment specialty care even within pediatrics. The stage is set by the epidemiology of pediatric diseases and complicated by the number of pediatric tertiary care centers in certain areas. If there are not enough patients for all centers in a metropolitan area, children with one particular disorder may be directed to one AMC, while patients with another disorder (sometimes even within the same subspecialty discipline) are directed to another AMC. This increases the cost of training because it reduces the continuity and the quality of the training experience. Fragmentation is not only a problem for training. Fragmentation of services can also worsen patient outcome.⁵³

Summary and Preliminary Recommendations

Market-driven reimbursement tends to fragment pediatric health care among individual health care systems that may lack the spectrum or frequency of disorders needed to sustain broad and excellent pediatric training. The challenge is greatest for subspecialty training. Fragmented care and correspondingly fragmented teaching is unlikely to lead to a comprehensive understanding of a subspecialty. Pe-

diatric subspecialty education is best done in regional centers able to sustain the patient volume necessary to sustain clinical expertise and a comprehensive educational experience. Systems to ensure patient access (geographic, financial, organizational, etc) to such centers are needed. Pediatric educators need to agree as to the features of centers that will ensure educational excellence.

Increasing Costs of Education

By unhappy coincidence, as resources to support education are decreasing, costs are increasing. This is happening for a number of reasons.

Effect of Changes in Curriculum on GME Costs

A number of changes in curriculum have increased the cost of education:

1. More patients are managed in an outpatient setting, where teaching is more costly,⁵⁴⁻⁵⁶ especially with inexperienced trainees.^{57,58} Use of a clinic examination room for a prolonged period to accommodate teaching is inefficient. Inefficiency is exaggerated by HCFA regulations governing the amount of patient contact necessary for a teaching physician to bill for services (see below).
2. The scope of information (eg, genetics, cellular, and molecular pathophysiology/pharmacology) that a trainee must master is enormous and growing. Not all of this information is required to attend to immediate patient needs. This makes the apprenticeship model, in which residents learn on the job, increasingly insufficient for a comprehensive educational experience. To the extent that time is taken away from patient service to ensure that the trainee has a thorough grasp of all aspects of the disorder, the cost of education increases.
3. The spectrum of general and subspecialty pediatric practice has increased, increasing the breadth of experiences that a training program is expected to provide.^{59,60}

Despite the increasing cost of GME, no formal mechanism considers the costs of changes in curriculum. The situation is long-standing. A 1985 Commonwealth Fund report⁶¹ listed 4 groups responsible for GME: 1) the ACGME and residency review committees (RRCs); 2) specialty boards; 3) specialty societies; and 4) hospitals and academic departments. The report notes that "the lack of dependable and constructive relationships among the [groups] . . . is readily apparent." It goes on to point out that "[n]one of the players [in the first 3 groups] is in the chain of funding for graduate medical education" and that if there is disagreement "there is no built-in mechanism to settle their differences."⁶¹ In summary, the lack of a formal connection between organizations responsible for education policy and those that implement and pay for those policies makes discontinuity and controversy inevitable.

The controversies can be especially strenuous and frustrating. The RRC, general pediatric residency program directors, and department chairs are criticized by everyone from MCOs^{62,63} to subspecialty

program directors to rural private practitioners to inner-city clinic directors, all saying that training is inadequate. The ability to respond to such concerns is limited by the practical difficulty of providing comprehensive training in just 33 months of residency. Individual constituencies suggest different compromises. This makes creation of a formal method of achieving consensus among the RRC, program directors, department chairs, and other interested parties an important matter. It also raises the separate issue of whether special interests should fund postresidency training to meet their particular needs.

Additional Costs

As competition for residents has increased, programs have begun to fund recruitment incentives such as payment for interview-related travel costs and other perquisites associated with the interview, payment of moving costs, reimbursement for principle and/or interest on education loans, and signing bonuses.^{zref64} Currently it is not possible to estimate the prevalence of such practices.

Effect of HCFA Documentation Guidelines on GME Costs

Current rules for physician billing in a teaching setting specify that a teaching physician may be paid by Medicare only if the physician is present for the key portion of any service for which payment is sought.¹⁸ The requirement is waived only when a physician bills for health maintenance services rendered by residents beyond the first 6 months of training in an ambulatory setting with which the patient has a consistent relationship, eg, a continuity clinic. In contrast, inpatient and complicated ambulatory care provided by general residents, as well as consultations, endoscopies, and minor surgical procedures provided by subspecialty residents (fellows), require the documented involvement of the teaching physician. As mentioned above under "Funding of Subspecialty Training in Pediatrics," supervision of subspecialty residents is necessary even when they deliver nonspecialty care for which they are fully trained.

The HCFA guidelines have a profound educational impact. Close supervision of even routine procedures increases the cost of education, because it decreases the efficient use of faculty time. The guidelines make no provision for residents to gain experience in independent management of patients unless teaching physicians forego their professional fees. The first opportunity for independent practice will occur after completion of training, in a situation with little or no access to expertise when one's limit is reached.

HCFA guidelines are written for Medicare patients, but they have the same effect on pediatrics. Many state Medicaid programs automatically adopt Medicare billing rules. Furthermore, given the impracticality of tailoring approaches on a patient-by-patient basis, practice plans tend to treat patients the same regardless of payer.⁶⁵

Summary and Preliminary Recommendations

The long list of challenges faced by pediatric medical education requires comprehensive oversight. Currently, responsibility for overseeing pediatric education is shared by a number of committees and groups. This has served in the past, but the challenges of the future will emphasize its weaknesses. Although it is important that the various committees and groups remain independent and represent their individual constituencies and missions, it is also important that they come together to achieve a comprehensive overview of pediatric education. It is important that there be a durable mechanism for achieving compromise. It is also important that pediatric education has a comprehensive institutional memory. These goals will not be achieved unless the effort is supported by permanent staff, charged with monitoring and researching a range of issues affecting pediatric education.

Special Challenges of Funding Pediatric Medical Education

The challenges faced by departments of pediatrics in funding education arise from the heavy reliance on faculty practice revenue as a source of support for teaching (see "Funding of Medical Student Education" section).²² Academic faculty salaries are low because clinical revenue also pays for teaching and research. This internal subsidy amounts to approximately one third of the revenue of the average medical school²¹ and, by coincidence, almost one third of faculty practice revenue.²² The particular challenge for academic departments of pediatrics is that education is not the only activity requiring subsidy. Children's health care is underreimbursed, both because it tends to be cognitive rather than procedural and because the reimbursement system is tailored to adult health care. School and developmental behavioral problems, for example, are uniquely pediatric disorders. Genetic profiling and counseling have only recently become concerns of adult medicine. In both cases, reimbursement is not commensurate with the time and training required. Furthermore, pediatric departments and other departments with large ambulatory practices often pay clinic overhead fees or their equivalent. In doing so, they bear a disproportionate burden within a hospital. Surgeons and anesthesiologists do not share the costs of the operating room, and radiologists and pathologists do not pay for their facilities. Finally, pediatric education in freestanding children's hospitals is penalized by a lack of Medicare GME reimbursement (see "Medicare Funding for Pediatric GME" section).

Despite the importance of pediatric training programs to children and to medical school accreditation, medical schools generally expect departments of pediatrics to find their own solutions to these challenges. Pediatric subspecialists whose activities are reimbursed appropriately must subsidize those whose services are reimbursed poorly. This extensive internal cross-subsidization is virtually unique to departments of pediatrics. It limits financial resources available to support education.

Methodologies for Analysis of the Costs of Pediatric Education

Approaches to Educational Costing

The special financial challenges in pediatrics are complicated by a problem common to all medical education: the costs of education have rarely been determined. If pediatric education programs are to be supported appropriately, they must determine their costs, find stable sources of revenue, and be accountable for the product.

Educational costs can be categorized as direct costs, ie, costs that can be specifically identified, and indirect costs, costs incurred because of organizational inefficiencies introduced by education.²⁰ The 2 basic approaches to educational costing are cost-analysis/cost-allocation and cost-construction/modeling.

Cost-Analysis/Cost-Allocation Versus Cost-Construction/Modeling

The first step in a cost-analysis/cost-allocation approach is to determine how expenditures by a teaching hospital, medical school, or medical school department have been allocated over a specified period.²⁰ Categories include faculty and staff salary and benefits, the costs and overhead associated with the physical facility, malpractice insurance, library services, administration (such as costs of the dean's office and GME office), instructional materials, resident salaries and benefits, university overhead allocations, etc. Indirect educational costs are typically calculated by formula.² The advantages of cost-analysis/cost-allocation are that the method is easily understood, that costs can be benchmarked and compared, and that most budgets are built on allocation models. The disadvantages are substantial. Allocation models determine only what was spent, not what an appropriate program should cost. Organizations tend to spend according to what they have, rather than according to what the educational program should require. Moreover, unless milieu costs are included (meaning the cost of being in a research institution rather than in a community setting), the cost allocation method determines the cost of instruction, not the cost of education. Finally, a comparison of programs is impossible unless educational content is identical.

In contrast, the cost-construction/modeling approach defines the program to be delivered and then calculates its cost.⁶⁶ Steps are enumerated in Table 2.

The cost-construction model is best for a number of reasons. First, once a curriculum is defined, it can be applied to any institution. Using ACGME requirements for GME and the recently suggested Council on Medical Student Education in Pediatrics curriculum for medical students, a minimum, an average, and an outstanding curriculum could be developed and the cost determined. Second, the cost-construction approach determines how many full-time equivalent residents (FTEs) are needed, while the allocation approach simply divides tasks among existing faculty. Calculation of FTEs removes the distinction

TABLE 2. Steps in Cost-Construction/Modeling Approach to Cost Estimation

Definition of educational mission
Definition of organizational structure
Definition of curriculum
Definition of teaching methods
Clarification of a philosophy regarding educational milieu
Designation of student enrollment and the number of students to be graduated
Calculation of educator contact hours
Development of professional activities profiles
Definition of educators by level (eg, academic rank)
Determination of FTEs
Specification of educator salaries
Calculation of educator costs
Calculation of costs of supporting personnel/resources

between full-time and volunteer faculty; allocating costs for volunteer faculty does not recognize the true cost because volunteer faculty members usually work without salary. Relating costs to FTEs allows for standardization using AAMC salary averages. This eliminates regional differences that will occur with the allocation approach. The construction approach avoids another major disadvantage of the allocation approach: departments of pediatrics differ in their relationships to their medical schools and hospitals, greatly affecting how costs are attributed and allocated. The construction approach is independent of organizational structure.

Substitute Labor Costs

Another way of estimating at least a portion of GME costs is calculation of the costs of substituting other providers for residents. The Child Health Corporation of America has compared the costs of housestaff and alternative providers for a number of children's hospitals using a cost-allocation approach.⁴³ Early studies indicated a slight financial advantage associated with replacement of housestaff. Subsequent studies failed to confirm this (J. Rutherford, personal communication, 1998). A large part of the housestaff-related cost disadvantage in early studies was based on postulated increased lengths of stay and increased use of diagnostic testing extrapolated from a study of an internal medicine training program 10 years ago.⁶⁷ Recent data from pediatric services show no housestaff-associated increase in hospital costs.^{45,46} The discrepancy may reflect differences in pediatric and internal medicine training programs. It may also represent a trend toward closer housestaff supervision by teaching physicians, dictated both by pressure to reduce lengths of stay and hospital costs and by the supervision requirements of HCFA physician-billing policies.

Summary and Preliminary Recommendations

The Workgroup suggests that the resources associated with a general template for pediatric curricula at each stage of pediatric education should be quantified. Each organization could then determine costs using local salary scales. Cost information is crucial if departments are to be effective in advocating for resources within medical schools and if pediatrics is

to be effective in advocating for adequate resources on a state and national level.

Use of GME Funding to Alter the Size and Composition of the Physician Workforce

Numbers of Residents

Despite numerous recommendations that the number of US residency positions be decreased (see "Implications of Restriction of the Number of GME Positions" section below), the number has increased.⁶⁸⁻⁷⁰ A major reason has been Medicare GME reimbursement. DME payments are based on historical hospital costs calculated in a variety of ways. The result is that some hospitals receive DME payments of over \$200 000 per resident.⁷¹ These hospitals have had strong incentive to increase resident number. This changed when the Balanced Budget Act of 1997 capped the number of residents qualifying for DME reimbursement at the number reported on or before December 31, 1996,⁴ but the Act allows for establishment of new residency training programs. Its effectiveness in restraining GME growth remains to be seen.

The Balanced Budget Act also provides for transitional payments to residency programs that voluntarily reduce the number of residents similar to a program in New York State.^{8,72} However, a principal reason for a hospital to participate was the threat of loss of Medicare GME payments to managed care organizations.⁹ Now that GME payments will be carved out of AAPCC calculations,⁴ the incentive for reducing residents, especially for institutions receiving generous GME payments,⁷¹ is not clear. Indeed, a recent report noted that one half of the hospitals enrolled in the original New York plan have dropped out, apparently because they decided that the cost of losing Medicare GME reimbursement was too great.⁷³

Specialty Choice

Before discussing specific programs and proposals, the possible influence of medical student indebtedness on specialty choice should be mentioned. Some have held that indebtedness tends to favor primary care training because the training period is shorter. Others have postulated that indebtedness tends to steer graduates toward higher paying subspecialties. Recent studies suggest that the reasons for specialty choice are varied, interact in poorly understood ways, and vary with context.^{15,16,74} However, anecdotes from department chairs suggest that it would be a mistake to dismiss the possibility that educational debts tend to discourage subspecialty training, especially in poorly reimbursed subspecialties.

Proposals to use GME funding to change the ratio of generalists to specialists have a long history. The 1985 Commonwealth Fund report⁶¹ suggested programs to shift graduates away from specialization, citing supporting statements over the previous 10 years. In 1994 the Federation of Pediatric Organizations noted that "... the use of differential weights in calculating payments for primary care residency po-

sitions could provide an incentive for teaching institutions to increase the number of primary care residency positions."⁷⁵ They went on to suggest such additional measures as deferment, partial repayment, or forgiveness of educational loans for those entering primary care, increased numbers of federally funded primary care training positions, and augmentation of reimbursement for primary care practice. The Council on Graduate Medical Education (COGME) has made similar recommendations.^{76,77} A 1997 *Consensus Statement on the Physician Workforce* released by a consortium of 6 national medical associations suggested creation of a national physician workforce body to make specific recommendations.⁷⁸

Two current Medicare GME policies promote primary care training. One reimburses DME for pediatrics, internal medicine, family medicine, and obstetrics and gynecology at a slightly higher rate. The other reduces DME reimbursement by 50% for training beyond the minimum number of years required for initial board eligibility.² The Balanced Budget Act of 1997 provided an exception for medicine-pediatrics.⁴ It did not address combined pediatric training with rehabilitation medicine, neurology, genetics, and adult and child psychiatry (triple board). Current policy, thus, represents a problem for the health care of children.

Regulatory Versus Market Approaches to Modifying Specialty Selection

Perceptions of job availability have a pronounced effect on specialty choice by medical students.⁷⁹ The rapidity with which medical student preferences change speaks in favor of market rather than regulatory approaches to specialty selection. Markets are not perfect in the short-term; overreaction is common. In the long-term, however, a market approach is far more flexible than regulations.

The implications of rapid shifts in trainee numbers have been considered.⁸⁰ Case studies suggest that success depends on anticipation of the need to resize, agreement on clear principles by which resizing will proceed, identification of a time frame, acquisition of support from all constituencies, affirmation of the institution's commitment to current residents, and reconfiguration of patient care services to compensate for reduction in resident numbers.

Summary and Preliminary Recommendations: See III, F

Proposed Changes in GME Financing

All-Payer GME Financing

A number of organizations,^{78,81,82} including the Federation of Pediatric Organizations⁷⁵ and the AAP,⁸³ have endorsed an all-payers approach to funding GME in which all medical insurance payers, including private payers, would participate. The obstacles to implementation at the federal level are formidable.²⁶ First, the political challenge of imposing a tax on reimbursement in nonteaching settings is great. Second, many employers are self-insured and, therefore, exempt from federal regulations under the 1978 Employment Retirement Income Security Act.

An all-payers system might be easier to achieve at the state level.⁸ The New York Health Reform Act of 1996 requires all private payers to pay an assessment on covered lives. Although the contribution is technically voluntary, payers who do not participate must pay an add-on to inpatient rates. The recently established Medical Education Council in Utah is considering a hospital bed charge and a worker's compensation surcharge to pay for medical education (L. Osborn, personal communication, 1998).

Institution of a new reimbursement system at either the state or federal level presents an opportunity to pay for medical education in a way that would permit AMCs and academic children's hospitals to compete with nonteaching counterparts on an equal financial footing. It also provides an opportunity to address health policy issues.^{8,84} The Institute of Medicine (IOM) Committee on Implementing a National Graduate Medical Education Trust Fund and others have suggested the creation of a single national GME trust fund.^{81,82,84} The preface to the IOM document⁸² describes the proposal as a "way in which Medicare funds, and potentially other sources of revenue, could be more effectively distributed to accomplish the most cost-effective use of resources while maintaining the highest quality of contemporaneous medical education and care. . . ." The Committee proposed an annually defined fund, consisting initially of Medicare funds, but intended eventually to include non-Medicare sources. The document proposes changes in reimbursement policy including retargeting funds to any sponsoring institution that meets defined criteria as well as increased reimbursement for nonmedical providers. GME reimbursement would be dissociated from patient care reimbursement. In short, the IOM proposes to direct federal funds for GME into a fund that would serve certain GME policy goals. In that respect, the thinking is similar to that behind GME-funding plans in New York, Utah, Tennessee, and other states.⁸

Educational Consortia

Proposals to direct GME funds to educational consortia represent another attempt to free GME reimbursement from the Medicare-linked system and, at the same time, advance health policy objectives regarding educational content and the types of professionals trained. Consortia organize education around a group of entities (hospitals, medical schools, providers), in contrast to organization around a teaching hospital.⁸⁵ The COGME Workgroup on GME Consortia noted that a consortium would provide an opportunity to consider undergraduate medical education, GME, and CME as a continuum and might serve a unifying, interdisciplinary role, if they had overall responsibility for educational policy and allocation of resources. A consortium could also solve the problem of reimbursement to nonhospital sites. It would control GME funds from all sources and could cover costs at any approved training site.

Although the consortium idea is not new,^{82,85,86} few exist.⁸⁷ COGME has recommended federally funded demonstration consortia along with incentives to promote their formation.⁸⁵ The IOM Com-

mittee on Implementing a National Graduate Education Trust Fund noted the possible advantages of consortia but urged caution without careful evaluation of structure and of the possible effects on AMCs and teaching hospitals.⁸² The Balanced Budget Act of 1997 requires that the Secretary of Health and Human Services establish a demonstration project that will pay DME payments to a consortium.⁴

New Sources of Support for Medical Education

Desmarais and Hash⁸⁸ recently discussed various revenue sources as alternatives to the current system. They scored various options (Table 3) as to equity, adequacy, collectibility, and effectiveness and concluded that the most equitable method is use of general federal income tax revenues. (They did not discuss the disadvantages of annual approval of GME reimbursement in competition with other government expenditures.) They noted that payroll taxes are easy to collect but are regressive. Sales taxes, premium taxes, and provider taxes have the same shortcoming. A provider tax would be difficult to collect. Other options scored even less well.

Summary and Preliminary Conclusions

Current methods of funding medical student GME and CME are unsatisfactory. The Medicare model of GME reimbursement, with reimbursement tied to payment for hospital services, was conceived nearly 40 years ago. It is not consistent with contemporary medical practice or with contemporary concepts of GME. Moreover, any medical education costs not explicitly reimbursed, including remaining GME costs and the costs of medical student education and CME, have to be embedded in the cost of patient services. This places teaching institutions at a financial disadvantage that is unsustainable in the current competitive health care environment. The underlying flaw in all current methods of funding medical education is that reimbursement for education is linked to reimbursement for patient care.^{9,84,89,90} There is little doubt that this should change. The Workgroup recommends that GME (and medical student education) should be funded explicitly and that funding should come from all payers.

At the same time, pediatricians must be aware that although reform is very much needed, it also carries risks. Ideally, parents and cost-sensitive health care companies should determine for themselves what type of child health care providers should be trained. However, it is likely that central policy decisions

TABLE 3. Alternative Mechanisms of Funding Medical Education

Taxes
Federal income tax
Payroll tax
Alcohol and/or tobacco taxes
Assessment on health insurance premiums
Health care provider tax (eg, bed day tax on provider receipts)
Elimination of resident salaries
Tuition for residency training
Increase in medical school tuition to pay actual costs of medical education
National lottery

with regard to allocations from an all-payers fund would play a substantial role. In that case, pediatric educators must be prepared to be effective advocates in a highly political environment. History suggests that the challenge of maintaining funding for pediatric training will be considerable. Children's health care needs do not necessarily receive thoughtful consideration. Examples of state and national policy that disadvantaged children are many. One has only to compare the percentage of elderly adults covered by Medicare with the percentage of children covered by Medicaid, or compare Medicare with Medicaid reimbursement rates for similar services,⁹¹ or consider failure to provide GME reimbursement for freestanding children's hospitals. Furthermore, policies will not necessarily support the training of pediatricians and pediatric subspecialists.⁹² Pediatrics will be persuasive only if its positions are well thought out, supported by data, and cogently presented as the consensus of pediatric educators and health care providers.

Implications of Proposals to Regulate the Number of GME Training Slots

Proposed Reduction in Resident Number

COGME and others^{77,84,93-95} have recommended that the number of residents be reduced from the current complement of ~140% of the number of US medical graduates to 110%. The basis is the disconnect between projections of physician oversupply and Medicare-sponsored incentives that encourage residency training.⁶⁸⁻⁷⁰ Because residency positions in excess of those required by AMGs tend to be filled with IMGs, one way to reduce the number of residents is to reduce the number of IMGs. *Eleventh Report*⁹⁵ by the COGME suggests changing visa regulations to encourage IMGs to return to their native countries after completion of training except for "uniquely qualified researchers." Although the 1994 Federation of Pediatric Organizations statement did not advocate a specific number of residences, it did support limiting slots for IMGs.⁷⁵ The most recent statement by the AAP endorsed "the stance that first-year GME positions be reduced in number to more closely correspond to the number of US medical school graduates."⁸³ Limitation was also supported by the AAMC, American Medical Association (AMA), and others in their 1997 *Consensus Statement on the Physician Workforce*.⁷⁸ The alternative of closing US medical schools has not been recommended by any organization except the Pew Commission.⁹⁶

As mentioned above, the Balanced Budget Act of 1997 will limit continued growth in the number of residency positions. The practical obstacles to reduction in the number of residency positions, in contrast to reduction of further growth, are substantial.⁹⁷

Allocation of Residency Slots

If GME slots were reduced either indirectly, by limiting IMGs, or directly, the remainder would have to be allocated in some way. They might be allocated according to current distribution. The disadvantage of this approach is that certain programs have in-

creased in size for financial reasons^{68,69}; there seems little point in perpetuating that situation. Alternatively, slots might be allocated based on population, with areas with the highest population density receiving the greatest number. This assumes that proximity to the area in which a graduate might eventually practice is the major determinant in selection of a training program. In fact, graduates frequently train in one area and practice in another. Allocation based on population would have the effect of penalizing excellent programs in areas of relatively low population density in favor of programs located in multi-city metroplexes. It would also tend to discourage development of programs in low population density areas and possibly distribute of health care professionals away from rural areas.

Voucher Allocation of GME Funds

The 1985 Commonwealth Fund Task Force on Academic Medical Centers Support proposed that GME reimbursement be given to graduates rather than training sites. The graduate would be issued a voucher and allowed to choose any accredited program.⁶¹ This approach was recently endorsed, albeit with dissent, by the Pew Commission.⁸⁴ The AMA Council on Medical Education has proposed a similar "authorization system."⁹⁸ Although a voucher system has appealing simplicity, the implications are complex. A system in which payments follow the resident to the training site would, in the words of the AMA Council, "... facilitate student's responses to market signals. ..." ⁹⁸ It could provide for reimbursement to various training sites and provide for reimbursement of novel training arrangements like educational consortia. In contrast, residency training involves substantial investments in facilities and personnel, and continuity of funding over time is important to sustained excellence. Allocation of academic medical care on a purely free market basis is unsatisfactory primarily because academic medical centers are not ordinary business entities that can expand and contract on short notice. It is also conceivable that vouchers might be traded on the open market or that institutions would offer bounties to attract vouchers. It would be more difficult to discipline a resident if departure meant immediate loss of funds. Finally, although a voucher system would initially place control in the hands of the graduate, central dispensation of vouchers would create an ideal opportunity to advance various policy agendas, just as the Pew Commission has recently suggested.⁸⁴ The resulting political entanglements could produce the ironic outcome that a voucher system intended to foster market responsiveness would end up supporting the opposite.

Summary and Preliminary Recommendations

The number of GME positions has grown to 140% of US medical graduates for reasons that have more to do with financial incentives than with community needs. Few disagree that the overall number of training slots is excessive. Training slots might be reduced by fiat, by means of incentives, or coincidentally if more stringent requirements for ECFMG certification

reduces the number of IMGs. The most likely way a smaller number of slots would be allocated is that a trainee would be allowed to choose any RRC-approved programs, as is the case now. Several organizations have suggested a voucher system of distributing GME funds. The Workgroup recognizes the shortcomings of the current system. It is not, however, able to endorse the voucher system as an alternative.

CME: Trends and Financing

Trends in CME

CME has traditionally been sponsored by AMCs and pediatric organizations. Other organizations have participated inconsistently. Lectures, interactive workshops, and, more recently, hands-on workshops for procedural skills have been the primary methodologies. In the future, pediatric CME will include physicians and nonphysician pediatric health providers and may include patients and community education programs.

The style of continuing education is changing toward an emphasis on learning (impact on the participant) rather than on the teaching capacity of faculty.⁹⁹ Comprehensive assessment of learner needs has not been incorporated into most CME programs, but in the future the content and methodology of CME will increasingly be dictated by the audiences. An individual or group will develop educational goals and evaluate progress on a regular basis. Tools to achieve these goals may include written material, lectures, video seminars, workshops, mini-residencies, and/or interactive computer learning. The agency providing CME will have to provide evidence of progress toward the goal, as measured by a change in behavior.²⁴ The emphasis on learner-driven CME will accelerate as more physicians become members of large groups and organizations that will demand measurable health outcomes. Funding will become correspondingly more consolidated and directed by organizations or group practices.

Individual physicians will have to meet certification and recertification criteria to continue working within their group. CME programs will be driven by the need of the participants to pass these examinations. Organizations will pick educational programs based on how the programs meet their learning style and work schedules and by the record of successful certification of previous enrollees. CME opportunities through the Internet will not be either faculty or geographically limited. Other computerized enhancements and distant learning will be increasingly available and tailored to the time and learning style of the individual. Opportunities for learning in small group settings within the office or group practices will also be enhanced as physicians become geographically grouped.

Summary and Preliminary Recommendations

Funding for CME is problematic. Fees at traditional continuing education courses fund only a fraction of the cost. Faculty time spent preparing presen-

tations has been largely volunteered. Perhaps this will continue, but expectations for demonstrable outcomes will mean that curriculum, educational techniques, and outcome evaluation will also become more formalized. The increased cost will be shared by faculty, learners, both as individuals and through professional organizations and employers, and by patients. They also need to be shared by health insurance companies, pharmaceutical manufacturers, medical supply manufacturers, and others. There is currently no formal mechanism to achieve that end.

A cost-construction approach should be used to define the costs of each step in the CME process. This would include an initial assessment of the learners' scientific knowledge base and the national, regional, and local profiles of pediatric morbidity and mortality along with an assessment of the learner's specific needs; construction of the curriculum and methodology of delivery; and use of an evaluation methodology to determine effectiveness. The evaluation should also include feedback to redefine the learning needs, suggest modifications in presentation, changes in faculty, etc.

ACKNOWLEDGMENTS

We thank the following individuals for providing important background information to the FOPE II Task Force: Robert D'Antuono, AAMC; Marvin Dunn, MD, AMA; Enrique Fernandez, MD, COGME; and Modena Wilson, MD, COGME.

We also thank Errol R. Alden, MD, Deputy Executive Director, AAP; Karen Hendricks, JD, Assistant Director, AAP Department of Federal Affairs; Holly Mulvey, FOPE II Project Director; and Donna Bundy, FOPE II Project Assistant, for their invaluable assistance to the Financing of GME Workgroup throughout the FOPE II project.

This document contains updated information not available to the last meeting of the Task Force on Pediatric Education in June 1999. Therefore, not all the views of this workgroup have been approved by the Task Force.

REFERENCES

1. Task Force on Pediatric Education. *The Future of Pediatric Education*. Denver, CO: Task Force on Pediatric Education; 1978
2. Fishman LE. *Medicare Payments With an Education Label: Fundamentals and the Future*. Washington, DC: Association of American Medical Colleges; 1996:19-27
3. Jindal B, Dowdal T. Medicare's role in financing graduate medical education. *JAMA*. 1999;281:1228-1229
4. Cohen JJ. *New Medicare Regulations Affecting Medical Education Payments to Hospitals and Other Regulatory and Legislative Provisions of Interest*. Washington, DC: Association of American Medical Colleges; 1997. Memorandum 97-59
5. National Association of Children's Hospitals. *Fact Sheet*. Alexandria, VA: National Association of Children's Hospitals; 1999
6. National Association of Children's Hospitals. *GME Advocacy Campaign Bulletin*. Alexandria, VA: National Association of Children's Hospitals; 1999
7. Henderson T. *Funding of Graduate Medical Education by State Medicaid Programs*. Washington, DC: Association of American Medical Colleges; 1999
8. Salsberg E. *State Strategies for Financing Graduate Medical Education*. New York, NY: United Hospital Fund of New York; 1997
9. Fishman LE, Bentley JD. The evolution of support for safety-net hospitals. *Health Aff*. 1997;16:30-47
10. Oliver TK, Tunnessen, WW Jr, Butzin D, Guerin R, Stockman JA III. Pediatric workforce: data from the American Board of Pediatrics. *Pediatrics*. 1997;99:241-244
11. Federation of Pediatric Organizations. *Statement on Pediatric Fellowship Training*. Washington, DC: Federation of Pediatric Organizations; 1996
12. Williams RG, Stein LD, Leslie LK. Training pediatricians for the evolving generalist/specialist interface in the managed care era. *Pediatrics*. 1998;101:779-784

13. Walker WA. A subspecialists' view of training and pediatric practice in the next millennium. *Pediatrics*. 1998;102:636–644
14. American Board of Pediatrics. *American Board of Pediatrics Data Base*. Chapel Hill, NC: American Board of Pediatrics; 1998
15. Brotherton SE. The relationship of indebtedness, race, and gender to the choice of general or subspecialty pediatrics. *Acad Med*. 1995;70:149–151
16. Colquitt WL, Zeh MC, Killian CD, Cultice JM. Effect of debt on US medical school graduates' preferences for family medicine, general internal medicine, and general pediatrics. *Acad Med*. 1996;71:400–411
17. Fried LP, Francomano CA, MacDonald SM, et al. Career development for women in academic medicine: multiple interventions in a department of medicine. *JAMA*. 1996;276:898–905
18. Health Care Financing Administration. *Carrier Manual Instructions, Medicare Final Rule for Teaching Physicians*. Washington, DC: Health Care Financing Administration; 1996
19. Jones RF. *Academic Medicine: Institutions, Programs and Issues*. 7th ed. Washington, DC: Association of American Medical Colleges; 1997:31–34
20. Jones RF, Korn D. On the cost of educating a medical student. *Acad Med*. 1997;72:200–210
21. Krakower JY, Williams DJ, Jones RF. Review of US medical school finances, 1997–1998. *JAMA*. 1999;282:847–854
22. Jones RF, Sanderson SC. Clinical revenues used to support the academic mission of medical schools, 1992–1993. *Acad Med*. 1996;71:300–307
23. Rein MF, Randolph WJ, Short JG, Coolidge KG, Coates ML, Carey RM. Defining the cost of educating undergraduate medical students at the University of Virginia. *Acad Med*. 1997;72:218–227
24. Davis D, O'Brien MAT, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA*. 1999;282:867–874
25. Brieger GH. Why the university-based medical school should survive: a historical perspective. *Acad Med*. 1997;72:362–369
26. Kuttner R. Managed care and medical education. *N Engl J Med*. 1999;341:1092–1096
27. Korn D. Reengineering academic medical centers: reengineering academic values? *Acad Med*. 1996;71:1033–1043
28. Barzansky B, Jonas HS, Etzel SI. Educational programs in US medical schools, 1997–1998. *JAMA*. 1998;280:803–808
29. Starr P. *The Social Transformation of American Medicine*. Basic Books; 1982:420–449
30. Allcorn S, Winship DH. Restructuring medical schools to better manage their three missions in the face of financial scarcity. *Acad Med*. 1996;71:846–857
31. Ellwood PM Jr, Lundberg GD. Managed care: a work in progress. *JAMA*. 1996;276:1083–1086
32. Gold MR. Effects of the growth of managed care on academic medical centers and graduate medical education. *Acad Med*. 1996;71:828–838
33. Ginzberg E. The health care market: theory and reality. *JAMA*. 1996;276:777–778
34. Kuttner R. The American health care system: wall street and health care. *N Engl J Med*. 1999;340:664–668
35. Weissman J. Uncompensated hospital care: will it be there if we need it? *JAMA*. 1996;276:823–828
36. Reuter J, Gaskin D. Academic health centers in competitive markets. *Health Aff*. 1997;16:242–252
37. Meyer GS, Blumenthal D. TennCare and academic medical centers: the lessons from Tennessee. *JAMA*. 1996;276:672–676
38. Mann JM, Melnick GA, Basmezai A, Zwanziger J. A profile of uncompensated hospital care, 1983–1995. *Health Aff*. 1997;16:223–232
39. Smith BM. Trends in health care coverage and financing and their implications for policy. *N Engl J Med*. 1997;337:1000–1003
40. Gornick ME, Eggers PW, Reilly TW, et al. Effects of race and income on mortality and use of services among Medicare beneficiaries. *N Engl J Med*. 1996;335:791–799
41. Schechter MS, Margolis PA. Relationship between socioeconomic status and disease severity in cystic fibrosis. *J Pediatr*. 1998;132:260–264
42. Silber JH, Gleeson SP, Zhao H. The influence of chronic disease on resource utilization in common acute pediatric conditions: financial concerns for children's hospitals. *Arch Pediatr Adolesc Med*. 1999;153:169–179
43. Child Health Corporation of America. *Academic Medical Centers: The Urgency for Academic Cost Analysis*. Shawnee Mission, KS: Child Health Corporation of America; 1996
44. Rosenthal GE, Harper DL, Quinn LM, Cooper GS. Severity-adjusted mortality and length of stay in teaching and nonteaching hospitals: results of a regional study. *JAMA*. 1997;278:485–490
45. Wall TC, Fargason CA Jr, Johnson VA. Comparison of inpatient charges between academic and nonacademic services in a children's hospital. *Pediatrics*. 1997;99:175–179
46. Wells RD, Dahl B, Nilson B. Comparison of the levels of quality of inpatient care delivered by pediatrics residents and private, community pediatricians at one hospital. *Acad Med*. 1998;73:192–197
47. Rogers MC, Snyderman R, Rogers EL. Cultural and organizational implications of academic managed-care networks. *N Engl J Med*. 1994;331:1374–1377
48. Frazier S, Hyman D, Altschuler S. The changing health care environment: implications for residency training. *Pediatrics*. 1998;101:795–804
49. Norlin C, Osborn LM. Organizational responses to managed care: issues for academic health centers and implications for pediatric programs. *Pediatrics*. 1998;101:805–812
50. Billi JE, Wise CG, Bills EA, Mitchell RL. Potential effects of managed care on specialty practice at a university medical center. *N Engl J Med*. 1995;333:979–983
51. Iglehart JK. The American health care system: Medicaid. *N Engl J Med*. 1999;340:403–408
52. Preston SH. Children will pay. *The New York Times Magazine*. September 29, 1996:96–97
53. Phibbs CS, Bronstein JM, Buxton E, Phibbs RH. The effects of patient volume and level of care at the hospital of birth on neonatal mortality. *JAMA*. 1996;276:1054–1059
54. Weitzman M, Garfunkel LC, Connaughton S. Financing pediatric education in community settings. *Pediatrics*. 1996;98:1284–1288
55. Jones TE. The cost of outpatient training of residents in a community health center. *Fam Med*. 1997;29:347–352
56. Smith JI. *An Annotated Bibliography on the Cost of Teaching Medical Students in Ambulatory Settings*. Washington, DC: American Association of Medical Colleges; 1996
57. Sargent JR, Osborn LM. Resident training in community pediatricians' offices. *Am J Dis Child*. 1990;144:1356–1359
58. Xakellis GC, Gjerde CL. Ambulatory medical education: teachers' activities, teaching costs, and resident's satisfaction. *Acad Med*. 1995;70:702–707
59. Feigen RD, Drutz JE, Smith E O'B, Collins CR. Practice variations by population: training significance. *Pediatrics*. 1996;98:186–190
60. Barton LL. Letter to the editor. *Pediatrics*. 1996;98:1002
61. Commonwealth Fund. *Graduate Medical Education Programs in the United States*. New York, NY: Commonwealth Fund; 1985
62. Pan RJD, Finkelstein JA. Pediatric education and managed care: a literature review. *Pediatrics*. 1998;101:739–745
63. Devries JM, Berkelhamer JE, Molteni RA, Edwards KS, Kachur EK. Developing models for pediatric residency training in managed care settings. *Pediatrics*. 1998;101:753–761
64. Wassner SJ. A survey of additional benefits ("perks") provided during residency training. *Association of Pediatric Program Directors Newsletter*. Fall 1997:7
65. Kittredge D. Pediatrics hit by negative ripples of new Medicare billing regulations. *AAP News*. March 10, 1998:15
66. Valberg LS, Gonyea MA, Sinclair DG, Wade J. Planning the future academic medical center. *Can Med Assoc J*. 1994;151:1581–1587
67. Simmer TL, Nerenz DR, Rutt WM, Newcomb CS, Benfer DW. A randomized, controlled trial of an attending staff service in general internal medicine. *Med Care*. 1991;29(suppl 7):JS31–JS40
68. Salsberg ES, Wing P, Dionne MG, Jemiolo DJ. Graduate medical education and physician supply in New York state. *JAMA*. 1996;276:683–688
69. Dunn MR, Miller RS. The shifting sands of graduate medical education. *JAMA*. 1996;276:710–713
70. Miller RS, Dunn MR, Richter T. Graduate medical education, 1998–1999: a closer look. *JAMA*. 1999;282:855–860
71. Anderson GF. What does not explain the variation in the direct costs of graduate medical education. *Acad Med*. 1996;71:164–169
72. Greater New York Hospital Association. *Information Package: New York Medicare Graduate Medical Education Demonstration*. New York, NY: Greater New York Hospital Association; 1996
73. Foderaro LW. Many hospitals in New York quit plan for fewer doctors. *New York Times*. April 1, 1999
74. Rosenthal MP, Marquette PA, Diamond JJ. Trends along the dept-income axis: implications for medical students' selections of family practice careers. *Acad Med*. 1996;71:675–677
75. Task Force on Graduate Medical Education Reform. Graduate medical education and pediatric workforce: issues and principles. *Pediatrics*. 1994;93:1018–1020
76. Council on Graduate Medical Education. *Seventh Report: COGME 1995 Physician Workforce Funding Recommendations for Department of Health and*

- Human Services' Programs*. Washington, DC: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1995
77. Council on Graduate Medical Education. *1997 Recommendations to the Congress and the Secretary of Health and Human Services on Graduate Medical Education Payment Reform*. Washington, DC: Council on Graduate Medical Education; 1997
 78. Mitka M. Consensus panel offers response to oversupply. *American Medical News*. February 24, 1997
 79. Jacoby I, Meyer GS. Creating an effective physician workforce marketplace. *JAMA*. 1998;280:822–824
 80. Group on Resident Affairs. *Work Group on GME Sizing: Reaching Informed Institutional Decisions About Graduate Medical Education Program Size, Issues for Teaching Institutions*. Washington, DC: American Association of Medical Colleges; 1997
 81. Physician Payment Review Commission. Financing graduate medical education and teaching hospitals from a trust fund. In: *PPRC Annual Report to Congress 1997*. Washington, DC: Physician Payment Review Commission; 1997:381–395
 82. National Academy Press. *On Implementing a National Graduate Medical Education Trust Fund*. Washington, DC: National Academy Press; 1997
 83. Committee on Pediatric Workforce. Pediatric workforce statement. *Pediatrics* 1998;102:418–427
 84. Coffman J, Mertz E, the Pew Health Professions Commission. *Beyond the Balanced Budget Act of 1997: Strengthening Federal GME Policy*. San Francisco, CA: Pew Health Professions Commission; 1998
 85. Council on Graduate Medical Education. *Ninth Report: Graduate Medical Education Consortia, Changing the Governance of Graduate Medical Education to Achieve Physician Workforce Objectives*. Washington, DC: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1997
 86. Kochar MS, Cooper RA. A medical school-based GME consortium in Milwaukee. *Acad Med*. 1996;71:238–242
 87. Rosenthal TC, Berger RC, Noe M, Naughton JA. consortium, graduate medical education and Buffalo: defining a common ground. *Fam Med*. 1997;29:465–470
 88. Desmarais HR, Hash MM. Financing graduate medical education: the search for new sources of support. *Health Aff*. 1997;16:48–63
 89. Pardes H. The future of medical schools and teaching hospitals in the era of managed care. *Acad Med*. 1997;72:97–102
 90. Shelov SP. Commentary: the impact of graduate medical education financing policies on pediatric residency training, by Carol Bazell and Edward Salsberg. *Pediatrics*. 1998;101:793–794
 91. Newacheck PA, Hughes DC, Stoddard JJ, Halfon N. Children with chronic illness and Medicaid managed care. *Pediatrics*. 1994;93:497–500
 92. Bazell C, Salsberg E. The impact of graduate medical education financing policies on pediatric residency training. *Pediatrics*. 1998;101:785–794
 93. Council on Graduate Medical Education. *Third Report: Improving Access to Health Care Through Physician Workforce Reform, Directions for the 21st Century*. Washington, DC: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1992
 94. Physician Payment Review Commission. *Physician Payment Review Commission: Annual Report to Congress*. Washington, DC: Physician Payment Review Commission; 1992
 95. Council on Graduate Medical Education. *Eleventh Report: International Medical Graduates, the Physician Workforce, and GME Payment Reform*. Washington, DC: US Department of Health and Human Services, Public Health Service, Health Resources and Services Administration; 1998
 96. Pew Health Professions Commission. *Critical Challenges: Revitalizing the Health Care Professions for the Twenty-First Century*. San Francisco, CA: UCSF Center for the Health Professions; 1995
 97. Committee on the US Physician Supply. In: Lohr KN, Vanselow NA, Detmer DE, eds. *The Nation's Physician Workforce. Options for Balancing Supply and Requirements*. Washington, DC: National Academy Press; 1996
 98. American Medical Association. *Report of the Council on Medical Education: 1. Funding of Graduate Medical Education, CME Report 1-I-96*. Chicago, IL: American Medical Association; 1996
 99. Barnes BE. Creating the practice-learning environment: using information technology to support a new model of continuing medical education. *Acad Med*. 1998;73:278–281