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The Economics of Clinical Genetics Services. II. A Time Analysis of a Medical Genetics Clinic

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SUMMARY

In a time-and-reimbursement analysis of our clinical genetics service, we documented (1) the time spent by professionals and staff in serving families before, during, and after the clinic visit; (2) the charges and reimbursement for the services provided; and (3) the relationship between income from clinical practice and the personnel costs of the clinic. We found that newly referred and returning families required 7.1 and 4.0 h, respectively. Average collections for professional services were $135 ($19/h) for new families and $49 ($12/h) for returning families. Income from clinical practice covered 37% of the clinical portion of personnel costs. These results indicate that cognitive clinical genetics services are labor intensive, yield low payments per service hour, and are not financially self-supporting. To improve the economic status of genetics clinics, administrators might consider rendering services more efficiently; increasing charges for services; billing for all services provided to all family members; billing for all genetics professionals, including counselors and social workers; and requesting payment at the time of service.

INTRODUCTION

Comprehensive clinical genetics service centers provide diagnosis (both clinical and laboratory), medical management, counseling, and follow-up care to patients and families either with or at risk for genetic conditions. Three aspects

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of these services have been widely—but largely anecdotally—discussed: first, that a team approach is optimal (Fraser 1974; Epstein 1977; Riccardi 1977); second, that the delivery of clinical genetics services is time consuming (Epstein et al. 1975; Riccardi 1977; Jackson et al. 1979; Sorenson et al. 1981); and, third, that these services are not monetarily self-supporting (Rimoin 1977; Holtzman 1983; Pyeritz 1984). Centers providing clinical genetics services have relied heavily on a variety of mechanisms, especially grants and subsidies from public and private sources, to cover costs associated with delivering the services. At present, such supplementary funding is severely constrained, with no immediate prospect for improvement (Holtzman 1983). Centers must rely increasingly on revenues generated through patient charges (i.e., fee for service), which may not be adequate to cover personnel and overhead costs.

The time required to provide genetics services has not been fully documented in the literature. One study examined the time required to counsel families for craniofacial abnormalities, but it was limited in scope to patients seen in only one specialty clinic and by one genetics professional (Rollnick 1984). Mention is made in two other articles of the time expenditure by professionals and staff in satellite (Epstein et al. 1975; Riccardi 1977) and medical center (Epstein et al. 1975) genetic-counseling clinics; the totals were 3–7.5 h/patient. However, the authors did not detail their assumptions or their methods of calculating these figures. Despite these constraints, it is clear that some genetics services in some settings are labor intensive. The time required to provide genetics services might vary with, among other factors, the types of services provided, the personnel providing service, and the characteristics of the patients. Thus, any such investigation of time spent must occur in a well-defined clinical setting.

Accordingly, we investigated, in one genetics clinic, (1) the time required by various professionals and staff to interact with patients and families before, during, and after the clinic visit; (2) the charges and reimbursement for services provided to these families; and (3) the relationship between income from clinical practice and the fixed costs of the clinic staff.

THE CLINIC SETTING

The Division of Medical Genetics of the Johns Hopkins University School of Medicine provides diagnosis, counseling, and management services to patients and families in outpatient clinics that are held 2 days each week in the Moore Clinic of the Johns Hopkins Hospital. Approximately one-half of the families seen are new by referral and one-half are returnees; returnees attend primarily for management and counseling services. The clinical staff includes four attending physicians, two or three residents and fellows, two genetic counselors, one or two patient assistants, a clinic coordinator, one part-time social worker, and a clinic secretary. With the exception of the clinic coordinator and the clinic secretary, the staff is involved in other professional activities, including research and teaching, and none devotes 100% of his or her time to clinical activities. During clinic, a medical geneticist sees all patients, and approximately one-half are seen as well by a genetic counselor, a social worker, or both. The clinic coordinator or a patient assistant schedules clinic appointments and, after discussion with the medical geneticist, anticipated consultations and testing. The clinic secretary types all clinic notes and correspondence.

The fee schedule for clinical services is standardized throughout the Department of Medicine and fees charged are identical to those for the same level of service (as indicated by Current Procedural Terminology [CPT] codes [Clouser et al. 1985]) provided in other clinical areas. Families are notified of the genetics-clinic charge before their appointment and are asked for payment at the time of service. Patients insured by Maryland Medical Assistance attend clinic but, by contractual agreement with the state, are not billed a professional fee; none of a facility fee paid to the Johns Hopkins Hospital reverts to the Division of Medical Genetics. Patients are not billed separately for counseling services provided by the social worker and genetic counselors. The genetics laboratories are not part of the Department of Medicine, and no income from tests or procedures reverts to the division.

METHODS

We identified two groups of patients; patients who were newly referred were chosen consecutively at the time of referral, and returning patients were chosen at random when the appointment was scheduled. The time that each member of the clinic staff spent either with each patient and family or on such indirect service components as record review, literature search, telephone follow-up or correspondence was tabulated on data forms designed for this purpose.

During the study period, 161 families (99 newly referred and 62 returning) were enrolled. Nine of the newly referred and 10 of the returning families canceled or did not keep their appointments and were not billed. Although time was spent on these families, they were not included in the data set. Therefore, the data reported include only the 90 newly referred and 52 returning families who attended clinic. Nine of the study families were insured by Maryland Medical Assistance and were not billed a professional fee.

The departmental office of clinical practice provided information on charges and payments for each patient. To calculate hourly income, average payment was divided by the mean total time spent.

Each professional and staff person estimated, as a fraction of total employment effort, the average amount of time spent on clinical matters. This fraction of a full-time clinical equivalent for each professional or staff person was multiplied by the total of his or her salary and fringe-benefit dollars for fiscal year 1985. These products were summed to give the personnel costs that our clinic incurs in providing clinical genetics services. Income from clinical services for the same time period was calculated and compared with personnel costs to determine the fraction of personnel costs covered by clinic income.

RESULTS

The average time that clinic staff spent on serving the population of study patients and families before, during, and after the clinic visit is presented in

TABLE 1

MEAN SERVICE TIME FOR FAMILIES ATTENDING THE MEDICAL GENETICS CLINIC, JOHNS HOPKINS

FAMILY CATEGORY	TIME SPENT (min) Preclinic	In Clinic	Postclinic	Total
New	60	238	128	426 (= 7.1 h)
Returning	35	129	80	244 (= 4.1 h)

table 1. The average time expended, as well as the percent of study families served by each category of service provider, are detailed in table 2. Table 3 summarizes data on patient charges and collections. The adjusted collection ratio represents the percentage of actual charges that were collected.

In seven (5%) of the study families, more than one family member was registered and billed for service. However, in 22% of the remaining 135 families attending clinic, multiple family members were examined but not billed. In most cases, these examinations were necessary to establish the mode of inheritance of a condition and to clarify genetic counseling.

The total personnel costs incurred in providing clinical genetics services in fiscal year 1985 divided by the total collections from charges for services for the same period equaled 0.37.

DISCUSSION

This analysis of a randomly selected—and presumably representative—period of our clinic operation documented that the delivery of clinical genetics services is time consuming, labor intensive, and not financially self-supporting.

The manner in which we provide clinical genetics services and the characteristics of our patient population undoubtedly differ from those of other genetics clinics. First, we do not provide our own laboratory services. Second, management of chronic hereditary disorders is a common reason for attending our clinic sessions. Third, approximately one-half of our patients have a disorder of connective tissue. Nonetheless, we believe the data presented in the present

TABLE 2

TIME ANALYSIS OF EACH TEAM MEMBER

TEAM MEMBER	% ENCOUNTERED; MEAN TIME (min) SPENT/FAMILY New Families (N = 90)	Returning Families (N = 52)
Fellow	71; 181	40; 101
Attending physician	100; 90	100; 79
Genetic counselor	38; 61	15; 28
Social worker	15; 46	25; 29
Coordinator-patient assistant	100; 113	100; 63
Secretary	100; 71	100; 51

TABLE 3

ANALYSIS OF REIMBURSEMENT FOR GENETICS SERVICES

Family Category	Mean Charges ($)	Mean Collections ($)	Collection Ratio (adjusted)	Collections/h Service ($)
New	148	135	0.91	19.01
Returning	52	49	0.94	11.95

paper are likely to reflect the situation at other academic genetics clinics that provide largely cognitive services.

Our clinical staff, which includes genetics fellows, is comparable in composition to clinical staff at similar institutions. Approximately one-half of all comprehensive clinical genetics service centers include clinical fellowship training (American Society of Human Genetics 1986). Just under one-half of the average 7.1 h spent with newly referred families is physician time. This large amount of physician effort is attributed, in part, to time spent by the attending geneticists teaching fellows, a situation that will be encountered elsewhere. However, much physician time is also accounted for by the effort in evaluating and counseling multiple relatives—e.g., a proband and both parents—in many of the families. Each family is seen by an attending physician, and the final counseling and discussion of diagnosis and treatment involves both the fellow, when appropriate, and the attending, thereby increasing total physician time. Finally, it is common practice to send letters to each family and to the referring physician summarizing the visit, a practice that requires both physician and clinic-secretary time.

As in most genetics clinics, our patients have complicated medical conditions involving more than one organ system. Because, in most patients, tests and consultations are necessary to reach or confirm diagnoses, to provide accurate genetic counseling, and to make treatment recommendations, we rely on the clinic coordinator or a patient assistant to arrange all necessary testing. In addition, a large portion of the coordinator's time involves telephone conversations in which the evaluation and genetic-counseling processes are explained to newly referred families. Also, given the size and complexity of our institution, a good deal of time is spent by the patient assistants in ensuring that families arrive at the appropriate test or consultation site(s) at the appointed time(s).

In addition to the mean of 4 h required to serve newly referred families during the clinic visit, nearly as much combined service time is required before and after it. This large, indirect service component is due, in part, both to the complicated nature of genetic conditions, which necessitates review of family medical records and pertinent medical literature, and to time spent dictating and transcribing clinic notes and correspondence.

The services provided to families by the clinic social worker and genetic counselors supplement those provided by the physician, but such services are not billed separately. Third-party carriers generally do not reimburse these services. The cost of providing these services is therefore subsumed under the physician charges for an initial or follow-up outpatient medical evaluation (CPT codes 90020 and 90060, respectively).

None of the physicians or other genetics professionals is solely involved in clinical activities. Salaries and fringe benefits for these people are paid by a variety of sources, most notably by research grants. Nonetheless, the staff devotes considerable effort to clinical activities; if costs were to be fully accounted, then, to break even financially, professional fee income would have to cover salaries for the clinical portion of staff time. However, in our division, payments cover only 37% of the clinical portion of staff salaries and fringe benefits, indicating that our service falls far short of self-sufficiency.

Our hourly income averaged less than $20/service hour for newly referred families and just under $12 for returning families. The low hourly service income cannot be attributed to unusually low charges; our charges are similar to those of other genetics-services providers (Myers and Prouty 1987). Nor can the hourly rate be due to poor collections of charges, since these averaged 91% and 94% for newly referred and returning families, respectively. We believe that our high collection ratio is due to our policy of encouraging payment at the time of service (Pyeritz et al. 1987).

On the basis of these study results, we offer several recommendations for improving the economic status of centers providing genetics services. First, it seems appropriate to charge more for services so as to reflect the actual amount of time required to deliver these services. Increasing charges requires efforts to convince clinical practice managers or department heads that changes are justified. So that all cost increases are not passed on directly to patients, third-party payers must also be convinced that increased reimbursements are appropriate.

Second, means of delivering services more efficiently, including the use of prepared patient educational materials and group counseling, must be considered and tested in a variety of clinical situations. One recent study has shown that counseling for cleft lip and palate is equally well understood and received whether presented in an audiovisual, group, or individual counseling format (Young et al. 1986). Certain other counseling situations would undoubtedly lend themselves to alternative, less labor-intensive, but equally effective methods.

Third, to optimize collections, genetics clinics should encourage payment at the time of service. Accepting payment by credit card or assignment of insurance benefits helps to reduce the immediate financial burden to the patient while improving cash flow and reducing delinquent accounts for the provider.

Fourth, genetics professionals must continue to explore means of securing third-party reimbursement for nonphysician services, such as those provided by a genetic counselor or a social worker. This effort will involve specifically defining the process of genetic counseling, revising CPT codes, and convincing third-party payers to reimburse genetic counselors directly. This may involve licensure of genetic counselors, which is currently unavailable. Alternatively, the possibility of acquiring reimbursement status through certification, now available through the American Board of Medical Genetics, should be explored. These issues are being considered by committees of the American Society of Human Genetics, the National Society of Genetic Counselors, and the Council of Regional Genetics Networks.

Fifth, because multiple relatives are often evaluated as a part of a family's genetics-clinic visit, each person examined should be billed for the service provided. The medical necessity of these examinations—e.g., to clarify the diagnosis in the proband and exclude it in other family members at risk—should be explained to the family members before they are seen in clinic. Because such examinations are provided by a physician, there is already a mechanism in place for reimbursement of these services by third-party payers.

Finally, additional time-and-reimbursement analyses are needed in other genetics centers, such as those providing prenatal diagnosis, genetic laboratory services, and service to indigent and underinsured populations.

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