

Evaluation and Recordkeeping for U.S. Family Planning Services

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THE PROVISION of subsidized family planning care under the auspices of health departments, hospitals, and voluntary agencies is still, in most communities, in its nascent stage; thus, it offers a good opportunity for trying out new techniques for the evaluation of health care. Apart from its importance in informing the decision making process on the optimal development of these services, evaluation research on family planning activities can also shed light on such questions as the diffusion of innovations in low-income communities and the interagency exchange system.

Until recently, family planning activities in the United States rarely have been described in a systematic fashion. They have been evaluated only in an elementary way, for example, in terms of services rendered in 1 year as compared with those in previous years. To facilitate the adoption of more refined evaluative techniques, most of which would still be workable within the limits imposed by active, service-oriented programs, we shall review the major tools for evaluation currently in use (particularly by Planned Parenthood), present an outline of recordkeeping requirements, and suggest some innovative approaches.

Definition of Objectives

Evaluation techniques are designed to measure the effectiveness and efficiency of an activity in reaching given objectives. We regard the primary objective of subsidized family planning services in the United States to be the reduction

of the discrepancy between desired and experienced pregnancies among families who are unable to obtain family planning care on a private, fee-for-service basis. This goal is somewhat different from that of national family planning activities in developing countries, where the group in need of services includes virtually the entire fertile population and the paramount objective most frequently is a more favorable relationship between economic development and population growth (1). In the United States, population growth is also of serious concern, particularly in view of the large portion of the world's resources consumed here, but the poor contribute only a small part to the total U.S. birth rate (2, 3).

Certain secondary objectives of family planning are also important, including improvement in the health and quality of life of medically indigent families (for example, by reducing the incidence of maternal and infant mortality and morbidity, of clandestine abortion, of marital separation, of illegitimacy, and of precipitate marriage) and the reduction of continuing poverty and dependency by increasing the resources which parents can make available for each child.

In addition to these primary and secondary

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objectives, a number of indirect results of family planning services may be considered in an evaluation—the deliberate use of family planning to encourage use of more comprehensive medical care (for example, to increase the rate of return for post partum examinations), the further emancipation of women from second-class citizenship (for example, by affording them equal opportunity for participation in the labor force), and the provision of employment to the poor as clinic aides, neighborhood workers, and the like.

Gross Yardsticks

The most rudimentary form of evaluation in health and welfare programs is the measurement of effort. Services are frequently described by such statements as “*x* number of contacts with clients were made last year, compared to *y* in the previous year.” Similar statements are made concerning publications distributed, speeches made, or meetings held. Such observations are of limited applicability as a tool for program planning. Some measures of effort can, however, be made vastly more meaningful by relating current patient loads to a defined universe, for example, the statement that “*x* (unduplicated) patients were served out of a total of *y* who need the service.” Since few agencies nowadays carry exclusive responsibility for the family planning program in a community, service statistics from all sources of family planning care should be aggregated in order to assess the remaining number of persons to be served. Even crude estimates of patient loads are better than intuition in determining the allocation of fiscal and professional resources. Estimates of the community need for subsidized family planning services which establish an approximate denominator for current service levels are available.

In programs designed for clearly circumscribed populations, such as members of group health plans or patients on obstetrical wards, the task is even easier. A simple yardstick of the effectiveness of a hospital program can be taken to be the ratio between the number of new family planning patients and the number of medically indigent women who deliver in the hospitals during the same year (4, 5). When different hospitals serve populations with approximately the same characteristics, the

variation in the ratio at different hospitals becomes a ready indication for further program diagnosis. Similarly, in welfare departments, payment invoices for unduplicated family planning services which have been rendered can be compared for succeeding periods with the estimates of the total number of fertile women in the public assistance caseload. For example, the Pennsylvania State Department of Public Welfare assembles monthly statewide summary statistics on medical family planning services provided to assistance recipients.

These kinds of measures have already lent support to several hypotheses regarding program operation. One is that making family planning services geographically and economically accessible promotes their use (4). A second hypothesis, partially supported by the Pennsylvania statistics, is that caseworker initiative in discussing family planning increases the use of such services among recipients of public welfare. A third hypothesis is that the rate of nonreturn for post partum checkup is approximately halved when women are offered family planning services at the time of this examination (6).

Systematic Program Evaluation

The gross yardsticks just described have served their purpose in the early stages of development of family planning programs. As these services expand, however, procedures for evaluation will be needed which are more systematic and accurate and more closely tailored to the objective to be attained. Such techniques should be relatively inexpensive and not too burdensome for personnel carrying out other functions. The suggested procedures will be described under the following rubrics: (a) estimation of the size and characteristics of the population in need of services; (b) success in contacting the indicated population; (c) success in enrolling the indicated population; (d) success in providing continuity of service; (e) success in reducing the discrepancy between intended and actual births; and (f) the effect of family planning on secondary and indirect objectives.

These six measures are listed in a logical order rather than by priority. While measurements of the success in meeting the primary

objective are clearly the most important, these measurements can be made with some precision only after services have been provided to a substantial proportion of the indicated population in the community. Evaluation along the logically prior dimensions should not be delayed too long, however, since the results will aid greatly in deciding on the steps needed to improve the availability and accessibility of services, as well as in forecasting the progress that will be made toward longer term goals.

Population in Need of Services

Currently the method most widely used in the United States for estimating the size of the population in a community in need of subsidized family planning care at any given time is the Dryfoos-Polgar formula. In this procedure, the approximate number of medically dependent women of childbearing age, which is derived from census data, is reduced by the proportion likely to be infertile and to be pregnant or intending to have another child (7). Recently, Campbell has worked out improved nationwide estimates of the proportion of persons likely to be infertile or to desire another child, as well as of the proportion of sexually active unmarried persons of childbearing ages who do not have access to effective contraception (8). His method, which substantially confirms the approach of Dryfoos and Polgar, yields an estimate close to the widely used total of approximately 5 million women in the United States in need of subsidized family planning services annually.

Techniques based on other principles also have been used for defining the size of the group in need of services. Tayback has calculated minimum and desirable patient loads for family planning services in Baltimore from the reduction in current natality rates that would be necessary among whites and nonwhites in each economic quintile of the population if birth rates of each quintile were to equal the lowest rate among these 10 population segments (9). This method is feasible when addresses on birth certificates are traced to individual census tracts characterized by economic level. Tayback's method, like the Dryfoos-Polgar formula and Campbell's technique, relies on the results of nationwide studies (10, 11) showing that most

couples—whether rich or poor, white or non-white—desire about three children, results which lead to the working class assumption that births after the third child are, on the average, unintended. In Louisiana, Beasley uses birth certificates to delineate both the size of the group he wishes to serve and to identify the persons within it (12). Finally, Brody in New York City (13) and others elsewhere (as indicated in personal communications to us) have relied on figures for deliveries on hospital wards.

The most accurate, but also the most expensive, way of estimating the size and characteristics of the target group is by sample household surveys. The size of the unmet need in the total population is projected from the proportion of fertile women in the sample who do not desire another pregnancy and do not use an effective method of contraception (14, 15). For ordinary administrative purposes, when research is not involved, the less expensive methods of estimation should be satisfactory; elaborate surveys are not required.

Tayback's method of economic stratification can be used as a geographic programming procedure, since the method relies on assignment of census tracts into quintiles according to the median rent or property value of housing. Recent publications of the U.S. Census Bureau, which use a more sophisticated combined index of poverty (16) than Tayback's method, delineate geographically contiguous poverty areas. This information should be most useful in planning the location of family planning clinics and the deployment of neighborhood workers. (In applying the Dryfoos-Polgar formula in such poverty areas, it is important to check whether a larger than average proportion of older residents may not be inflating the estimate of the number of medically indigent women of childbearing age.)

To assess the success of a program in reaching various segments of the indicated population, one should have, apart from geographic data, information on the magnitude of the population in need of services, categorized at least by age, parity, color-ethnic designation, welfare assistance status, and education. Both the technique of triangulation (that is, using several independently derived rough estimates) and comparisons of clinic and survey data have been

used to this end for the United States as a whole (17), in Mecklenburg County, N.C. (18), and in New York City (15).

Contacting the Indicated Population

Health education messages "broadcast" to the community at large necessarily reach the people in need of services only in a haphazard manner. Although information about family planning has considerably more interest-arousal value than other health messages, the influence of public information campaigns on clinic enrollment in the long run is minor (19, 15). The degree to which information about available family planning services has actually reached those needing them can be approximated for small areas by such informal survey techniques as the educational interview (20).

In some family planning programs, more focused procedures have been devised to identify potential patients. In Lincoln Parish, La., Beasley and his co-workers screened health department birth certificates against certain defined criteria to develop a list of "high risk" mothers, who were then contacted by program aides (21). In several geographic areas, Planned Parenthood groups have for some time been mailing to newly delivered mothers, whose names are culled from local newspapers, information on the availability of services. A post card for people to mail back to request information on family planning was placed in physicians' offices, drugstores, and so forth in Kentucky by Bogue (21); the card requested a few items of information about the sender and thus served as both a casefinding and research tool.

When television, magazines, or other unfocused media are used to publicize a program, the number of people in need of the service among the audience who "receive" the message represents the first level of success of the effort. The low proportion of the indicated population falling within most such audiences and the low attention level of people to health messages in general is to some extent counterbalanced by the relatively low cost of using radio, posters, newspaper advertisements, or loudspeaker vans. Distributing written materials to selected households (a method that falls in the general rubric of public information, but is not a "mass medium" as the term is usually under-

stood) is somewhat more expensive, but can be expected to reach a much higher proportion of the population at risk. In Bogue's "snowball" experiment in Chicago, a survey of those to whom pamphlets were mailed showed that 78 percent read them, and 65 percent showed them to one or more persons (19).

A further step in attracting patients is by personal contacts. The best example of program evaluation of this method is the IUD (intrauterine device) coupon used in Taiwan (22). The three-part coupon identifies the person making the referral, characterizes the woman accepting it, and finally is used as a reimbursement claim for the physician who inserts the device at a subsidized price. Another approach for contacting patients is for field staff to hand out free nonprescription contraceptive supplies, while simultaneously urging the recipient to make an appointment with the clinic or a private physician. This approach has been evaluated in Alameda County, Calif., through a survey of changes in knowledge, use of birth control, and clinic attendance among women visited by public health nurses working in the field (23). The numerous other patterns of using personal intermediaries—whether professionals, volunteers, or neighborhood workers—are most conveniently evaluated by identifying the intermediary as the referral agent on the patient's admission record and comparing the impact of these intermediaries with other means of influencing enrollment.

The group of couples in a community eligible for family planning services is constantly changing. Women reach menarche and menopause, deliver, and move in and out of conjugal relationships. Family planning activities therefore may well influence—whether deliberately or unintentionally—persons who will become part of the population in need of services in the foreseeable future.

This "reserve" drawing power of a family planning program can be estimated from its reputation among current patients. Inasmuch as word-of-mouth communication provides the greatest number of patient referrals, satisfied patients do a great deal of casefinding of new eligibles. A particular program's effectiveness in this regard therefore can be evaluated by analyzing the trends over time in the

number of new patients who are recruited by patient-to-patient referrals. (The percentage of total referrals accounted for by this source is less appropriate since it will be influenced by the relative success of all the other techniques of recruitment.) Thus, as long as the total number of enrolled patients does not approach the total population in need, the fact that a rising number of new patients is being recruited through patients, relatives, and friends would indicate that the clinic is probably creating favorable opinions among future eligibles. Special analyses on the source of referral for the youngest group of patients would be particularly desirable in this context.

Other activities aimed at future patients include lectures and demonstrations given to women during prenatal care to prepare them for the contraceptive prescription post partum. The effectiveness of this type of program is easily measured by determining the proportion of women who return for family planning after delivery. A related matter is education for young people about sex, family planning, and population dynamics. This type of education may eventually influence the number of precipitate marriages that occur—its effects could be measured in record-linkage studies—and may also influence the rates of out-of-wedlock births.

Success in Enrolling Patients

The benefits of family planning programs exceed many times their cost (see 8, 24, and staff paper by H. L. Sheppard entitled "Effects of Family Planning on Poverty in the United States" for U.S. Senate Committee on Labor and Public Welfare, 1967). Yet, given the scarcity of funds, trained personnel, and other resources, it is unwise to neglect matters of efficiency. Recruitment of patients is the component of family planning services for which costs are most variable. The best known family planning program in which the cost-effectiveness of alternate recruitment strategies has been systematically measured is the one in Taichung, Taiwan, in which the intensity of an educational campaign to reach potential patients was experimentally manipulated (25).

The central issue of efficiency in respect to enrolling patients is where and when to open clinical facilities. Compromises have to be struck

between maximal convenience to every patient and maximal attendance at each clinic session and between optimally thorough and personal medical care and the expenditure of scarce and costly professional time. Account must be taken of the geographic dispersion of the indicated population, facilities available for housing clinical services, traveling patterns of the clientele, traveling time of the staff, and available modes of transport (26).

The variables as to outcome of a program include not only the proportion of the indicated population that has been enrolled as new patients and how many of them are from the "hard-to-reach" group, but continued clinic attendance as well. Collver and co-workers (27) have shown a strong relationship between the geographic distance from the patient's home to clinics in Detroit offering maternal health services and the likelihood of the patient's return visits. Ascertaining the advantages of bringing family planning services into the neighborhood is one of the purposes of the Mobile Service Demonstration Project in New York City (15) and of the Visiting Nurse Association clinic in Detroit (28). These and similar studies, however, have not yet reached the stage in which data can be published on the cost-benefit ratio of centralized versus dispersed service facilities or of full-time stationary clinics versus satellite clinics or mobile programs of various types.

Some evaluation of nonprofessionals in case-finding for family planning services has been undertaken. In 1966, it cost about \$20 to \$30 in New York City to recruit a patient through door-to-door visits by neighborhood workers (15, 29). There are benefits, however, since it also became apparent that such workers help greatly to recruit more of the women who are less easily reached by other techniques (for example, Puerto Ricans, younger women, and those with little education).

One technique for casefinding which appeared sociologically sound failed when used in some communities for family planning, namely, the "coffee-sip." In this technique residents of the community are asked to host an informal meeting at which family planning is discussed with their neighbors and friends. Two separate evaluations of the approach in New York

City (15, 30) have shown very disappointing results in the ratio of patients recruited to the time spent in organizing the sips. Vincent, in Winston-Salem, N.C., however, reports favorably on this approach (31). Quantitative results from the Chicago project directed by Bogue, in which this approach was also used (19), are apparently not yet available.

In analyzing the efficiency of casefinding, it is extremely important to specify the proportion of the indicated population in the community which is already being served. Early in a program, relatively small expenditures on recruitment will yield a sizable patient response. Initiation of services at the post partum visit or use of mass media are good examples. Later, however, when a sizable proportion of the indicated population has been enrolled, increasingly expensive techniques will be required to yield additional patients. The large body of research on the diffusion of innovations (32, 33)—from hybrid corn to new antibiotics—is thus of great relevance to the “phasing of inputs” in family planning or any other health program.

In some programs abroad, considerable use has been made of incentive payments to patients, referral agents (“finders”), physicians, and distributors of contraceptive supplies. In the United States, vendor payments by welfare departments to physicians for providing family planning are somewhat similar; upon implementation by the States of Title XIX of the Social Security Act of 1965 (Medicaid), this method for providing services is likely to become more common (34). Evaluation of the relative costs and benefits of relying on private physicians and of relying on clinics will thus become increasingly relevant.

Payment of money directly to the patient as an incentive has not been used in family planning programs in the United States to our knowledge; some people have wondered, however, if such a technique would not be more efficient than the high-cost methods of recruiting patients for some projects. Small bonuses in kind (for example, books, rainhats, or hand lotion worth from \$0.50 to \$1) have been paid to old patients for referring new ones. In the New York Mobile Service Project, however, the results with this method did not seem to be outstanding (15).

Finally, in evaluating various recruitment strategies, it should not be forgotten that clinic attendance alone does not reflect the total impact of such activities. Surveys of households and of physicians and reports on contraceptive sales in drugstores have shown (19) that a certain proportion of medically indigent people obtain services on their own from private physicians or buy supplies from drugstores, although they can ill afford to do this according to purely economic criteria. (It may be less costly to them, however, in terms of loss of time or self-respect.)

Continuity of Service

Like any health maintenance program, family planning care suffers from discontinuity of service. Before the advent of the oral contraceptives and intrauterine devices, yearly patient retention rates in hospitals, health departments, and Planned Parenthood centers were often as low as 50 percent (35); at the other extreme, a recent study of patients on an oral contraceptive in the Chicago affiliate of Planned Parenthood showed a retention rate of around 83 percent at 12 months of service (36). It is erroneous to assume that the one-time provision of any method (even sterilization) is tantamount to successful service to a patient. By the same token, it is also self-defeating to regard dropout rates as an inevitable consequence of psychological or cultural characteristics of the clientele. The wide variation in the rates of patient retention between clinics serving groups of similar backgrounds should alert the administrator to the fact that certain aspects of the service itself can lead to a higher or lower likelihood that patients will return.

There are many studies on the use-effectiveness of specific contraceptive methods over time; the details of measuring continuity of protection with the IUD have been carefully worked out by Tietze (37) and need not be recapitulated here. These measures are insufficient, however, for evaluating the performance of service units. What is required are yardsticks that at least combine the “open intervals” for all patients, regardless of the method they are using or their possible shift from one method to another. G. W. Perkin (“A Comparative Measure of Family Planning Program Effectiveness by Contraceptive Method,” Ford Foundation, New York

City, 1967, unpublished) has started to test a protection-over-time index by using samples of patients' charts. The technique Wishik developed in Pakistan also deserves mention; in it, the probabilities of continued successful use for each contraceptive method being provided are simply multiplied by the respective number of patients accepting each method; for non-prescription supplies such as the condom or foam tablet, the total units distributed are divided by the estimated number of units used per couple per year to arrive at a rough figure for the number of accepters (38).

Improving the efficiency of clinic operations requires evaluation of staffing patterns, the sequence of steps followed by patients during their visits, and the like, sometimes incorporating time-and-motion study techniques. Preventable dropouts from the service and other negative outcomes (for example, prescription of an unsuitable method, perforation of the uterus during insertion of intrauterine device, or inadequate explanation of pill-taking routines) should be assessed in respect to different patterns of clinic management. The availability of manpower is crucial here. Thus, highly trained midwives have inserted IUD's as competently as physicians (39, 40), but as long as midwives are as scarce as physicians, there is little to gain in the short run. (In the long run, midwives can, of course, be trained faster than physicians.) Mention has been made of the use of nonprofessionals drawn from the community for case-finding. Within the clinic itself, clinic aides are employed also for many tasks traditionally carried out by nurses, social workers, and volunteers; assessment of their effectiveness is another urgent task.

Intended and Actual Births

A family planning service would register complete success in terms of the primary objective we use if it enrolled 100 percent of the population in need of services (including new cohorts as they enter the target group) and if it provided failureless care to all those enrolled. Not only would complete success imply no pregnancies for those who wished no more and no pregnancies sooner than desired for the "spacers," it would also mean a live birth for

every medically indigent couple with an infertility problem.

Leaving aside the treatment of infertility, for which current medical technology can afford only severely limited solutions compared with the methods it can provide for contraception, success could be measured by combining the percent of the indicated population enrolled, the open intervals maintained for the birth limiters, and the number of months out of the desired birth intervals that were actually kept "open" for the spacers. Alternatively, the extent of service coverage could be used, reduced by some weighted measure of the failures. In either case, no index has yet been proposed for allocating the relative weights to the percent of need met and the percent of patients enrolled who have been served without failure. The Wishik method of estimating the number of years that couples have been protected is one way out of this dilemma (38). This method, however, does not measure the service's actual success in providing continuous care, because it assigns fixed values to the expected failures with each contraceptive method. When the concept of failure by the clinic is considered (for example, whether the contraceptive method most suitable to the patient is prescribed, how well it is explained, and how persistently a patient is followed up), a search for more comprehensive evaluation techniques becomes necessary.

There is considerable debate currently among demographers on the extent to which family planning services in various countries are or are not affecting birth rates (41). Bogue's assessment of the impact of Planned Parenthood services on the birth rates of Negroes in Chicago (19) has been attacked as inaccurate by Hauser (42). The problems of evaluation are not only theoretical, but also practical. For example, Corkey's attempt to evaluate her fine program in Mecklenburg County, N.C., in terms of birth rates by color, parity, and legitimacy ended in a frustrated call for the formulation of more suitable demographic techniques (43).

In addition to the paucity of applicable indices, the imponderables of migration, and the delay between the provision of services and the availability of natality figures for the relevant years, two further obstacles to achieving a good

measure of success are the difficulty of calculating birth rates by economic status and the simple fact that in very few places has even as much as 50 percent of the target population been enrolled in the family planning program. We have attempted elsewhere to analyze the reasons for the slow progress in extending services and have stated the remedies we would favor (4, 44-46). In obtaining birth rates by economic status, the common practice of using figures for Negroes or nonwhites as an approximation of what may be the situation for the poor is extremely hazardous. "Race" and "color" are incredibly confused terms conceptually and operationally (47), and the relationship of the group designated as Negro or nonwhite to the medically indigent is unpredictable from one geographic unit to another.

Despite such limitations, Tayback's suggestion that the success of a program be evaluated by measuring birth rate changes in census tracts defined by socioeconomic level (9) appears to be a useful procedure for the present. If the birth interval and education of the mother were recorded on birth certificates, one could circumvent the technical shortcomings of Tayback's approach. (Tayback combines all births to couples of varied income within census tracts—tracts in which, in turn, the age-sex distributions for intercensal years are unknown—and ignores the impact of a family planning program on helping people with the timing of births.) Addition of the two items on the birth certificates would permit birth registration data to be used directly for evaluating family planning activities.

The impact of subsidized family planning services nationwide can be measured from Current Population Survey data, as Campbell has done (8). He estimated that the annual fertility rate of the poor and near-poor in 1960-65 was 153 births per 1,000 women aged 15-44, compared to 98 for the nonpoor. Given an age composition of the childbearing population similar to the current U.S. population, a rate of 98 would yield a completed average family size of 2.9 children—a size which is consistent with the expressed average family size preferences of the poor. Thus, the present difference between rates of 153 and 98 reflects the higher incidence of

unwanted fertility among the poor and near-poor and can be taken as an indicator of the discrepancy which subsidized planning services are attempting to reduce.

Attainment of Indirect Objectives

The evaluation of the effects of family planning on indirect objectives is almost entirely terra incognita. There is considerable evidence (6), as we have noted, showing that the inclusion of family planning with post partum services will substantially increase the rate of return of patients for the post partum checkup. Furthermore, once a reasonable proportion of the indicated population has been enrolled in family planning, changes in annual rates of infant mortality for families living in poverty areas may provide one measure of the success of family planning care in improving maternal and child health (even if the family planning care is not associated with other improvements in maternal and infant health care). Some evidence has already been published on the decrease of hospital admissions for complications following abortion, once birth control services have been initiated (5).

Statements have been made that the rate of desertions has decreased substantially among recipients of public assistance after the establishment of family planning services (48). There are many anecdotes, too, told by people working in clinics, of mothers who have regained their self-respect and neat appearance after a period of successful practice of contraception and who have even resumed their education. A small exploratory study by Russell on the use of small group meetings for women from "multiproblem families" showed an improvement in marital adjustment partly attributable to initiation of contraceptive care (49). And Ziegler has demonstrated an improvement in conjugal adjustment in a small sample of middle-class couples who were continuing users of oral contraception (50).

In panel studies on medically indigent families, variables such as the work history of the parents, school performance of children already born, court appearances for juvenile delinquency, marriages, separations, and use of health facilities for services beyond family planning could be used as indices of the indirect

benefits. An interesting study along these lines, relying on routinely collected records, was proposed by Cutright (51).

Recordkeeping

The first principle of recordkeeping in clinics providing family planning care is to separate the number of persons receiving service from the volume of services rendered at clinic sessions. Each "new patient" must be counted. Each "old patient" who has previously enrolled and is continuing to receive care in the current period (usually a calendar year) must also be counted—but counted only once. The sum of the unduplicated new and old patients constitutes the total number of persons served during a period. A person may attend the clinic several times, but the number of visits made is a poor measurement, even of effort, since an initial visit, in which a history is taken and a pelvic examination performed, counts equally with a "supply call" in which the patient merely picks up her refill of contraceptives.

The second principle of recordkeeping is to strike a balance in the clinic between cumulating complete information on all characteristics of the patients and the time that can be allotted to intake interviews and clerical procedures. It is important to record medical information for the physician and nurse caring for the patient (and at times for the Food and Drug Administration or clinical researcher), but many such items for monitoring the administrative aspects of family planning services need not be processed.

To relate the characteristics of clinic patients to the characteristics of the population in need of service—characteristics established on the basis of general census data—and, also, for other reasons that we shall mention, it is desirable to record and assemble the following demographic data about clinic patients:

1. Area of residence (postal zone, health area, or census tract)
2. Number of live births
3. Number of years of schooling completed
4. Color-ethnic designation
5. Date of birth
6. Welfare recipient status, income, or both
7. Contraceptive method last used

8. Previous source of contraceptive prescription or supply

9. Influences relevant to enrollment at facility

10. Type of visit—initial visit, first medical visit this year for old patient, other medical revisit, revisit with nurse or other professional, or attendance only for refill of supplies

11. Type of service—intrauterine device, gestagen (by type or brand), diaphragm, rhythm, foam, other contraceptive, consultation only, marriage counseling, or consultation about infertility.

The rationale for these items, briefly, is as follows. Data on enrollment by geographic areas can help in decisions on the use of leaflets, neighborhood workers or even on more intensive means of casefinding—depending on the percent of the family planning need already met. Age and parity provide an index of whether the program is reaching parents early or late in the family-building years, the early period being preferable. Parity and education together are relevant to the "hard-to-reach" groups; thus far the persons requiring the most effort to bring into the service have been those with the least education and either less than two or more than five living children. The color-ethnic designation is useful for comparison with other social statistics compiled in this manner (52).

Information on income and welfare status is important in many programs for fees or reimbursement and is also helpful in comparing the clinic clientele with specified subgroups in the population who are in need of subsidized services. Information on the method last used measures the improvement in contraceptive efficiency provided; the source of prior service helps to define the total number of persons in the community using contraceptives by allowing the subtraction of patients who have enrolled at more than one facility. The type of visit and service rendered are the basic items of information on "effort," that is, on the care given to the patient. These items should be subdivided not only according to the method prescribed but also, roughly, by the type of staff giving the service and the amount of time spent in giving it.

As already stated, a balance must be struck between the need for information and the fact

that long intake interviews both discourage patients and complicate the routing of patients through the various "stops" in the clinic. Schedules should be arranged so that a major part of the clerical work may be done when the clinic is not in session. The forms used must also be simple, and the questions to be asked the patient preferably should be written out in full to minimize the influence of the interviewer. (Forms and instructions currently used in the Planned Parenthood Federation of America system are available on request from the research department of Planned Parenthood-World Population.)

Most methods for manual retrieval of data from patients' charts are cumbersome and prone to error; much of the information is lost in transcription. Computerized data processing has been introduced for hospital inpatient summary charts as well as for a few outpatient and public health nursing programs. In 1965, Planned Parenthood initiated an "automated" data processing system for family planning clinics. Standard intake forms and daily tally sheets for patient visits and calls for supplies have been used since 1966 in clinics serving most of Planned Parenthood's national caseload. Carbon copies of these two basic forms are sent biweekly to a central data processing service; a monthly report is then returned to the reporting agency within a week of receipt of the last shipment of the forms for the month. Quarterly and annual reports are also produced, and the computer cross-tabulates a number of items at the end of the year.

Although originally designed to fit the needs of the clinics affiliated with Planned Parenthood, the forms are also being used by several health departments. In addition, an adaptation of the system is currently being discussed with staffs of the Office of Economic Opportunity and the relevant agencies of the Department of Health, Education, and Welfare with a view to fitting the forms to the requirements of the family planning services funded by these Federal agencies and to setting up a uniform reporting system for all organized family planning programs. It is expected that the new system will permit longitudinal linkage of the information on individual patients.

A rough approximation of the continuation

of care ("retention rate") can be obtained by comparison of the total patient load in year x with the number of old patients who had at least one visit in year $x+1$. Many successful clinics use, in addition to the patient's chart, a small card which is kept in a tickler file—that is, arranged according to the date patients are due to return for medical checkups or repeat supplies. A routine followup procedure is desirable under which a patient who fails to return is sent two letters, followed by a phone call and a home visit (53). A simple questionnaire on the reason for the failure to return should be sent with a third letter (or filled out by a staff member during a phone call or home visit) if it appears that the patient will not return.

The reasons given in the followup for drop-out may be analyzed in two different ways—according to whether (a) continued contraceptive use is the main interest or (b) the administrator wishes to see how best to retain the maximum number of patients in the facilities for which he is responsible.

Continuation of Contraceptive Practice

1. Contraception continued—woman goes to private physician, other clinic, buys supplies from drugstore, or uses methods requiring no supplies.
2. Contraception discontinued temporarily—woman desires pregnancy, is intentionally or unintentionally pregnant, has no sex relations or stopped for other reasons (including dislike of method, husband's objection, and so forth).
3. Contraception discontinued permanently—patient or spouse has been sterilized, or woman has entered menopause.
4. Reason for discontinuance unknown.

Continuation of Clinic Attendance

1. Patient's failure to return ordinarily would not be preventable—patient or spouse has been sterilized, woman has entered menopause, moved out of town, desires pregnancy, is intentionally pregnant, has no sex relations, or is pregnant with intrauterine device presumably in situ.
2. Patient's failure to return conceivably was preventable by staff effort—woman unintentionally became pregnant while using prescribed method consistently, efforts to contact were not successful, or husband objects to use of contraception.

3. Patient's failure to return possibly was preventable by staff effort—woman experienced unintentional pregnancy while using method inconsistently, does not like clinic or method, buys supplies from drugstore, or uses method requiring no supplies.

4. Not ascertainable—woman goes to other clinic or private physician, other reason not classifiable in respect to the possibility that the staff might have prevented the dropout, or patient's current status unknown.

The first set of figures, relating to continuation of contraceptive practice, would be used in estimating protection against unintended pregnancies and also for noting the desirability of further followup for the group of women who have temporarily discontinued contraceptive practice. The second set of figures about clinic attendance is relevant to examining the various aspects of the service—how the method prescribed is determined and its use explained, how respectfully the patients are treated, how long they wait, what the fee schedule is, and so forth.

Summary

Evaluation techniques to measure the effectiveness of family planning services in the United States must be related to the primary objective of these services—namely, to reduce the discrepancy between desired and experienced pregnancies among families who are unable to obtain family planning care from private physicians. Service statistics, or the measurement of program effort, offer the most rudimentary form of evaluation, but they can be made more meaningful if they are related to a defined universe, for example, to the estimated number of families in a community who need subsidized family planning services. In programs serving circumscribed populations, such as hospitals or welfare departments, yardsticks for program evaluation can be developed which are simple, yet meaningful.

More systematic evaluation techniques can be formulated for the administrators of service programs. The suggested procedures include (a) estimates of the size and characteristics of the population in need of services, (b) measurements of success in contacting the indicated population, (c) measurements of success in enrolling that population, (d) measurements of

success in providing continuity of service, (e) measurements of success in reducing the discrepancy between intended and actual births, and (f) measurement of the effect of family planning on its secondary and indirect objectives. Various procedures are currently being used for these measurements, but certain basic information is required for all of them. The Planned Parenthood clinics currently use an automated patient record system.

REFERENCES

- (1) Guttmacher, A. F.: National objectives for birth control. Planned Parenthood-World Population Mimeograph No. D-775. Paper presented at American Medical Association National Conference on Infant Mortality, New York, 1966.
- (2) National Academy of Sciences—National Research Council: The growth of U.S. population. NAS-NRC Publication No. 1279. Washington, D.C., 1965.
- (3) Day, A. T.: Population and poverty in the United States. Planned Parenthood-World Population, New York, 1965. Mimeographed.
- (4) Jaffe, F. S.: A strategy for implementing family planning services in the United States. *Stud Fam Plann* 17: 5 (1967) and *Amer J Public Health* 58: 713 (1968).
- (5) Zatuchni, G.: International postpartum family planning program. *Stud Fam Plann* 22: 1 (1967).
- (6) Perkin, G. W.: A family planning unit for your hospital? *Hosp Pract* 2: 64 (1967).
- (7) Polgar, S., Ornati, O., and Dryfoos, J. G.: How to estimate unmet need for family planning in your community. *In* Financing family planning services by F. S. Jaffe. *Amer J Public Health* 56: 917 (1966).
- (8) Campbell, A. A.: The role of family planning in the reduction of poverty. *J Marriage Fam* 30: 236 (1968).
- (9) Tayback, M.: Evaluation of family planning programs. Paper presented at Institute in Administration of New Programs in Maternal and Child Health, University of California, Berkeley, Jan. 19, 1966.
- (10) Westoff, C. F., Potter, R. G., and Sagi, P. C.: The third child. Princeton University Press, Princeton, N.J., 1963.
- (11) Whelpton, P. K., Campbell, A. A., and Patterson, J.: Fertility and family planning in the United States. Princeton University Press, Princeton, N.J., 1966.
- (12) Beasley, J. D.: The Lincoln Parish family planning program. Report submitted to the President's National Advisory Commission on Rural Poverty, 1967.

- (13) Brody, B.: Analysis of family planning services in New York City's poverty areas. Planned Parenthood of New York City, 1967.
- (14) Freedman, R., and Takeshita, J. Y.: Studies of fertility and family limitation in Taiwan. *Eugen Quart* 12: 233 (1965).
- (15) Polgar, S.: The PPFA Mobile Service Project in New York City. *Stud Fam Plann* 15: 9 (1966).
- (16) Maps of major concentrations of poverty in standard metropolitan statistical areas of 250,000 or more population. Prepared in 1966 for the Office of Economic Opportunity by the Bureau of the Census in respect to 1960 census data. U.S. Government Printing Office, Washington, D.C., 1966.
- (17) Varky, G., et al.: Five million women—Who's who among Americans in need of subsidized family planning services. Planned Parenthood-World Population, New York, 1967.
- (18) Siegel, E., et al.: A longitudinal assessment of a community family planning program. Paper presented at annual meeting of the American Public Health Association, Miami Beach, Fla., Oct. 22-27, 1967.
- (19) Bogue, D. J., and Ross, J.: The Chicago fertility control studies. *Stud Fam Plann* 15: 1 (1966).
- (20) Polgar, S.: Educational interviews. Planned Parenthood-World Population Mimeograph No. 74/267, New York, 1967.
- (21) Bogue, D. J. (editor): The rural South fertility experiments. Report No. 1. Community and Family Study Center, University of Chicago, Chicago, Ill., 1966.
- (22) Chow, L. P.: Evaluation procedures for a family planning program. In *Family planning and population programs*, edited by B. Berelson, et al. University of Chicago Press, Chicago, 1966, pp. 675-689.
- (23) Gross, S. B., Johnson, W., Anderson, L., and Malcolm, J. C.: The Alameda County Health Department family planning program. In *Public health programs in family planning*, edited by S. Polgar and W. Cowles. *Amer J Public Health* 56: 34-39, January (supp.), 1966.
- (24) Enke, S.: The economic aspects of slowing population growth. *Econom J* 76: 44 (1966).
- (25) Ross, J.: Cost analysis of the Taichung experiment. *Stud Fam Plann* 10: 6 (1966).
- (26) Wishik, S. M.: Community programs to modify family size: indications for organization and planning. In *Public health and population change*, edited by M. C. Sheps and J. C. Ridley. University of Pittsburgh Press, Pittsburgh, Pa., 1965, pp. 198-218.
- (27) Collver, A., Ten Have, R., and Speare, M. C.: Factors influencing the use of maternal health services. *Social Sci Med* 1: 293 (1967).
- (28) Milio, N.: A neighborhood approach to maternal and child health in the Negro ghetto. *Amer J Public Health* 57: 618 (1967).
- (29) Brody, B.: The use of nonprofessionals in the interpretation of birth control services in a low income area. Planned Parenthood of New York City, 1967. Mimeographed.
- (30) Brody, B.: Discussion-decision method in family planning education. Essay for Master of Public Health. Department of Epidemiology and Public Health, Yale University, New Haven, Conn., 1966.
- (31) Vincent, C.: An action, research and training program in family planning. First annual report. Wake Forest University, Winston-Salem, N.C., 1967. Mimeographed.
- (32) Katz, E.: Diffusion research and family planning. Paper presented at annual meeting of American Sociological Association, Miami Beach, Fla., Aug. 29-Sept. 1, 1966.
- (33) Rogers, E. M.: Bibliography on the diffusion of innovations. Department of Communication, Michigan State University, East Lansing, 1967.
- (34) Jaffe, F. S.: Family planning and the medical assistance program. *Med Care* 6: 69 (1968).
- (35) Polgar, S., and Guttmacher, A. F.: A new chapter in family planning. *Columbia Univ Forum* 8: 34 (1965).
- (36) Frank, R., and Tietze, C.: Acceptance of an oral contraceptive program in a large metropolitan area. *Amer J Obstet Gynec* 93: 122 (1965).
- (37) Tietze, C.: Intra-uterine contraception: recommended procedures for data analysis. *Stud Fam Plann* 18: (supp.) 1967.
- (38) Kanagaratnam, K.: Administrative aspects of family planning programmes in Asia: report of a workshop. *Stud Fam Plann* 14: 1 (1966).
- (39) Cummins, G. T. M.: The role of para-medical personnel. Paper presented at International Planned Parenthood Federation meeting, Santiago, Chile, April 1967.
- (40) Beasley, W. B. R.: The nurse-midwife as a mediator of contraception. *Amer J Obstet Gynec* 98: 201 (1967).
- (41) Harkavy, O.: Impact of family planning programs on the birth rate. Paper presented at International Planned Parenthood Federation meeting, Santiago, Chile, April 1967.
- (42) Hauser, P. M.: Family planning and population programs. (Review of book edited by B. Berelson, et al.) *Demography* 4: 397 (1967).
- (43) Corkey, E. C.: The birth control program in the Mecklenburg County Health Department. In *Public health programs in family planning*, edited by S. Polgar and W. Cowles. *Amer J Public Health* 56: 40-47, January (supp.), 1966.
- (44) Jaffe, F. S.: Financing family planning services. *Amer J Public Health* 56: 912 (1966).
- (45) Harkavy, O., Jaffe, F. S., and Wishik, S. M.: Report to the Secretary of Health, Education, Welfare on family planning services. Department of Health, Education, and Welfare, Washington, D.C., 1967.
- (46) Jaffe, F. S., and Polgar, S.: Family planning and

- public policy: Is the "culture of poverty" the new cop-out? *J Marriage Fam* 30: 228 (1968).
- (47) Polgar, S.: An operational approach to "race." *Amer Anthropologist* 66: 423 (1964).
- (48) Kuralt, W.: The clinic: dollars and sense. In *Public family planning clinics, how to organize, how to operate*. G. D. Searle & Co., reference and research program, New York, 1965, p. 32.
- (49) Russell, M. V.: A demonstration project in fertility control. Paper presented at annual meeting of American Orthopsychiatric Association, Washington, D.C., Mar. 20-23, 1967.
- (50) Ziegler, F. J., et al.: Ovulation suppressors, psychological functioning and marital adjustment. Paper presented at annual meeting of American Medical Association, Atlantic City, N.J., June 18-22, 1967.
- (51) Cutright, P.: A research proposal for a Nashville family planning study. Vanderbilt University, Nashville, Tenn., 1966. Mimeographed.
- (52) Polgar, S.: Should there be a "race" item on clinic records? *Planned Parenthood-World Population Mimeograph No. M-7446*, New York, 1963.
- (53) Creedy, B. S., and Polgar, S.: Returning for yearly checkups—A study of 22,000 family planning clients. *Planned Parenthood-World Population*, New York, 1963. Mimeographed.

Improved Composting of Animal Wastes

A Government-assisted study will evaluate, among other disposal techniques, improved sanitary methods of composting manure from cattle corrals and feedlots in Los Angeles and Orange Counties in southern California.

The National Center for Urban and Industrial Health of the Public Health Service in Cincinnati, Ohio, has awarded a \$90,000 grant for the study. The City of Cerritos, which received the award, will provide \$45,000 as its share of the total project costs of \$135,000. Charles L. Senn of the University of California at Los Angeles will direct the 1-year investigation. The county health department and members of the Dairymen's Fertilizer Cooperative will participate.

The study will aim at developing new techniques in converting animal wastes into soil conditioners or fertilizers. Currently, untreated manure is hauled from the corral sites and stockpiled near urban areas in the two California counties for as long as a year before it is composted. One stockpile in Cerritos, southeast of the city of Los Angeles, is 30 to 40 feet high and contains more than 10 million

cubic feet of manure. Disease-carrying flies breed prolifically in these environments, the air is filled with odor and dust, and seepage from such stockpiles can pollute ground and surface waters.

Under the study, the grantee proposes to devise a method that will permit prompt composting on the premises. With the manure piles removed, attendant vermin, odor, and dust would be eliminated as well.

Feedlots for beef cattle and corrals for dairy cattle, located adjacent to major centers of population in this country, are becoming commonplace. Many of these centers are confronted with sanitation problems similar to those being experienced in Los Angeles and Orange Counties.

Improved composting of animal waste can also assist such large dairy States as Wisconsin, Minnesota, New York, Pennsylvania, Ohio, and Michigan. Other States—Iowa, Nebraska, Illinois, Texas, Colorado, and Kansas—that raise beef cattle in concentrated feedlots will also have an interest.