

MANAGEMENT STRATEGIES FOR IMPROVING FAMILY PLANNING SERVICE DELIVERY

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Case Scenario

Determining the Cost of Services at
Clínica La Villa

Analyzing Costs for Management Decisions

Editors' Note

As family planning programs expand, the mandate to do more with less becomes stronger. Family planning managers must strive to improve access and quality without increasing the financial burden on already under-funded programs. Perhaps you are concerned about future sustainability and the withdrawal of subsidies. You may worry about efficiency and how to use existing resources more effectively. The tasks you face require an understanding of the financial implications of your management decisions. Can you provide services to 10 percent more clients without increasing the number of staff? Will you need a bigger budget if you offer another contraceptive method to your clients? To answer these and other financial questions, you need to know what your family planning services cost.

This issue provides basic worksheets for calculating the costs of two major items that make up the largest part of any family planning program: **personnel** and **contraceptive product costs**. It deals with these two cost categories for three reasons: first, they account for the majority of costs in family planning service delivery. For instance, salaries accounted for 66 percent of service delivery costs in a study of 17 facilities in Morocco [Knowles, 1991]. Secondly, personnel and contraceptives costs are controllable—you are able to determine what your staff spend their time on, and how contraceptives are dispensed. Finally, personnel and contraceptive costs are the easiest to measure, and do not require large amounts of technical assistance from a financial expert.

The Guest Editor for this issue of *The Family Planning Manager* is Taryn Vian, Senior Associate of the Health Financing Program at Management Sciences for Health. Ms. Vian has worked on financing issues and cost analysis for health and family planning programs in Africa and Latin America. She is currently manager of a multi-country study of the costs of Norplant compared with other contraceptive methods. The study is sponsored by the Family Planning Management Development Project in conjunction with the Population Council and the Association for Voluntary Surgical Contraception.

—The Editors

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Using Cost Data to Improve the Productivity and Efficiency of Services

Some people might argue that clinic managers aren't usually responsible for paying for personnel or contraceptive supplies. Others may argue that if a program has a policy to provide all services free of charge, it is not necessary to know the cost of providing those services. If budgets for these transactions are handled at higher levels, why should clinic managers be concerned about costs? Yet, it is the clinic manager who is ultimately responsible for how these critical human and material resources are used. .or misused.

One of the most important contributions a clinic manager can make to improve access to high quality services is to assure that resources are not wasted. Could your clinic produce more services with the resources it already has? Could you maintain the same level of services while decreasing the amount of labor and supplies you use? If so, then your clinic is not yet operating at optimal efficiency. Inefficiency or waste can occur through the less-than-ideal use of resources such as labor, time, supplies, equipment and space.

Some inefficiencies may be outside of your control; for example, your clinic space and staff may be under-utilized due to low population density in your area. But often, proper use of resources is within the influence of the clinic manager. It is easy to identify some forms of waste, such as theft or loss of contraceptive supplies due to inadequate storage. In addition, changes in clinic operating hours can maximize access during peak demand periods and reduce the time when staff are idle. This helps correct inefficiency due to the under-use of staff resources. Likewise, changes in policies that eliminate unnecessary laboratory tests or doctor referrals can result in savings of expensive, over-used resources.

Calculating costs is one way to measure productivity and efficiency in the use of resources, and having cost information is critical to knowing what actions to take to improve these aspects of program operations. An important part of this issue will be a discussion of how you can put cost data to work for you to: monitor operations, measure productivity and efficiency, evaluate performance, and plan for improvements to your clinic or program.

The costing procedures presented in this issue include:

- Determining the total cost of family planning personnel;
- Allocating personnel cost to different types of family planning visits and methods;
- Determining the cost of contraceptive products;
- Calculating the total cost per visit, by combining the contraceptive supplies cost and the personnel cost.

Four basic worksheets guide you through a process for determining the cost of each type of service that you offer to your clients. Using this information you will be able to make better decisions about: whether (or how much) to charge clients to help recover your costs, more efficient ways of managing clinic operations, or possible ways to provide the same or higher quality services at a lower cost.

Personnel Cost

Every family planning program employs a variety of different types of staff who, together, make it possible to provide services to clients. These staff include those who have **direct contact** with clients and those who have **indirect contact** with clients. Staff who have direct contact with clients include: doctors, nurses, counselors, registration clerks, clinic managers, community-based distribution (CBD) agents, etc. Other staff who have indirect contact with clients, but whose work is nevertheless an integral part of the family planning program, include: bookkeepers, drivers, cleaners, and other manual workers. “Total personnel cost” refers to the total cost of employing all these different types of staff.

Knowing what the total personnel cost is for your clinic is the first step in determining the true cost of each type of service that you provide.

Personnel Cost of Each Type of Visit

Once you know the total personnel cost, you can use this information to determine the personnel cost of each type of visit, or service, that you provide to your clients. To do this, you need to make a list of all the possible types of visits for each method of contraception that you provide. *For example, the types of visits might include: a first visit for a pill user, a re-supply visit for a pill user, a first visit for an IUD user, a follow-up visit for an IUD user, a removal visit for an IUD user, etc.*

By analyzing both how many clients you serve for each type of visit and how much time staff spend providing each type of visit, you will be able to determine the personnel cost of providing each type of visit. Knowing the personnel cost per visit-type can help you to see whether the cost of each type of visit is appropriate relative to other types of visits. *For example, a re-supply visit for a pill user should be less expensive than a first visit for a pill user, since during a re-supply visit there is generally little or no time spent counseling the client.*

Contraceptive Product Cost

After you have calculated the personnel cost of each type of visit, you will need to add the cost of the contraceptives that will be dispensed to clients as part of that visit. Even if you do not pay for the contraceptives that your clinic offers, contraceptives are material resources that are expended when providing services, and their value should be accounted for. Therefore, you will need to determine the approximate unit cost each contraceptive product that you stock in your clinic.

For each contraceptive product, the total unit cost should include any expenditures on international and local transportation, customs and taxes, and any other costs associated with getting the contraceptives to your clinic. If your program does not have this information, try contacting a local distributor, your Central office, or private agencies in your area who do pay for contraceptives.

Total Cost Per Visit

Using the information you have gathered on the cost of personnel and the cost of contraceptive supplies, the last step is to determine the **total cost of each type of visit**. This calculation combines total personnel costs and total contraceptive product costs, for each type of visit and method provided. Knowing the total cost of each type of visit will allow you make decisions about standard operating procedures, medical protocols, or changes to improve the efficiency of your services. *For example, this information will show that it is only slightly more expensive to provide 3 cycles of pills at a re-supply visit than to provide only one cycle of pills on a re-supply visit. This is because you only have to count the personnel cost once—the most expensive part of the visit.* ■

Check your calculations

The accuracy of your calculations in each worksheet is very important, because each successive worksheet is based on calculations from an earlier worksheet. Any miscalculations will be further distorted as you proceed. In addition, it is always a good idea to have someone else check your figures and calculations before moving on the next worksheet.

Determining Personnel Cost

If your clinic has a reliable accounting system and up-to-date records, determining personnel cost can be as simple as reading an annual report or talking to your accountant. However, many clinic managers do not have easy access to this information and must estimate it themselves. To do this, develop a list of all the staff who work in the family planning clinic. This includes doctors, nurses, paramedical and administrative or general staff that have full-time or part-time tasks related to family planning. Make a list these staff on a worksheet similar to the Sample Worksheet 1. If staff are numerous, it is easiest to group them by salary grade or administrative class (e.g. Nurse Level 1A, Nurse Level 1B, Nurse Aid, etc.), leaving out names and indicating only the total number in each grade or class.

Managers of an integrated service delivery program that also offers other general primary health care should be sure to indicate the average percentage of time each category of staff spends specifically on family planning activities. These estimates can be approximated, but should distinguish someone who is spending 100 percent of her time in family planning services, from an employee who spends only 25 percent of her time working in family planning and 75 percent of her time providing primary care. As illustrated in the sample worksheet, if personnel within the same staff category spend unequal amounts of time in family planning, the category can be listed twice, so that the time they spend on family planning is accurately represented. ■

How to . . .

Calculate Personnel Cost

1. For each staff category or grade that you have listed in Column A, list the number of staff employed by your clinic (Column B), and the percent time that each staff person or category spends on work related only to family planning (Column C).
2. Next, for each category of staff, fill in the average yearly salary, including all paid employee benefits (Column D). You should use an *average* salary per year for each personnel category included in your list. An average salary is important because staff salaries within a single category may differ, and it is easier than trying to determine the actual salary of each individual employee, especially since someone might be on holiday or sick leave when you are completing your cost analysis.

Salary amounts should include all allowances that the staff receive, including transportation or family allowances, housing, travel, health insurance (if applicable), taxes paid by the employer, social security dues, etc. Benefits are included because these are expenses related to staffing the clinic. Again, you don't need to be concerned if you don't know the exact figure for these allowances; a rough estimate is all that is needed.
3. Once all these data are assembled—numbers of staff by category, percentage of time spent in family planning, and average salary including benefits—you are ready to calculate the cost of personnel in your program. To calculate total personnel cost for each category of staff, multiply the figures in each column and write the product in Column E ($B \times C \times D = E$). Do this line by line until the personnel cost for all the staff categories have been calculated.
4. Add the numbers in Column B to get the total number of employees who work in your family planning clinic. Then add all the amounts in Column E and write the total at the bottom. This is the “total personnel cost” associated with providing family planning services for one year.

Sample Worksheet 1: Total Personnel Cost (in U.S. Dollars)

A	B	C	D	E
Staffing grade or Category	Number	Percent time in family planning	Average annual salary including benefits	Total personnel cost (B x C x D)
<i>Doctor</i>	<i>1</i>	<i>50%</i>	<i>\$6,000</i>	<i>\$3,000</i>
<i>Nurse 1A (Clinic Manager)</i>	<i>1</i>	<i>100%</i>	<i>\$3,000</i>	<i>\$3,000</i>
<i>Nurse 1B</i>	<i>1</i>	<i>75%</i>	<i>\$2,500</i>	<i>\$1,875</i>
<i>Nurse 1B</i>	<i>2</i>	<i>50%</i>	<i>\$2,500</i>	<i>\$2,500</i>
<i>Pharmacy Assistant</i>	<i>1</i>	<i>50%</i>	<i>\$1,250</i>	<i>\$625</i>
<i>Nurse Aid</i>	<i>4</i>	<i>25%</i>	<i>\$1,150</i>	<i>\$1,150</i>
<i>Counselor/Educator</i>	<i>2</i>	<i>50%</i>	<i>\$800</i>	<i>\$800</i>
<i>Registration Clerk</i>	<i>1</i>	<i>100%</i>	<i>\$1,000</i>	<i>\$1,000</i>
<i>Manual Workers, Drivers</i>	<i>3</i>	<i>50%</i>	<i>\$350</i>	<i>\$525</i>
<i>etc.</i>				
Total	<i>15</i>			<i>\$14,475</i>

Note: The U.S. dollar is used in all the examples in this issue. Whatever currency you are using should be noted on each worksheet.

Allocating Personnel Cost to Visits

Now that you know your total personnel costs, you need to find out how these costs are distributed across your program. The process of determining what portion of personnel costs should be allocated to what type of family planning visit consists of three steps:

1. Deciding what different types of visits your clinic offers;
2. Counting the number of each type of visit clients make in a year;
3. Measuring how much time staff spend on each type of visit.

This information is then combined in one table to calculate “personnel cost per visit.” The following section discusses each of these steps in more detail.

Step 1: What different types of visits does your clinic offer?

The first step is to define the different types of visits you want to cost. To answer this question, you need to name the types of visits your clinic offers. For each type of family planning visit you will need to define two aspects of the visit: **contraceptive method** and the **different types of visits required for that method**.

First, list all the methods you offer, leaving some space between each method. Then, in the space under each method, list the different types of visits a client needs to make to the clinic for that method. *For example, a pill user might need to make a first visit and re-supply visits, while a Norplant user might make a screening visit, an insertion visit, follow-up visits, and a removal visit.* The sum of all these different types of visits is the total number of products, or services, that your clinic offers. The chart below shows the visit-types that were defined by clinics in Colombia and Rwanda. Note that Colombia and Rwanda each developed a category called “other family planning visit,” which is a catch-all category for visits that are difficult to classify or happen infrequently. ■

Examples of Visit-Types Used for Costing in Colombia and Rwanda

Colombia	Rwanda
<p>IUD Insertion visit Follow-up visit Removal visit</p> <p>Norplant Insertion visit Follow-up visit Removal visit</p> <p>Female Sterilization Procedure visit Follow-up visit</p> <p>Male sterilization Procedure visit Follow-up visit</p> <p>Other family planning visit (visit for IEC, counseling, etc.)</p>	<p>Injectable First visit (2-month) Follow-up visit (2-month) First visit (3-month) Follow-up visit (3-month)</p> <p>Pill First visit Re-supply visit</p> <p>IUD Insertion visit Follow-up visit Removal visit</p> <p>Norplant Insertion visit Follow-up visit Removal visit</p> <p>Other family planning visit (visit for IEC, counseling, etc.)</p>
<p>Note: The study was done in a PROFAMILIA clinic. The clinic did not choose to cost out pill users separately, since most pills are distributed in community-based social marketing programs not directly managed by the clinic.</p>	<p>Note: The study was done in a public sector primary care clinic, where sterilization is not offered. The clinic did offer two types of injectables, a 2-month and a 3-month type. Since the product cost of each one differed, the clinic decided to determine costs separately for these two types of injectables.</p>

Step 2: How many visits do clients make in a year?

For each visit-type you have defined, you need to determine the total number of visits made by clients. It is easiest to use data from the past year, but if you prefer, the analysis can also be done using estimated or budgeted utilization figures for the current year. You will need to use a full year's worth of data, since the personnel cost data is also for a one-year period.

These service data can be found by reviewing monthly or quarterly summaries of the clinic's family planning activities. For each type of visit, you should

determine the total number of visits that were made by clients in the last year. If your service data is not reported in this way, you can take a sample of all the records from the past year, and count the total number of visits by visit-type; then use those numbers to estimate the yearly totals representing all clinic records. *For example, if you take a sample of records that represent 20 percent of all your records, tally the data on the number of visits those clients made for each visit-type for one year, then multiply each figure by 20 to arrive at a yearly estimate that represents all clinic records.*

Step 3: How do staff spend their time?

Now you have defined the *types of visits* (services) your clinic offers, and the *number of visits* your clients make in a year. You still need to find out how much of your clinic's resources—your staff and their time—is spent providing each type of service to clients. How do your staff spend their time among different methods and visits? You probably have some general notion about which methods and visit-types require more staff time. There are several techniques for estimating the use of staff time more systematically.

- **Conducting a client flow analysis** will provide you with information on the amount of time each staff member spends providing each type of service in the clinic. This technique involves completing client flow forms, which record the amount of time each client spends in contact with staff, and how much time is spent waiting for services. For more information on conducting a client flow analysis, see Volume I, Number 1 of *The Family Planning Manager*.
- **Interviewing your staff** and asking how much time they spend with different types of clients. While studies have shown that these data are usually not the most accurate, this is a quick and easy way to start.
- **Observing staff** in different areas of the clinic and recording the amount of time they spend in contact with clients. By using a stop-watch or regular watch, and noting on a pad of paper the amount of time each staff member spends with clients for each type of visit, you can quickly determine the average amount of time spent by all staff for each of those visit-types. You will need to observe all locations of client-staff contact, including registration, counseling, and consultation rooms. *For example, one day you can observe clients entering the registration area, and time how long it takes for staff to greet the client, find the client's record, and fill in any new information. Another day you can observe clients in the counseling and consultation rooms, and record how long it takes from the time one client enters to the time the client contact is over (including the*

time that staff spend writing in the client record, or cleaning up between visits). Using this information, you can then determine the average amount of time each staff member spends with a client on each type of visit, and calculate the total amount of time spent by all staff for each visit-type.

You should observe 10-20 clients for each visit-type on your list, in order to determine how long an "average" visit takes. One visit for a new pill user might be very long, while another might be very short. But the average of all 10-20 observations of new pill visits will probably be representative of what happens most often in your clinic.

Remember, if a client spends 10 minutes in a consultation room with two nurses, this is equal to 20 minutes of staff time (10 minutes x 2 nurses). *For example, a first visit for the pill might include five minutes with the registration clerk to register, 15 minutes with a counselor, and 10 minutes with 2 medical staff in the consultation room. This makes a total of 40 minutes of staff time. You do not need to consider the time the client spends waiting or traveling, unless staff accompany the client.*

You may want to make these observations over several days or even weeks, if the volume in your clinic is low, in order to see all of the different visit-method combinations. Once you have observed all the staff time directly related to client services, for each type of visit add up the average time spent by each staff person—registration clerk, counselor, consultation staff, and anyone else working with clients—to determine total personnel time spent providing each type of visit.

It is most important to know the direct client contact time. You don't need to worry about how to allocate administrative or general staff time to visits, since the worksheet is set up to account for their time without having to calculate it separately. Worksheet 2 is designed so that, for each visit-type, you will use the *percentage of time* that staff spend in *direct contact* with clients to allocate the total personnel cost to each visit-type, which includes the cost of administration and general services. ■

Allocate Personnel Cost to Visits

Sample Worksheet 2 illustrates how you can use all the data described in Steps 1-3 above to calculate the personnel cost of each type of visit. The worksheet requires using basic mathematical skills—multiplying, dividing, and calculating percentages.

1. Once you have named your clinic's visit-types, record them in Column A of Worksheet 2.
2. For each visit-type, record in Column B the total number of visits made by clients during the previous year. Add all the figures in Column B and enter the total at the bottom of the worksheet. This total represents the total number of visits for all visit-types for the previous year.
3. Using the data you have gathered on how much time staff spend providing each type of service, record in Column C the average number of minutes staff spend providing service for each type of visit. (Remember that these figures should include the total amount of time spent by all categories of staff who take part in each type of visit.)
4. For each visit-type, multiply the number of visits (Column B) by the minutes per visit (Column C) to obtain total minutes spent for each visit-type during the past year ($B \times C = D$). Enter the results in Column D. Add all the figures in Column D and enter the total at the bottom of the worksheet.
5. Next, calculate the percentage of the total minutes of all visit-types that each visit-type represents. To do this, divide the totals for **each** visit-type listed in Column D, by the total for **all** visit-types noted at the bottom of the worksheet. Each result will be in decimals. To obtain a percentage, multiply the decimal by 100 and enter the percentages in each row in Column E that corresponds to the visit-type. *For example, looking at Sample Worksheet 2, the total number of minutes for all pill first visits is 2,720 minutes. By dividing 2,720 by the total minutes for **all** visit-types—64,745—you get 0.042. To obtain a percentage, multiply 0.042 by 100 to get 4.2%.*
6. Enter the total personnel cost (from Worksheet 1) in the space provided at the top of Column F in Worksheet 2. To calculate the total personnel expense for each visit-type, multiply the total personnel expense by each percentage found in Column E. Enter the results in Column F. **These figures show, for each type of visit, the total personnel expense incurred by the clinic for the total number of visits in the past year.** To check your calculations, add the figures in Column F, and enter the total at the bottom of the worksheet. This total should be the same as the total personnel cost noted at the top of the column.
7. To calculate personnel cost for each visit-type, divide the total personnel expense for each visit-type (Column F) by the number of visits of that type (Column B). Enter the results in Column G. *For example, the total personnel expense for 160 first visits for pills is \$608. By dividing \$608 by 160 total visits, you get \$3.80, which is the total personnel cost for one single visit of that type.*

For ease in figuring you can round the percentage to the nearest whole percent, or nearest tenth of a percent. Check your calculations by totaling the percentages listed in Column E. The sum of the percentages should equal 100. (Note: Due to rounding, the total might not equal 100, but it is acceptable if the total is between 98 and 102.) For more information on calculating percentages, please refer to Volume I, Number 2 of *The Family Planning Manager*, "Using Service Data: Tools for Taking Action," and the supplement to that issue, "Guide to Graphing Data and Taking Action," May/June 1992.

Sample Worksheet 2: Personnel Cost Per Visit-Type (in U.S. dollars)

A	B	C	D	E	F	G
Method/Visit-Type	No. of visits in past year	Average minutes per visit-type	Total minutes (B x C)	Percent of total number of minutes (D ÷ *)	Personnel expense (E x total from Worksheet 1) Write in total below for easy reference (\$14,475)	Personnel cost per visit-type (F ÷ B)
<i>Pill first visit</i>	160	17	2,720	4.2	\$608	\$3.80
<i>Pill re-supply visit</i>	1,390	10	13,900	21.5	\$3,108	\$2.24
<i>Injectable first visit</i>	350	18	6,300	9.7	\$1,408	\$4.02
<i>Injectable follow-up</i>	3,050	10	30,500	47.1	\$6,819	\$2.24
<i>IUD insertion</i>	70	27	1,890	2.9	\$423	\$6.04
<i>IUD follow-up</i>	220	15	3,300	5.1	\$738	\$3.35
<i>IUD removal</i>	20	18	360	0.6	\$80	\$4.02
<i>Norplant insertion</i>	40	37	1,480	2.3	\$331	\$8.27
<i>Norplant follow-up</i>	20	9	180	0.28	\$40	\$2.01
<i>Norplant removal</i>	5	39	195	0.3	\$44	\$8.72
<i>Condom and/or other family planning visit</i>	245	16	3,920	6.1	\$876	\$3.58
Total	5,570	11.6	64,745 *	100.0	\$14,475	\$2.60

Determining the Cost of Contraceptive Products

The third important part of determining the cost per visit is the cost of contraceptive products that are used during the visit, or which are given to the client to take with her or him when the visit is over. To determine the cost of contraceptives, you will need data from the office that handles procurement for your clinic. To obtain this information, you may need to ask for help from your supervisor or from the program accountant working at the central or provincial level.

You will need to find out two pieces of information:

- the total quantity of each contraceptive received by the program in the last year;
- the amount paid for all contraceptive shipments received by the program in the last year.

These data should be available by type of product, i.e. pill cycles, condoms, IUDs, doses of injectables, Norplant kits, etc. If contraceptive products were donated, the international market value (if available) should be considered in place of the amount paid. You can also contact private hospitals or clinics, who may have to purchase contraceptives, to find out their costs for each contraceptive product.

Be sure to include in your figures the cost of customs fees, import taxes, and international transportation costs for contraceptive procurement during the year. These are called other procurement costs. Usually these costs are recorded on the invoice for each shipment. If your program has data about internal transport and warehousing costs, these can also be included, although often this information is difficult to obtain. ■

Calculate the Unit Cost of Each Contraceptive Product

Sample Worksheet 3 illustrates how to use information about the contraceptive commodities cost and other procurement costs, to determine the unit cost of each contraceptive product that your clinic offers. The following steps will help to guide you through this process.

1. List all the contraceptive products that your clinic offers in Column A of Worksheet 3.
2. For each contraceptive product, record the total number of units received during the last year. Enter these totals in Column B.
3. By reviewing invoices for the past year, determine the total expenditures for each type of contraceptive product. Record these expenditures in Column C. (Note: It is acceptable to group different brands of the same product together. It doesn't matter if three different types of IUDs were purchased at different prices, you

need to know the cost of the product category as a whole.)

4. Record other procurement costs in Columns D and E, then add the figures in Columns C, D, and E to get the total product cost including other procurement costs (Column F).

5. To reach a unit cost per contraceptive method, for each product category, divide the figure in Column F by the total quantity received (Column B). Enter the result in Column G. This number represents the total cost associated with having one unit (or one cycle) of each contraceptive product in stock in the clinic.

Note: When filling out this worksheet remember to list the contraceptives and their related costs in terms of standard units, such as cycle of pills, individual condoms, dose of injectable, etc.

Sample Worksheet 3: Unit Cost Per Contraceptive Product

A	B	C	D	E	F	G
Contraceptive Product	Quantity Received	Expenditure on contraceptive products	Expenditure on international transport	Expenditure on customs, taxes	Total product and other costs (C+D+E)	Unit cost (F÷B)
<i>Pill (each cycle)</i>	497,040	\$75,842	\$42,212	\$1,181	\$119,235	\$ 0.24
<i>Condom (each)</i>	2,334,000	\$95,847	\$72,839	\$ 1,687	\$170,373	\$ 0.07
<i>Injectable (dose)</i>	703,950	\$483,105	\$36,225	\$5,193	\$524,523	\$ 0.74
<i>IUD (each)</i>	9,000	\$5,135	\$ 1,998	\$71	\$7,204	\$0.80
<i>Norplant (kit)</i>	4,300	\$98,187	\$9,225	\$1,913	\$109,325	\$25.42
<i>Other (specify)</i>	NA	NA	NA	NA	NA	NA
Total		\$758,116	\$162,499	\$ 10,045	\$930,660	

(based on expenditures from most recent year, in U.S. dollars)

Calculating Total Cost per Visit

Using all the data that you have collected and calculated in Worksheets 1, 2, and 3, you are now ready to combine the costs of contraceptives and personnel. This will give you the total cost per visit, for each type of method and visit your clinic provides. Using this information is essential for making management decisions in your clinic.

Suppose you have found that your program's cost for one cycle of pills is \$0.30. This may also be the contraceptive cost for a new pill user visit. Is the contraceptive cost the same for a follow-up pill user visit? Not unless you give the client only one cycle of pills during her

follow-up visit. Most of the time family planning clinics give more than one cycle of pills, so the cost of contraceptives per re-supply visit is higher. If three cycles of pills are given during a follow-up visit, the contraceptives cost per follow-up visit is 3 x \$0.30, or \$0.90. The contraceptives cost is higher for the re-supply visit because more cycles of pills are dispensed, but what about the personnel costs? Are the personnel costs higher or lower for the re-supply visit? What is the total cost of the re-supply visit when you consider contraceptive costs and personnel costs. Worksheet 4 illustrates how the total cost of each type of visit is calculated, including contraceptive costs and personnel costs. ■

Calculate the Total Cost per Visit

1. Using a worksheet similar to Sample Worksheet 4, list all the visit-types by method in Column A. (This is the same list that you made for Worksheet 2.)
2. For each method/visit-type, record the contraceptive unit cost in Column B. (This information can be transferred from Worksheet 3, Column G.)
3. Next, in Column B, record the number of products used or distributed for each type of visit listed. Be sure to count in terms of standard units, such as cycle of pills, doses of injectables, number of condoms, etc.
4. To calculate the total cost of contraceptives for each method/visit-type (Column D), multiply each contraceptive unit cost by the number of contraceptives used for each visit ($B \times C = D$).
5. Record the personnel cost for each type of visit in Column E. (These figures can be transferred from Worksheet 2, Column G.)
6. To calculate the total cost per visit, add the figures in Columns D to those in Column E, and record the result in Column F ($D + E = F$). This is the total cost of each type of visit, including all contraceptive costs and personnel costs associated with each type of visit and method provided.

Sample Worksheet 4: Total Cost Per Visit (in U.S. dollars)

A Method/Visit-Type	Contraceptive Cost per Visit			E Personnel cost per visit (Worksheet 2, Column G)	F Total cost per visit (D + E)
	B Contraceptive unit cost (Worksheet 3, Column G)	C Number of products used or distributed per visit	D Total cost of contraceptives per visit (B x C)		
<i>Pill first visit</i>	\$ 0.24	1 cycle	\$ 0.24	\$ 3.80	\$ 4.04
<i>Pill re-supply</i>	\$ 0.24	3 cycles	\$ 0.72	\$ 2.24	\$ 2.96
<i>Injectable first visit</i>	\$ 0.74	1 dose	\$ 0.74	\$ 4.02	\$ 4.76
<i>Injectable follow-up</i>	\$ 0.74	1 dose	\$ 0.74	\$ 2.24	\$ 2.98
<i>IUD insertion</i>	\$ 0.80	1 piece	\$ 0.80	\$ 6.04	\$ 6.84
<i>IUD follow-up</i>	\$ 0.80	0	0	\$ 3.35	\$ 3.35
<i>IUD removal</i>	\$ 0.80	0	0	\$ 4.02	\$ 4.02
<i>Norplant insertion</i>	\$25.42	1 kit	\$25.42	\$ 8.27	\$33.69
<i>Norplant follow-up</i>	\$25.42	0	0	\$ 2.01	\$ 2.01
<i>Norplant removal</i>	\$25.42	0	0	\$ 8.72	\$ 8.72
<i>Other (condom)</i>	\$ 0.07	20 condoms	\$ 1.40	\$ 3.58	\$ 4.98

Going One Step Further: Estimating Cost per Year of Use

The data on *total cost per visit* (personnel costs plus supplies) that you have calculated in Worksheet 4 can also be used to determine the *total cost per year of use*. Cost per year of use is of interest to

managers for evaluation and monitoring. It is a measure of the final output—the total cost of one couple-year of contraceptive protection—provided by a program or clinic, as opposed to intermediate outputs, such as clinic visits. It is also a measure that provides a common basis for comparing the costs of different methods of contraception. ■

How to . . .

Estimate Cost per Year of Use

To estimate cost per year of use, you will need two more pieces of information:

- average number of follow-up visits per user during each year of use;
- average length of time the method is used (in years).

With these data, the calculations are simple: Total the number of visits for each type of visit, multiply the cost of each visit-type, then divide the result by the average length of time the method is used.

Example: Cost per year of use for a pill user.

1 First visit x \$4.04	=	\$4.04
4 Follow-up visits x \$2.96	=	\$11.84
Total	=	\$15.88

Length of use (1 year)

Cost per year of use	=	\$15.88
(\$15.88/1 year = \$15.88)		

Example: Cost per year of use for a Norplant user.

1 Insertion visit x \$33.69	=	\$33.69
4 Follow-up visits x \$2.01	=	\$8.04
1 Removal visit x \$8.72	=	\$8.72
Total	=	\$50.45

Length of use (3.5 years)

Cost per year of use	=	\$14.41
(\$50.45/3.5 years = \$14.41)		

Be careful! Exercise caution in interpreting your results, because the calculations are only as good as the data you are using. It is important to check your baseline assumptions or data you have used in the calculations, since errors in the data will be multiplied as you proceed through the calculations, and will make the results inaccurate. *For example, what if the cost per follow-up visit was \$2.00 instead of \$1.50? What if Norplant users make only one follow-up visit, or only use the method for two years instead of three and one-half years?* Length of use is sometimes difficult to determine, especially for new methods. While you may have a protocol for the number of follow-up visits clients *should* be making, do you know if they are actually being seen this number of times? Remember, too, that the cost per visit we have discussed in this issue includes only personnel and contraceptive costs. There are other costs, such as equipment and supplies for sterilization, which have not been included and may influence your comparisons. If you want to use cost per year of use to make high-level policy or programmatic decisions, it is probably best to request assistance from an accountant.

The family planning clinic of the Centre Universitaire de Santé Publique (CUSP) in Rwanda conducted a cost study to determine comparative unit costs to be used to compare the cost-effectiveness of Norplant with other methods. During the study, cost data collected from the clinic raised a number of questions for management. First, the cost data showed that a first visit for a 2-month injectable user was more costly than a first visit for a 3-month injectable user. Why might this be so? The analysis showed that some of the cost difference was due to higher product costs. The 2-month injectable doses cost more because the product was newer to the market. But in addition, staff spent more time with the 2-month injectable users on the first visit. Because personnel time represents a large portion of visit costs, the visit cost was greatly influenced by client contact time, although there seemed to be no logical reason why staff would spend more time with the 2-month users.

This is an example of the kind of questions that arise when conducting a cost study, and which need to be further investigated to make decisions about your program. In this case, the clinic managers could observe and time more first visits of both types, to determine if staff were somehow providing different services to the 2-month and 3-month injectable users, or if the difference was simply due to bad data. The clinic could also review the circumstances under which the staff are recommending the 2-month injectable to women. Since the 3-month injectable is cheaper and lasts longer, it is a more cost-effective method and should be promoted, unless circumstances specifically indicate a need for the shorter-duration method. In the course of the ongoing study, managers will need to consider both the cost-effectiveness of the different methods and services that they offer and the client demand for, and satisfaction with, the different types of contraceptive methods.

Data from Rwanda also permitted the managers to calculate the cost per year of protection (or use) of each contraceptive method. This analysis showed that the cost-effectiveness of Norplant was very close to that of the pill and injectables, when considering the expected duration of Norplant use. Although the cost of a Norplant insertion was quite high, the duration of use was expected to be long, so the cost per year of use was close to that of other methods, based on recent continuation rates. This may be good news for Rwandan clinics seeking acceptable long-term methods, since women generally do not like to use the IUD for cultural reasons, but seem to be willing to use the long-lasting Norplant implants instead. The cost data, however, can be adversely affected by the *actual* length of use. Norplant is so new that the managers do not know what the average length of use will be in Rwanda, but will keep track of use patterns and adjust their calculations as they, and their clients, gain more experience with the method.

Finally, the cost analysis in the Rwandan clinic highlighted questions about the policy of requiring all clients—new and continuing users—to attend a 40-50 minute educational lecture before they were allowed to see the doctor or nurse for a private consultation. These educational lectures consumed a relatively large amount of staff time for some staff, and created unproductive time for nurses and other staff, since they had to wait for the educational session to finish each morning before they could begin seeing clients. To alleviate this problem, the managers are discussing whether the lecture should be made optional for continuing users coming in only for re-supply, which is expected both to increase staff productivity and reduce client waiting time. Some of the time savings could be used to provide longer individual counseling to clients who really want and need it. The effect of this policy change over time can also be monitored, to see whether it lowers the unit cost of providing services and improves efficiency. This would be achieved if the increased staff productivity allows more clients to be served each day than would otherwise be seen. In addition, client knowledge and satisfaction can be assessed, to evaluate the effect on the quality of the services.

Overcoming Resistance to Measuring Costs

Some people are not comfortable with measuring costs, and may try to avoid participating in a cost analysis, or disparage the results of a cost study. What makes people resistant? Below are some of the common complaints about cost measurement, and some responses that can help you to overcome any resistance you may encounter.

Complaint

Our clinic doesn't manage the budget, so why should we care about personnel or contraceptive costs?

Staff salaries are fixed, so why include them in unit cost calculations?

The cost data aren't very accurate, so what good is the study?

Cost data say nothing about quality. High costs may mean high quality, rather than low productivity or poor management of resources.

People might fear that analysis of costs will make them appear incompetent or lazy. Their suspicions may be heightened by their lack of understanding of the methods being used to determine costs. To help allay fears, try to include as many people as possible in the discussions of the cost analysis and findings. Encourage people to become involved in the data collection, and to discuss and interpret the results. Praise people who come up with good ideas about how to use the cost data to make improvements in service delivery and productivity. Be careful not to judge people, but encourage them to suggest changes.

Response

While we don't manage the personnel budget, we *can* improve productivity by using staff time more efficiently, which is measured by lower personnel unit costs. We also can use contraceptive supplies more wisely, thereby lowering unit costs.

Again, while we may not be able to reduce total personnel cost, we can influence what people do during their work hours. We can move staff among different activities, and can decide to use different levels of staff for services. These decisions all have cost implications, and can help us increase the number of services we deliver--for the same cost!

A general idea of costs can tell us a great deal. Over time we can improve the accuracy of the data. Meanwhile, we can test our assumptions to see whether we would make the same decision even if costs were really somewhat less or more than we think they are.

True! Costs *alone* cannot tell us about quality. We should try to measure quality in addition to costs. Cost data need to be interpreted. There may be many reasons for costs to be high. We need to look at all the possible causes and see which are most responsible for the high costs.

A forum for discussing additional applications of FPM concepts and techniques

On Feeling Time Pressures...*One reviewer comments,* "Time is often a deterrent to collecting and analyzing cost data. This is a big issue in small agencies where staff feel overworked and so much is already expected of them. To them this may be just one more task. But having information on costs is so important for planning and making good decisions that it cannot be stressed too much."

On Reductions in Donor Support.*One reviewer advises,* "In light of increased cutbacks in international donor support, it is of utmost importance that family planning programs know the costs of delivering services, and make necessary changes to increase the efficiency of delivering those services. This will allow them to better manage the cost of providing services, while maintaining the same quality and level of services offered to clients."

On Considering Other Sources of Supply.*One reviewer offers,* "Some clinics operate in areas where there are other family clinics nearby, so clients don't always use the same clinics for each resupply visit. This should not pose a problem for cost analysis because some clients will come to your clinic for the first visit, but not for the resupply visits, while others will come to your clinic for resupply visits but not for their first visit. What is important is that your data represent the average number of visits your clinic provides."

On Using Cost Study Results to Reveal Inefficient Systems.*One reviewer points out,* "Doing a cost study can also serve to draw attention to systems or procedures that might otherwise be overlooked because everyone is so used to them. For example, a cost study will make you aware of the proportion of staff time devoted to certain activities that you didn't realize took so long to complete. Once you see how much time these activities take, you can make changes that might result in providing more, or better services."

Taking Action on Cost Data

Cost data can help you to recognize problems with current operations, and to plan for the future. Using cost information, you can take actions to improve efficiency and productivity, monitor changes in operations, and evaluate the financial implications of clinic goals and objectives. Remember, though, that cost information is only one ingredient in diagnosing problems, and that costs must be viewed in relation to outputs and quality in order to interpret them correctly.

Cost data can be used to:

- **Improve efficiency.** The cost of contraceptives for each type of visit is calculated using the expected number of products a client receives during the visit. This doesn't take into account other variables such as wastage, products used for demonstration or promotion, and losses due to theft or expiration. How important are these other costs? Should you be worrying about them and trying to get them under control?

To examine these other contraceptive costs, you can compare your expected contraceptive cost for the whole year with your actual expenditures on contraceptives. Expected expenditures are equal to the number of visits multiplied by the contraceptive cost per visit. Actual expenditures data can be calculated using the cost per product (Worksheet 3) and annual consumption data from stock records. The difference between actual and expected contraceptives expenditures is called a cost variance. It is up to you, as a manager, to decide how much variance you think is normal, and how much is cause for concern. Often, managers like to investigate variances that are 10 percent higher or lower than expected. (For more information on managing supplies, see Volume I, Number 4 of *The Family Planning Manager*, "Improving Contraceptive Supply Management," September/October 1992.)

- **Set standards for productivity.** You can use unit cost data to set standards for what you expect personnel costs per visit to be for the

next year. In considering clinic operations, a standard is not an "ideal," but rather an expectation. You may wish that each client would receive 30 minutes of counseling on each visit, but this should not be a standard unless you have the staff and time to turn your wish into a reality.

Standards should be realistic expectations of what you feel can and should happen in the future. Working with your staff, you can set standards for the number of minutes each visit should take, and which staff should be involved. This standard number of minutes can then be used to calculate standard personnel costs per visit, against which actual performance can be monitored. Deviations from the standard, especially where costs are very much higher or lower, should be examined closely for possible explanations and remedial actions. Standards should also be re-examined periodically to determine whether they are realistic. In a decentralized work environment, you can reward staff who consistently meet or exceed the standards agreed upon for their work area without compromising quality of care.

- **Make comparisons over time and across clinics.** Comparisons of cost data can reveal patterns that require management action. It may not be possible to say whether \$2.00 per follow-up visit is a lot or a little, but if the cost has increased drastically in each of the last three months, you need to ask why. Once again, cost data will not tell you what to do; it only alerts you that there may be a problem that needs action. Comparisons among clinics can also illustrate a "performance curve," highlighting clinics with extremely high or low unit costs. These data need to be interpreted with great caution, since staffing patterns, quality of care, and operating standards are not the same at all clinics. Still, it is exactly these differences that cost analysis will help you to better understand. Encouraging staff to examine and discuss comparative cost data can help them to grow in their curiosity about, and knowledge of, clinic operations.

- **Plan for change.** Cost data can provide input to the planning process. *For example, you may be adding a new method to your mix, increasing clinic outreach activities, expanding your acceptor base, or considering a change in staff mix. By collecting data on the number of minutes staff spend providing services for each type of visit, you can analyze the effect of additional clinic visits on the current workload, and can estimate whether you will need new staff to handle the programmatic changes you intend. You can also estimate the cost to the client (in terms of increased waiting time), or potential savings (additional clients served) that will result from a change in staffing patterns or hours.* Over time, you will be able to see how your programmatic initiatives have affected costs per visit. Lower costs per visit means higher efficiency, if the quality and type of services being offered remains the same.
- **Determine charges for services.** If you intend to introduce user fees, it is very helpful to view fees in relation to the true costs of the services provided. Once you know the cost of contra-

ceptives per visit, you can try to set your fee to cover some or all of the product costs. You can also promote community acceptance of your fees by showing that the fees do not really cover all the cost of personnel and contraceptives used during client visits.

Using Your Resources Effectively

Resources—personnel, material, and financial—will always be less than you want them to be, and managers face the ever-present danger that the budget will run out before they have finished doing their job. The most important role of a manager, therefore, is to make the very best use of these scarce resources. Measuring costs will help you to become a better resource manager by allowing you to identify areas where staff, material, time, and other resources are being wasted or used in ways that may not maximize outputs. But, cost analysis cannot make decisions for you. Data must always be interpreted by managers who are familiar with clinic operations and know about the quality of services being offered. Cost data can help you to identify possible areas for action, but taking action is up to you. ■

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Checklist for Analyzing Costs for Management Decisions

For Clinic Managers

- Talk with your staff about the importance of analyzing clinic costs. Address their concerns before initiating the cost study.
- Explain to your staff the steps involved in conducting a cost analysis and how the study can be used to improve services.
- Make sure your staff understand why you need to collect data on the time they spend with clients. Let them know ahead of time when you will be conducting the observations.
- Involve staff in collecting, recording, and analyzing the data. Solicit their suggestions for changes that would improve the quality of services, lower the cost of services, or improve their own productivity.
- Use the cost analysis worksheets to determine personnel costs, personnel cost per visit-type, contraceptive product costs, and total cost of each type of visit your clinic provides including personnel and contraceptive costs.

For Supervisors

- Work with clinic managers to conduct a cost study in their clinics.
- Encourage clinic managers to analyze the cost data and to suggest changes for improving the efficiency of their clinic operations and the productivity of their staff.
- Provide support to clinic managers to make improvements in the quality and/or efficiency of clinic services.

For Mid- and Senior-level Managers

- Encourage program and clinic managers to conduct cost studies. Explain to them how the information can be used to improve efficiency and productivity, to set fees for services, and to manage their resources more effectively.
- Provide clinic managers and their supervisors with necessary information on personnel and contraceptive costs to make their task easier.
- Respect the ideas of staff at all levels. Encourage them to make improvements to services based on their analysis and interpretation of cost data.

The Family Planning Manager is designed to help managers develop and support the delivery of high-quality family planning services. The editors welcome any comments, queries, or requests for free subscriptions. Please send to:



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