

## Cost Accounting Of Health Centre Expenditures

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Received for publication May 31 1972

A method for cost accounting of health centre expenditures is presented. This method is based on the determination of all health centre expenditures and the allocation of these expenditures to the functions of the health centre. Expenditures thus allocated can be used to estimate the cost of various programmes as well as specific activities or services. Data from a study of Primary Health Centres in Mysore and Punjab are used to illustrate the application of the method. The distribution of expenditures by function in these Primary Health Centres and their subcentres, as well as costs of some specific services are presented. It has been concluded that the cost accounting of health centre expenditures is feasible and would be of practical value for health services administration, planning and evaluation in India.

### Introduction

Primary Health Centres (PHCs) have become the principal rural outposts for government sponsored curative and preventive health services to over three-fourths of India's population. More than 5,000 PHCs are said to be operationally active, and they and their attached subcentres are fast emerging as the vital infrastructure of the developing regionalized health system of India. Their functional behaviour is assuming a fairly uniform profile because of the standards recommended by the Government of India for the operations of these centres. The population covered by each health centre, its staffing pattern, nature of activities and priorities for programmes are by and large similar all over the country. However, the volume of services generated, their effectiveness\* or efficiency† vary a great deal depending on local constraints.

In India, attention has frequently been focussed on enhancing the effectiveness of health centre operations. Examples of this concern include specific studies of PHCs and their staff (Ranganna et al 1968, Takulia et al 1967, McPhail 1963), descriptive books or manuals about PHCs (Dutt 1963, Sharma 1965, D.H.S. Punjab 1967), and training programmes for PHC staff (D.H.S. Punjab 1969). The authors, however, are

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\*Effectiveness is defined here as the extent to which a desired outcome of a health activity is achieved  
†Efficiency conveys the notion of increasing the output without decreasing its effectiveness

unaware of any systematic effort to develop a uniform cost accounting method for pricing and measuring the efficiency of health centre activities.

This paper will attempt to describe a method applicable in the Indian setting that can highlight the distribution of health centre expenditures by functions\*. The method does not have any claims of absolute accuracy as even the most refined accounting procedures can seldom achieve it (American Hospital Association 1962, Green 1969). However, if applied in a representative sample of PHCs on a continuing basis the method should be of considerable value for comparing expenditures within the PHC system and monitoring trends in these expenditures. Specifically the application of this procedure would (a) assist in establishing better administrative control over PHC expenditures, (b) provide information essential for preparing adequate PHC budgets, (c) offer a functional bases for distribution of expenses when computing costs of specific programmes such as family planning, (d) make available the necessary data for calculating unit costs for services rendered, and (e) be of crucial importance for making appropriate planning decisions dealing with PHC programmes.

#### Material and Methods

The methodology outlined here depends primarily on data which permits the allocation of health centre resources by functions†. With this information it is a relatively simple matter to derive a cost figure for each function by cumulating the money value of all resources, including the worker's time, utilized in performing the various activities within each function. The data used in this paper to illustrate the method were obtained from a study‡ conducted in the States of Punjab and Mysore in 1967-69. Work is currently in progress to develop and apply the techniques of the study in a simplified form for obtaining similar data on a routine basis in an operational setting.

The five major health functions of PHCs as defined for this costing procedure are as follows : (1) illness care (ILL)—any care or activity involving sickness or an ill person, (2) maternal and child health (MCH)—all health interactions and activities related to normal, non-sick mothers and children, (3) family planning (FP)—any activity connected with family planning whether directed at individuals or communities, (4) communicable disease control (CDC)—all activities involving mass communicable disease control, and (5) environmental sanitation (ENV)—all activities related to community environmental sanitation. Within each of these five functions a further sub-division was made. The latter consisted of the proportion of each function related to : (a) direct delivery of services, (b) administrative or supportive activities§, and (c) non-productive or personal activities.

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\*Function is defined here as an area of responsibility.

†A step by step illustration of the methodology is appended to this paper

‡The Functional Analysis of Health Centre Activities Study was carried out in Punjab and Mysore during 1967-69 by the Department of International Health The Johns Hopkins University School of Hygiene and Public Health Baltimore Md., U.S.A.

§Administrative or supportive activities were those involving work with records and reports ; preparation of supplies, maintenance and cleaning ; liaison with health and community officials ; travel, transit, and waiting ; routine administrative discussions ; ill-defined technical activities related to a specific service; and staff communication, supervision, and education

The estimates we have used for distributing expenditures by function were obtained by actual observation of workers in the study cited above. Work Sampling\* of health workers' activities was carried out throughout an entire year in four health centres. In routine applications such prolonged studies would not be necessary for deriving simple estimates of time spent per activity. However, it would be difficult to obtain reliable information, especially of non-productive time, other than by direct observation. It is important therefore to emphasize that these observational studies must be interpreted cautiously in order to account for possible observer influence or bias. For example, when defining a "non-productive" state of a physician the question can be raised whether the physician is unproductive when he is thinking about his work. In this case, in the eyes of an observer, he may neither be with a patient nor performing a clearly identifiable activity.

In addition to work sampling data, health centre information utilized here includes capital expenditures (buildings, furniture, equipment and vehicle) and annual recurring expenditures (salaries ; travel allowances ; maintenance of vehicle, furniture, and equipment ; expendable supplies such as drugs, stationary and other medical supplies). The authors believe that all expenditures have been included in the following discussion except any indirect costs of administration such as those connected with supervisory activities of the District Health Officers and the State Directorate of Health Services.

### Results

The actual results obtained by applying the cost accounting procedure to the data available in the Functional Analysis Study showed that a health centre in Punjab incurs almost twice the expenditures of a similar facility in Mysore. The total annual expenditures of a health centre were about Rs. 159,700 in Punjab and Rs. 83,400 in Mysore (Table I). This difference is almost entirely related to greater expenditures for recurring items and salaries in Punjab. Within recurring items the major expenditure was on drugs, averaging Rs. 17,350 per year in Punjab and Rs. 8,075 per year in Mysore in each centre. As for higher expenditures on salaries in Punjab, they are determined by the larger complement of staff and the higher salary scale in that state.

The method permits separation of expenditures incurred by work within the PHC headquarters itself (PHC) and work in the Community Development Block around the PHC (Field). The percentage distributions of PHC-expenditures, Field-expenditures and combined expenditures by functional categories are shown in the last three rows of Table I and in Table II. Such a distribution of expenditures by functions is not readily possible with standard accounting procedures. In this example, health centres in both states spent about one-third of their total resources on family planning and a little less than one-third on care of illnesses (Table II). A slightly greater proportion was spent for MCH activities in Mysore (16 per cent) than in Punjab (9 per cent). More was spent on communicable disease control in Punjab than in Mysore and in both areas very little was spent for environmental sanitation. Using such information about

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\*Work Sampling is the systematic observation and recording of the activities of one or more individuals, carried out at predetermined and preferably random time intervals

**Table 1. Annual PHC and field expenditures by functions. Average expenditure per health center in Mysore and Punjab 1968 (in Rupees)**

Item	Area	PHC-Expenditure						Field-expenditures						PHC and field total expenditures
		ILL	MCH	FP	CDC	ENV	Total	ILL	MCH	FP	CDC	ENV	Total	
Capital expenditures (Amortized)	Punjab	1,169	587	833	55	0	2,644	162	174	1,532	606	25	2,499	5,143
	Mysore	692	448	570	86	0	1,796	101	187	1,377	357	21	2,043	3,839
Recurring expenditures (Maintenance and drugs etc.)	Punjab	14,725	549	3,018	453	0	18,745	594	1,029	12,103	3,938	354	18,018	36,763
	Mysore	7,899	1,273	1,039	347	0	10,558	515	1,272	4,069	551	475	7,282	17,840
Salary and allowances of staff	Punjab	19,732	1,088	7,122	2,989	0	30,931	9,701	12,061	29,325	34,984	820	86,981	1,17,822
	Mysore	12,658	1,232	5,425	3,100	0	22,466	4,569	8,346	14,768	11,068	493	39,244	61,710
Total Expenditures	Punjab	35,626	2,224	10,973	3,497	0	52,320	10,457	13,264	42,960	39,528	1,199	1,07,408	1,59,728
	Mysore	21,249	3,003	7,035	3,533	0	34,820	5,185	9,805	20,214	12,376	989	4,8569	83,389
Percentage distribution of PHC Expenditures	Punjab	68	4	21	7	0	100	..	..	..	..	..	..	..
	Mysore	61	9	20	10	0	100	..	..	..	..	..	..	..
Percentage distribution of field expenditures	Punjab	..	..	..	..	..	..	10	12	40	37	1	100	..
	Mysore	..	..	..	..	..	..	11	20	42	25	2	100	..
Percentage distribution of PHC and field expenditures	Punjab	22	1	7	2	0	..	7	8	27	25	1	68	100
	Mysore	26	4	8	4	0	32	6	12	24	15	1	58	100

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health centre expenditures, one can begin to raise questions about the appropriateness of the distribution of resources in terms of their probable effectiveness as well as efficiency.

**Table II. Percentage distribution of total health centre expenditures by functions (PHC and field combined), 1968**

Area	ILL	MCH	FP	CDC	ENV	Total
Punjab	29	9	34	27	1	100
Mysore	32	16	32	19	1	100

Table III demonstrates the proportions of the total expenditures related to direct service, administrative and non-productive activities. The largest share of the expenditures was for administration, which amounted to over 40 per cent of the total expenditures in both Punjab and Mysore. It can be argued that travel expenses or certain other expenditures might be removed from administrative expenditures and allocated to direct services. Be that as it may, it would still be appropriate for health officials to account for these expenses as well as non-productive expenditures in the interest of increasing the efficiency of health centres and releasing more of the staff time and resources for generating direct services.

**Table III. Percentage distribution of total health centre expenditures by "direct services", "administration", and "non-productive activities", 1968**

Area	Direct services	Administration	Non-productive	Total
Punjab	36	44	20	100
Mysore	40	43	17	100

In recent years increasing emphasis has been placed on the importance of the PHC subcentres for the delivery of MCH and family planning services. The individuals who provide most of these services at the subcentre level are the Auxiliary Nurse Midwives (ANM). By using a profile of the ANM's activity time, all expenditures related to subcentres except drugs and supplies were apportioned to the various functions carried out there. Drug and supply expenditures were allocated by examining subcenter registres. The capital and recurring expenditures were calculated using the same procedure as for the entire PHC (capital expenditures on buildings may be excluded if the latter are donated by the community). Salary expenditures were distributed on the basis of proportionate time spent by PHC staff carrying out subcentre activities.

Table IV demonstrates the subcentre expenditures calculated for the PHCs studied in Mysore and Punjab. With an average of 5.5 ANM subcentres per PHC in Punjab and 5 in Mysore the subcentre proportions of total PHC functional expenditures were

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Table IV. Average annual expenditure per ANM subcentre in Mysore and Punjab, 1968 (in Rupees)

Type of expenditure	Study Area	Expenditures by function					Total
		ILL	MCH	EP	CDC	ENV	
Capital expenditures*	Punjab	45	64	72	18	0	200
	Mysore	26	78	62	34	0	200
Recurring expenditures	Punjab	182	304	270	36	0	792
	Mysore	122	349	213	114	0	798
Salaries and allowances†	Punjab	1360	1900	2140	530	0	5930
	Mysore	60	1080	850	470	0	2760
Total	Punjab	15388	2268	2482	584	0	6922
	Mysore	508	1507	1125	618	0	3758
Percentage distribution of expenditures	Punjab	23	33	36	8	0	100
	Mysore	14	40	30	16	0	100

\*Approximately Rs. 150 could be excluded from this total if subcentre buildings were donated by the villages

†Staff per subcenter are : NM, 1 trained Dai (Punjab only) 25 per cent of an LHV and 4 per cent of a physician (based on an estimate of the time they spend at subcentres)

determined as in Table V. Some interesting comparisons emerge from the data when related to activity times. Approximately 80 per cent of all MCH activities in Punjab occurred at the subcentre level and an almost identical proportion of MCH expenditures were attributable to these subcentre activities. The situation was different in Mysore with 48 per cent of all MCH activities provided by subcentres and 59 per cent of MCH expenditures being related to these subcentres. These data suggest that in Punjab, subcentre MCH services are as costly as those in the PHC headquarters. This does not appear to be the case in Mysore where subcentre services are relatively more expensive than PHC services. Another important observation is that all the subcentres and their related activities consumed only a quarter of the total expenditures of each health centre in both States. This would amount to approximately Rs. 40,000 per health centre in Punjab, an amount somewhat less than the average expenditure of Rs. 54,000 related specifically to the PHC headquarters services. Stated in another way, it would cost less to double the number of subcentres in a Community Development Block than to add another PHC headquarters to each block. The latter assumes that the present supervisory staff to field staff ratio is considered adequate and is not changed when more subcentres are added to an existing PHC.

Expenditures for specific units of service can also provide useful information for assessing the relative efficiency of facilities delivering health care. As an example, the expenditure per outpatient visit was estimated as shown in Table VI. Table VII then illustrates the components of this average expenditure. In these calculations inpatient expenditures were considered to amount to a very minor fraction of illness care expenses in the PHC's studied and therefore were not excluded. Expenditure

on drugs, injections, and other treatments were based on direct observations of patients that were treated.

Table V. Percentage of health centre functional expenditures attributable to ANM-subcenter activities 1968

Study area	Total subcentre functional expenditures* stated as per cent of total health centre functional expenditures					
	ILL	MCH	FP	CDC	ENV	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Punjab	19	81	25	8	0	24
Mysore	10	57	21	19	0	23

\*Total subcentre expenditures are derived by summing the experience of all of the subcentres linked to one PHC

Table VI. Average PHC expenditure per outpatient visit, 1968

	Study area	
	Punjab	Mysore
Annual expenditures for illness care in the average PHC (Rs.)	35,600	21,200
Total annual outpatient visits in the average PHC	23,100	21,900
PHC expenditure per outpatient visit (Rs.)	1.54	0.97

Table VII. Expenditure components of an average PHC outpatient visit, 1968

	Study Area			
	Punjab		Mysore	
	Amount (Rs.)	Per cent	Amount (Rs.)	Per cent
Drugs	0.15	} 15	0.12	} 20
Injections and other treatments	0.08		0.07	
Staff and supportive services	1.31	85	0.78	80
Total	1.54	100	0.97	100

The results illustrate the usefulness of this procedure for comparing two different health facilities. In addition, the proportion of the expenditures that were used for

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drugs, injections and treatments is clearly highlighted. Household surveys in villages near PHC's can yield additional data. For example, the Functional Analysis Study used such surveys to ascertain the expenditures incurred by patients for practitioner consultations (Table VIII). By adding the Patient's out-of-pocket expenses for a PHC consultation and the government's expenditures per visit, the total expenditure per patient visit to a PHC can be estimated (in this case Rs. 2.80 in Punjab and Rs. 1.65 in Mysore).

Table VIII. Mean total expenditure\* in Rupees for each visit to a practitioner

Study area	Type of practitioner				
	Practitioner Unqualified	Non-allopathic practitioner, qualified	Allopathic practitioner, private, qualified	Non-PHC government Facility	PHC†
Punjab	1.90	2.98	2.99	1.79	0.79
Mysore	1.98	2.09	3.34	3.40	0.68

\*Total expenditures related to the visit including consultation, drugs, travel, diets and other expenses

†Except for Rs. 0.10 per new patient in Punjab, this amount represented money spent outside the PHC (drugs, travel, etc.)

Another unit of service is the **service contact**. Utilizing work sampling data, total annual counts of contacts made by health workers with individuals or groups were estimated. These contacts were separated into total annual contacts per function. Dividing these into the total health centre expenditures per function, the average expenditure per service contact was obtained. Table IX summarizes this information and illustrates the wide variation in service-contact expenditures depending on the PHC or the function. Since it is difficult to compare two different types of service-contacts because of considerable variation in content, the more fruitful use of these data is to compare the variations in expenditures for each type of service-contact between the health centres being studied.

Table IX. Average expenditure per service-contact by function for four health centres in Punjab and Mysore 1968

Item	Area	Functions					Total
		ILL	MCH	FP	CDC	ENV	
Total annual expenditures per health center (Rs.)	Punjab	46,083	15,488	53,933	43,023	1,199	159,728
	Mysore	26,434	12,808	27,249	15,909	989	83,389
Total Annual service-contacts* per health center	Punjab	75,920	18,720	21,580	315,120	1,560	432,900
	Mysore	67,860	55,900	17,680	107,120	520	249,080
Expenditure per service contact (Rs.)	Punjab	0.61	0.83	2.50	0.14	0.77	0.37
	Mysore	0.39	0.23	1.54	0.15	1.90	0.33

The expenditure per therapeutic injection is an example of an expenditure item that is attributable to a more specific service. All possible expenditures related to injections can be consolidated as follows :

(1) For every staff member giving injections, the proportion of their direct service time used for giving injections was obtained from work sampling data and then applied to the individual's salary to ascertain that part of the expenditure which could be allocated to injections. Summing this figure from all the staff gave us total salary expenditures related to injections.

(2) The total capital and recurring expenditures relating to injections were ascertained using the proportion of total salary expenditures for injections to the total salary expenditures related to all aspects of illness care in the PHC. This proportion was applied to all capital and recurring expenditures (except for drugs) related to illness care in the PHC to determine the expenditure ascribable to injections.

(3) Average expenditure for drugs per injection at a PHC was obtained (cost of drugs bought by the patients were excluded and the cost of injection drugs provided by the PHC were averaged for all injections given, no matter the source of drugs).

(4) Average expenditure per injection other than 3 above was calculated by totalling 1 plus 2 and dividing by the total number of injections given per year in the PHCs (The latter was estimated from observations of patient care).

(5) Finally, the total expenditure for each injection at a PHC was determined by adding the figures in 3 and 4 above to derive the results of Table X.

Table X. Components of the average health centre expenditure per injection, 1968

	Study area	
	Punjab	Mysore
Injection drugs (Rs.)	0.27	0.63
Staff and supportive services (Rs.)	0.42	0.64
Total (Rs.)	0.69	1.27

In the example cited, differences between the two areas studied are obvious. The factors that contribute to such differences may be identified, as in this case, by making use of other data available from the PHCs. For instance it was found that Mysore PHCs administered more of the expensive types of drugs such as antibiotics and required that only physicians give the injections, both of which contributed to a higher expense per injection.

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A similar analysis of smallpox vaccinations revealed the results in Table XI. Clearly for smallpox programmes the major health centre expenditure involves manpower.

**Table XI. Components of the average health centre expenditure per smallpox vaccination 1968**

	Study area	
	Punjab	Mysore
Vaccine, equipment, supportive services (Rs.)	0.05	0.05
Staff services (Rs.)	0.72	0.48
<b>Total (Rs.)</b>	<b>0.77</b>	<b>0.53</b>

Finally, an example of expenditures incurred for family planning services would be the amount spent by the health centre per acceptor of a family planning method. With the data available, a number of assumptions had to be used for these calculations. Indirect estimates showed that actual service time related to family planning (such as an IUCD insertion or a sterilization procedure) amounted to less than 5 per cent of the total time spent by the health centre staff for family planning. Motivation, travel time, record keeping, and another administrative activities consumed the rest of the time. The assumption was made, therefore, that the overall cost for one acceptor, no matter what method was adopted, would require about the same amount of motivation, record keeping etc, and could be treated as a homogenous service unit. In addition, every 100 condoms distributed was assumed to represent one acceptor for the year in consideration, and as equivalent to an IUCD acceptor or sterilization acceptor. The total family planning expenditure per health centre was therefore simply divided by the total acceptors of vasectomies, tubectomies, IUCD insertions and condoms (as defined above) for the same year to ascertain the average annual expenditure per family planning acceptor. The figures obtained from Mysore and Punjab are in Table XII. These results provide an interesting contrast to the expenditure per family planning service-contact in Table VII. It is evident that the cost of contacts need not necessarily indicate the cost per acceptor.

**Table XII. Average health centre expenditure per family planning acceptor, 1968**

	Study area	
	Punjab	Mysore
Total annual EP expenditures per health centre (Rs.)	53,933	27,249
Average annual number FP acceptors per health centre	685	273
<b>Average FP expenditure per acceptor (Rs.)</b>	<b>79</b>	<b>100</b>

Many other service unit costs could have been calculated, or the above examples could have been done more precisely if specific units of services generated by health centre staff were more readily available. It is hoped that administrators will recognize the value of collecting service-unit information in order to make the fullest use of the cost accounting procedures that are described in this paper.

Besides permitting the estimation of a greater variety of service-unit costs, detailed data would greatly assist the development of a scale of relative values (Gray et al 1967) that might then be useful for rapid cost accounting of services. For example, within the function of family planning, the various activities carried out by the staff such as group meetings, home visits for motivation, distribution of condoms, insertions of IUCDs, and sterilization procedures could be given different unit values depending on their relative use (and consequently, value) of resources. For purposes of illustrations, if one could establish through work sampling and other observational studies that distribution of one condom would require 1/100th of the resources that are necessary for a vasectomy, then one can impute a relative value of 1 to a condom distributed and 100 to a vasectomy. Aggregation of such units of activities would enable one to derive a unit cost for a family planning programme. Similarly, relative value scales for other services would permit the calculation of unit costs for functions such as MCH.

#### Acknowledgment

The Functional Analysis Project was founded by USAID Contract 832-2. The information and conclusions in this paper do not necessarily reflect the position of A.I.D. or the U.S. Government. The authors are much indebted to the Ministry of Health and Directorate General of Health Services of the Government of India for permitting us to conduct this study. To both the Governments of Mysore and Punjab and their respective Directorates of Health we owe much for their co-operation. And to the Functional Analysis Project staff that participated in this study and the Primary Health Centre staff whom they studied we dedicate this paper as a token of our gratitude. We are additionally indebted to our Secretary for his tireless efforts in typing the many drafts of this paper.

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**APPENDIX****METHOD USED FOR ESTIMATING EXPENDITURES BY FUNCTION**

**Collection and preparation of information on expenditures :** Expenditures were derived according to the following procedures :

(a) **Capital expenditures :** Capital expenditures for PHC buildings, furniture, equipment, and vehicles were obtained from various official records or estimates. Capital expenditures on staff quarters were only included if they were provided free to the staff. The total capital expenditures were then depreciated. We used the following annual rates of depreciations : for buildings— $1\frac{1}{2}$  per cent of capital costs; furniture and equipment—10 per cent of capital costs ; vehicle—10 per cent of capital costs (Different rates may be used depending on the experience of the area and the item being depreciated).

(b) **Maintenance expenditures :** Annual maintenance expenditures for buildings, furniture and equipment were estimated at about  $1\frac{1}{2}$  per cent of capital expenditures. Actual maintenance expenditures, if available, should be used whenever possible. Vehicle maintenance and operating expenses were based on the actual expenditures incurred, including the driver's salary.

(c) **Expenditures on expendable items :** Annual recurring expenditures incurred by the purchase of drugs and other expendables were available directly from PHC records. Health centres receive their drugs, equipment and other supplies from governmental, private commercial, and international agencies. The task of collecting information on the costs of these items from each PHC can be time consuming unless good records are maintained at each PHC or the central distribution centre.

**Salaries :** Annual expenditures on salaries and allowances for PHC workers were obtained without difficulty from PHC records.

**Apportioning expenditures by function :** The procedure for costing PHC activities on a functional basis involved apportioning all PHC expenditures among the specified functions. In this example each function was additionally subdivided into activities performed in the PHC building itself (PHC) and in the field area of the PHC (Field). Expenditures were apportioned stepwise as follows :

**(a) Annual depreciation**

PHC building ( $1\frac{1}{2}$  per cent of capital expenditures)—apportionment to PHC or Field was based on the estimated staff use of floor space and principal location of their activities (In Punjab and Mysore the estimates were 66 per cent to PHC and 34 per cent to Field). Subsequent allocation of expenditures to functional categories was also based on the use of floor space (for PHC) and the time spent by the field staff carrying out specific functions (for Field). The percentage breakdown by function used in this example is shown below :

	PHC-expenditure		Field-expenditures	
	Punjab	Mysore	Punjab	Mysore
	Per cent	Per cent	Per cent	Per cent
ILL	42	36	12	11
MCH	26	32	13	24
FP	32	32	30	27
CDC	0	0	44	37
ENV	0	0	1	1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Furniture and equipment (10 per cent of capital expenditures)—The same proportions used for 'buildings' were applied to furniture and equipment.

Vehicles (10 per cent of capital investment)—Allocation between PHC and Field were based on actual mileage records kept by the PHCs. (Data available to us showed 25 per cent for PHC use and 75 per cent for 'Field' use). Further allocation by functional categories was based on distribution of workers time by function for non-field staff (PHC) and on mileage records that described the purpose of each trip (for Field). The percentage breakdown for Punjab and Mysore were as follows :

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	PHC-expenditures		Field-expenditures
	Punjab	Mysore	Punjab and Mysore*
	Per cent	Per cent	Per cent
ILL	55	46	2
MCH	4	4	2
FP	29	31	87
CDC	12	19	8
ENV	0	0	1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

(\*Based on Punjab data)

## (b) Recurring expenditures :

**Building maintenance.** One and a half per cent of capital expenditures were distributed in the same manner as capital expenditures incurred for constructing the PHC building.

**Equipment maintenance :** One and a half per cent of capital expenditures were distributed in the same manner as the initial costs of equipment.

**Vehicle maintenance :** Actual annual running expenses of PHC vehicles were distributed in the same manner as their initial cost.

**Drugs :** The total expenditures on drugs were distributed by scrutinizing the PHC inventory and separating out drugs used in activities related to specific locations and functions. The drug records revealed approximately 75 per cent of drug expenditures related to the PHC and 25 per cent to the Field in Mysore, and a 70 per cent PHC and 30 per cent Field distribution in Punjab. Within the functional categories, the distributions were as follows :

	PHC-expenditures		Field-expenditures	
	Punjab	Mysore	Punjab	Mysore
	Per cent	Per cent	Per cent	Per cent
ILL	94	82	7	14
MCH	1	12	14	39
FP	3	5	20	14
CDC	2	1	54	18
ENV	0	0	5	15
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Expenditures on consumable items and other miscellaneous expenditures were distributed in the same way as for drugs, with one exception. Family planning incentive money (paid to family planning acceptors and health center staff) was divided between PHC and Field on the basis of total time spent in family planning by staff in the PHC and in the field (20 per cent and 80 per cent, respectively).

**(c) Expenditures on personnel salaries and allowances :**

Salaries and staff allowances were distributed among the various functional categories using work sampling data that described the proportion of time spent by each staff category performing each function. Except for doctors, allocation between PHC and Field expenditures was made by designating a staff member as either a 'PHC' or 'Field' worker. For physicians, work sampling observations were used to distribute their time to the PHC or to the Field.

**Determining administrative expenditures :** A procedure similar to that used above for the functional allocation of expenditures was used to distribute expenditures among direct service, administration and personal activities. Annual capital depreciation and recurring expenditures (except drug, family planning incentive and vehicle) were based on an estimate of floor space utilized for direct service and administration. In both Punjab and Mysore this worked out to approximately 84 per cent for direct service and 16 per cent for administration. Drug and family planning incentive expenditures were counted entirely as direct service expenses, but the administrative proportion of vehicle use was ascertained from mileage records. The latter was determined in Punjab PHCs to be 27 per cent. Salaries and allowances of personnel were distributed using data that gave the proportion of time spent by various staff in the direct delivery of actual services, performance of administrative and supportive duties and non-technical or personal activities. Only salaries and allowances contribute to the latter category.