PN-AAK-004

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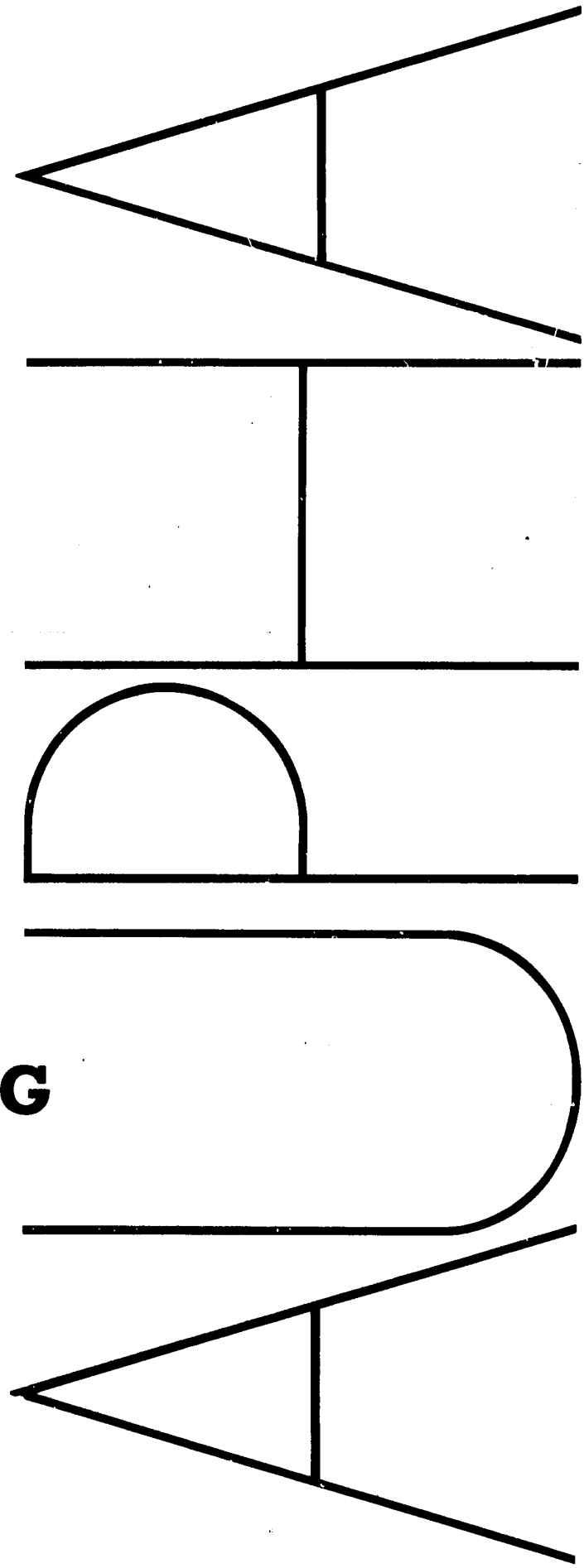

MAPS

HEALTH MANAGEMENT PROBLEM-SOLVING MODULES

HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

MANAGEMENT DEVELOPMENT EXERCISES:

PROBLEM-SOLVING PROCESSES USED BY THE MINISTRY OF HEALTH IN JORDAN

September 1981

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This report was prepared with the generous support
of the Office of Rural Development and Development Administration,
Bureau for Development Support, of the Agency for International Development,
Washington, DC, USA, under the Health Management Appraisal Methods Project,
Contract AID/ta-c-1480.

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TABLE OF CONTENTS

		Page
Preface		v
A.	The Setting of Objectives and Evaluation of Results	
B.	Information Systems	
C.	Supervision	
D.	Decisions	
E.	Health Administrator 's In-Basket Exercise	
	Teaching Note: Health Administrator's In-Basket Exercise	
F.	Preparing a Job Description	
G.	Taking an Inventory of Resources	
H.	Programming	
I.	The Incentive System	
J.	Accounting and Budgeting Exercise	
K.	Variance	
L.	Flow Charting of Accounting Procedures	
M.	Accounting System Design	

PREFACE

In 1977 officials of the Agency for International Development (AID) approached the Association of University Programs in Health Administration (AUPHA) because AUPHA's mission to promote education in health administration throughout the world seemed appropriate to AID's need for specialized expertise.

A recurring problem was confronting AID in its funding of health, population, and nutrition programs: how could managers of both relatively new and established programs in host country organizations determine areas of managerial weakness, and how could these individuals subsequently improve managerial processes or structures? Members of the AID Office of Rural Development and Development Administration and the AID Office of Health envisioned a project to study, develop, and test methods appropriate for management assessments conducted in developing country health programs, adaptable to the unique circumstances of individual countries.

This project, the Health Management Appraisal Methods Project, was designed to make available to developing country and international donor agency managers a methodology for self-assessment of the management of health services. The assessment tools which grew out of these efforts are the Management Problem-Solving (MAPS) modules.

The MAPS modules were developed through the worldwide consortium of health management specialists affiliated with AUPHA. Field consultations in developing countries in Africa, Asia, Latin America, and the Near East over a two-year period were carried out to meet three interrelated project purposes: identification of methodology strengths and weaknesses, identification of management problems and solutions, and training of participants in the appraisal processes.

The heart of the Health Management Appraisal Methods Project was in the work carried out in the field where consultants worked elbow-to-elbow with host country counterparts in coping with real management problems and their resolution. It was in this environment that the management assessment materials were tried, and from these field applications AUPHA strengthened its methodology. The purpose of publishing these exercises is to provide examples of how the assessment process can be applied to local situations. These exercises do not include all the materials used in the Jordan consultancy (see also the Jordan Case Study by Michael H. Bernhart) but are representative of the activities included in those assignments.

These management assessment modules were prepared as a result of a four-year team effort by the following participants:

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Project work was coordinated at the Agency for International Development by project monitors on the staff of the Office of Rural Development and Development Administration: Jeanne F. North (1980-1981), Monteze Snyder (1979-80), Dr. Kenneth Kornher (1979), and Dr. Charles Briggs (1978). Their support and encouragement was essential to whatever success we had in these efforts. Other individuals, including many AID and host country health officials, contributed countless hours of work and support on behalf of the project. The collaboration of all these people enriched every aspect of the work and was greatly appreciated by the project staff.

EXERCISE A.

THE SETTING OF OBJECTIVES AND EVALUATION OF RESULTS

THE SETTING OF OBJECTIVES and EVALUATIONS OF RESULTS

Michael H. Bernhart

The logical chain that connects the identification of health needs, setting of objectives, fixing levels of performance and evaluating results is conceptually so simple and obvious that it has become a familiar litany in public health. Operationalizing this chain can be an elusive task, however: a) at the first link on the chain the health needs may not be known with great precision; b) the second link, setting objectives, is susceptible to political and popular pressures, and, to cite a common example, a society in need of basic and preventive health services may find that the objectives all deal with the care of advanced and complex diseases; c) the third link, fixing levels of desired performance, may fall prey to resistance to increased accountability and may be impractical due to the absence of adequate baseline data; d) the final link, evaluating results, enjoys a sophisticated methodology yet often suffers a paucity of reliable data to feed into the methodology. We scarcely need recite the old homily relating the strength of a chain to the strength of its constituent elements; successful implementation would appear to be contingent upon a series of improbable events.

The predictable response to the above cited problems is to attempt to increase the accuracy of information available to officials at the first, third, and fourth steps and/or the sophistication of the methodology at the second, third and fourth steps. The resources and sophistication that these

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"improvements" may entail often contrast sharply with the meager resources and administrative directness of an LDC public health program. In this paper we will discuss an alternative methodology for accomplishing the four links in the needs-evaluation chain. This approach is being field-tested in the Ministry of Health of Jordon [1] where it has been implemented without providing additional training to health officials nor with any demands on the organization's information system for data not already collected. The objective of the intervention has been to achieve substantial gains in the accuracy of the needs-evaluation loop at minimal cost. In brief, we have attempted to increase the likelihood that each event and link will be performed within acceptable parameters, establishing what is "acceptable" requires some intuitive sensitivity testing of the four step chain or model. The sensitivity of the model to variations at each link is considered below:

a) Health needs- Information on health needs has most often come from the records of health care facilities. It appears that the completeness of these records is in proportion to the size and complexity of the facility: clinics keep better records than health posts; hospitals keep better records than clinics- this is largely the situation in Jordon. Wherever this situation is found, there will be under-reporting of the incidence of those diseases that do not require attention in the larger and more sophisticated health facilities. Thus, reliance upon facility records can build a substantial bias into the objective setting process. This leads us to ask "Is there an unbiased approach?" There is, and that is full epidemealogical reporting of all significant disease categories in the country, but this is an impractical undertaking for a developing country. As an alternative we would propose

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[1] The technical assistance is being provided by the Association of University Programs in Health Administration through a contract with AID.

"administrative proxies", a set of indicators to which we will return later; for now, note that such measures are designed to break out of the cycle mentioned above of reporting mainly those diseases which require advanced care which in turn calls forth a health system targeted on those diseases.

To initiate the process of objective setting in a relatively unprejudiced manner, some sort of quick sampling may be employed to gain orders of magnitude of the prevalence of different diseases. As most health services will treat more than just the top few diseases, it does not matter if the order of prevalence of diseases is imperfect; that is, if both measles and enteritis are major health problems in a nation, the statistical accuracy of the incidence of each is unimportant provided that both appear fairly high on the list. We would propose that opinions rather than cases be sampled to develop the list of these priority diseases; while mindful of the dangers of relying upon the impressions of practitioners, we are more concerned that the seasonality of diseases may render a static sample survey of cases even less reliable. It is important, of course, that the responding practitioners represent the full spectrum of service outlets of the organization. Again, the only requirement is that the major disease categories be identified on the first pass. The mechanics of ranking the incidence of diseases are discussed below.

b) The setting of objectives is the next logical step. However, the list of major diseases identified in the first step does not automatically provide the health systems goals in the second step. Objectives must be attainable within the resources of the organization. Thus, while it is pleasant to contemplate the elimination of death, it is not an appropriate objective for an organization that needs goals which will guide and motivate behavior and provide a standard against which to evaluate progress. Realistic targets in the health area take account of both the prevalence of a disease and its

treatability or preventability. If a disease involves widespread suffering and is easily arrested, it is an ideal candidate for a determined attack by the health program. If, on the other hand, a disease is uniquely rare in a country, or is resistant to cure, an economy-minded Ministry of Health will regard it as a low priority disease.

With respect to the sensitivity of objective setting (and the probability of error) this can be one of the more robust links for most possible combinations of prevalence and treatability/preventability of diseases. Consider two four point scales, one for prevalence and the other for treatability/preventability. The range of possible choices is deliberately narrow (hence the categories are broad) to minimize the possibility that a disease will be placed in the wrong rank; the probability of wrong placement rises in proportion to the number of ranks-- if only one rank is permitted the chance of erroneous placement is zero; if ten ranks are used it is more likely that a disease will be ranked fifth on prevalence by a panel when in reality it may be the fourth most prevalent disease in the society. With regards to the accuracy of ranking the treatability/preventability of the diseases, armies of public health economists and insurance company accountants and actuaries have specified with remorseless accuracy the costs incurred in preventing or treating most diseases known to man. Converting this detailed information to a four point scale is child's play. Thus, the key to the robustness of this link is to produce an estimate of prevalence that is insensitive to error because of the few broad categories and to combine it with another indicator that is generally free of error (even where only superficial research is done). At this point we may combine these two factors in multiplicative fashion (summation produces an equivalent result; raising to a power does not) to yield a ranking of objectives by categories from 1 to 16.

c) Performance levels- a weak link, at least in theory. In the absence of reliable baseline data it is a Herculean task to predict realistic performance levels. However, numerical accuracy may not be particularly important here. The performance level, or target, performs two functions: it provides a benchmark against which to measure results (the outputs of the system) and it motivates desired behavior (the inputs).

Of course, if appropriate behavior is motivated we need be less concerned about the results. In fact, research has shown that, at least in initial trials, the presence of a challenging target, almost irrespective of its realism, will motivate goal directed behavior. Thus, it would appear that standards of performance, if set reasonably high, will achieve one of the two functions, motivating behavior, and the other function, providing a benchmark, becomes less important. In that realistic performance targets are based on baseline data, the establishment of future year targets will benefit from accumulating experience as derived from the performance results.

d) Evaluating performance results. This is a link that has occupied an inordinate amount of the literature on social program management. It would appear from the written grievings that it is a task that is rarely accomplished satisfactorily. Evaluation can perform a number of functions, here we are only interested in two; however, most would probably agree that these are the principal functions:

1) Monitoring health needs so that program officials can focus on the appropriate diseases;
2) Monitoring performance so that results may be compared to targets, corrective action taken where necessary and increasingly realistic targets set in the future.

For a group concerned with obtaining a realisitic picture of their environment, many professional evaluators appear naively optimistic in their expectations as to the quantity and

the quality of statistical reporting that service personnel will do-or so the length and detail of their reporting forms would suggest. Data is not collected for free and each number inscribed represents a diversion of resources from other--usually operational--activities. The first cask then is to decide what data is most important; let us look at the two functions in turn:

1) Assessing needs. Recall that needs were estimated by a panel of practitioners. Objectives were set by considering both the prevalence of a disease and the feasibility of dealing with it. We also argued that for the majority of diseases this was an adequately rigorous approach; for some diseases however, it is not, and it is those for which we require more precise need data. Consider the methodology, prevalence times feasibility, which yields a scale from 1 to 16: a typical case might allow a Ministry to give priority to the diseases that receive a final score of one or two (as in Jordon) and less urgent attention to those that fall in the "3" or "4" categories. The possibility of error lies at the margins of these categories. There is little concern that further study will move a "16" (a rare disease that defies prevention or cure) up into the priority categories; thus we can forget them. Similarly, it is equally unlikely that a "1" disease (prevalent and easily treated/prevented) will be demoted by further study below the priority categories. Thus, ironically, information on the incidence of our most prevalent and treatable diseases will be the least useful in setting objectives. Uncertainty (which can be reduced by additional information) does surround the category placement of those diseases where a slight change in the estimation of their incidence will move them into or out of the priority categories. Which diseases are those?

In most instances they will be diseases that are moderately difficult to prevent or treat (receiving a "2" or "3") and are suspected of being fairly widespread (although not the

undisputed leaders) in the population. For example, take a disease that is assigned a "3" for treatability and preventability. If the panel assigns it a "1" for incidence the final rating of a "3" would place it in the second group of priority diseases in Jordon. If the prevalence estimate slips to "2", the final assignment is "6"--no determined attack on this disease will be made and it will be treated subject to resource availability. A similar, if less dramatic change, obtains for diseases that are rated "2" for treatability.

It might be claimed that this uncertainty is a product of the methodology in use; in fact, the methodology highlights those few diseases where uncertainty is a problem. These diseases are prime candidates for more detailed assessments of their prevalence.

2) Monitoring performance. The second function of data which concerns us is evaluating performance against targets. Clinic based data systems have produced only incomplete data; the reasons for this failure include technical problems within the system itself and staff non-compliance. When the system itself is good, staff either fails to see the relevance of the data (or the possible punitive uses of the data are all too relevant), or they may simply not have the time. The frustrated evaluator may propose closer supervision and coercive measures to increase staff compliance; we doubt that this approach will succeed over the long haul.

To get around this problem we would like to note two devices: proxy measures and administrative indicators.

Proxies are stand-ins or substitute measures. An ideal proxy moves in perfect step with the indicator for which it substitutes. Although we do not expect to find perfect correlations there are some where the relationship is very strong. For example, if we are interested in fertility control, we would be most directly concerned with an impact figure such as crude birth rate or births averted. However,

there is a sufficiently strong connection between use of contraceptives and program impact that most public health officials are content to record the number of couples using contraceptives.

Administrative proxies are indicators that report only one activity of several required to treat or prevent a disease. The activity must be a central one so that we may be assured that its accomplishment safely predicts successful treatment or prevention. We call it "administrative" because the data is collected from existing records, usually maintained by support personnel. To continue the fertility control example, we may say that we do not really need to bother operating personnel to maintain records on the number of contracepting couples--registering them when they begin contracepting and de-registering them when they stop. Rather, we can calculate the amount of contraceptive material distributed to the population and the duration of its effectiveness; indicators such as couple-years of protection are an example. This indicator also is easily obtained from other than operating personnel: monthly revenue where contraceptives are sold or inventory movements (in a fully stocked system) provide a level of accuracy equal to operating records.

AN APPLICATION

The implementation of the above described process has turned out to be quite simple and direct. Following is a complete set of the instructions supplied to The Jordanian Ministry of Health. Included are the completed forms from the first round of discussions at the central level (the Ministry is approaching the task in Delphi fashion) which demonstrate the feasibility of the method. Evidence on the accuracy of the needs assessment will become available after an epidemiological survey is completed in late 1980.

INSTRUCTIONS FOR WORK GROUP

Your group has three tasks:

1. The establishment of health needs for each region.
2. The setting of targets for resolving those health needs in each region.
3. The development of an information system to determine what is being done by personnel to achieve the targets.

Forms are provided to assist you in each task.

Task #1

In the first task you will use Form A to identify the diseases which would be best for the Ministry to attack. Those diseases are both prevalent and either treatable or preventable. The detailed instructions for identifying those diseases begin on the next page. Before starting you will probably want to re-draft Form A. As it was prepared by a non-physician the terminology tends to be imprecise, some important disease categories may be absent, and major diseases are grouped under a single heading (such as neoplasms).

In column A rate the prevalence of each disease using the following scale:

1. Widespread; much of the population suffers from this disease.
2. An important health risk.
3. A potential major disease that is currently being controlled by preventive measures.
4. A relatively infrequent or non-life-threatening disease. Or, if widespread, the consequences are not serious.

After completing column A, start at the top of the form again and rate each disease in column B for its ease of cure or prevention using the following scale:

1. Easily prevented or cured. Or, prevention requires little patient education. Or, cure is effective on an out-patient basis.
2. Preventable but requires patient education. Or, easily curable but only if detected in early stages when symptoms may not have alarmed the victim.
3. Relatively difficult to cure. Outpatient treatment not possible in may advanced cases. Recovery is slow.
4. Recovery slow or cure is costly. Hospitalizaiton normally required.

Once column B has been completed column C may be completed by multiplying the numbers in A and B. The range of answers in column C will be 1 to 16.

The presence of the number one (1) as a result of multiplication in column C identifies a disease that is widspread and easy to cure or prevent; thus it is an ideal target for the Ministry. In contrast, a 16 signifies a disease that is both rare (or non-life-threatening) and very difficult or expensive to control; this is a relatively unattractive

target. The numbers 1 to 16 provide more health for the citizens by focussing on the diseases in the higher categories (those with the lowest numbers in column C).

FORM A

A	B	C	
2	1	2	Typhoid/Paratyphoid
1	1	1	Dysentery
1	1	1	Enteritis
2	2	4	T B
3	1	3	Diptheria
3	1	3	Whooping Cough
3	1	3	Polio
1	1	1	Streptococcal Sore Throat
1	1	1	Measles
1	2	2	Hepatitis
2	1	2	Malaria
1	1	1	Helminthiases
2	3	6	Malignant Neoplasms (Lymphatic, Breast, Melanoma, Cervix,GI)
3	3	9	Diabetis
4	2	3	Avitaminosis (Other Malnutrition)
1	2	2	Anaemia
3	3	9	Psychoses
3	2	6	Neuroses
3	2	6	Eye Infections
4	4	16	Cataracts
3	2	6	Rheumatic Fever
3	2	6	Rheumatic Heart Disease
2	3	6	Hypertensive Disease
1	3	3	Acute Respiratory Infection
3	1	3	Pneumonia
1	3	3	Bronchitis
4	4	16	Appendicitis
4	4	16	Intestinal Obstruction
4	4	16	Nephritis, Nephrosis
4	3	12	Abortion
1	1	1	Complications of Childbirth
3	1	3	Fractures
3	1	3	Burns
3	4	12	Internal Injuries
2	2	4	Traffic Accidents

Task #2 Target Setting

General considerations. The targets you set must...

- be reasonable, yet challenging,
- be measurable so that you know exactly how much progress has been made,
- be related to the objectives your group set in task #1.

1. Reasonable, yet challenging. If a goal is too easy we become bored after a while; if it is obviously too hard, we quickly give up. Therefore, a goal for health care cannot be a wish for the ideal, but rather a realistic expectation of what can be accomplished with a good effort.
2. Measurable. Fortunately, health goals can be quantified. This is important for it is easier to work toward a goal that is stated, "death from neonatal tetanus to be less than 5 per 1000 births" than it is to pursue a vague goal such as "a significant improvement in infant health".
3. Since the pressure of challenging quantified targets will motivate personnel to pursue them, these targets or goals should obviously be related to the diseases which the Ministry wishes to eradicate.

Procedure. On form B write down in the first column the diseases that your group identified in the first task which would be diseases appropriate for the Ministry's efforts (those with low numbers in column C on form A). In the second column put down the target (or goal or objective) in quantitative terms, first for the country and then for each region from north to south.* Of course each region may have a different target level because of population density, climate, and so on. For example, if malaria is a major disease the target for low humid areas will be higher (in number of cases) than in high arid country where nature helps to eliminate the disease.

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*Regional targets were not set initially as the information of the regions was pending at that time.

In the third column put down the time by when you expect the objective to be attained. Generally this will be a year or less; remote goals are not good motivators.

The column "Activity Monitored" will require some ingenuity. Here you will specify the single observable activity by which you will measure progress. For some diseases it is easy to specify the activity that most contributes to control of the disease. A good example is polio: if we count up the number of vaccinations against polio we have a reliable indicator of our progress against this disease. Other diseases are more difficult, such as dysentery, to identify a single indicator of your progress.

Finally, in the last column, put down the number of times the activity must be performed to reach your target. Again, this will be simpler for some diseases than others. Vaccination programs are easy as the relation between activities and results is well known. In contrast, control of hypertension is more difficult to estimate the relationship of clinical activities and education and control of the disease. You may feel that the relationship between inputs and results is so unclear as to defy quantification. Rely on your own professional experiences which are probably better than those who are writing books on the subject.

F O R M B

DISEASE	TARGET/OBJECTIVE	BY WHEN	ACTIVITY TO MONITOR	NUMBER OF ACTIVITIES TO REACH GOAL
	Country _____ Reg. 1 _____ Reg. 2 _____ Reg. 3 _____ Reg. 4 _____ Reg. 5 _____			Country _____ Reg. 1 _____ 2 _____ 3 _____ 4 _____ 5 _____
	Country _____ Reg. 1 _____ Reg. 2 _____ Reg. 3 _____ Reg. 4 _____ Reg. 5 _____			Country _____ Reg. 1 _____ 2 _____ 3 _____ 4 _____ 5 _____
	Country _____ Reg. 1 _____ Reg. 2 _____ Reg. 3 _____ Reg. 4 _____ Reg. 5 _____			Country _____ Reg. 1 _____ 2 _____ 3 _____ 4 _____ 5 _____
	Country _____ Reg. 1 _____ Reg. 2 _____ Reg. 3 _____ Reg. 4 _____ Reg. 5 _____			Country _____ Reg. 1 _____ 2 _____ 3 _____ 4 _____ 5 _____
	Country _____ Reg. 1 _____ Reg. 2 _____ Reg. 3 _____ Reg. 4 _____ Reg. 5 _____			Country _____ Reg. 1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Task #3 Information Systems

It is useful to think of 3 types of information that is available in the Ministry:

1. Health Care Activities - number of patients seen, number of immunizations, etc.
2. Quality of Health Care - is patient follow-up provided, are the medical procedures correctly followed?
3. Results - morbidity and mortality data for important diseases.

The first type of data, activities, may be routinely obtained from employees who perform the activity (e.g. nurses may keep records of whom they immunize) or from someone who sees the results of the activity (the laboratory can report on the number of throat cultures taken in a clinic during a month as well as the percentage which are positive) or from someone who monitors the flow of resources consumed in an activity (the warehouse has records of the consumption of electroytes by each clinic which may tell us how much re-hydration is being done, hence how much diarrhea is present.)

It is always good to try to obtain as much information as possible on activities from administrative personnel (such as the warehouse) and not from health professionals whose first job is the provision of care.

The second type of data, quality of care, is best obtained by supervisors who observe the clinical activities and even visit patients in their homes to determine if follow-up was provided and the proper health education was done.

The third type of information, results on impact data, is most reliable when it comes from national surveys. It is usually not reliable if it is based on hospital or clinic reports.

Procedure. In this, the third task, you will develop the basis of an information system that records the health care activities that are performed. You have already identified the

disease to be attacked (task #1) and the activities that will indicate whether progress is being made against those diseases. Now you will decide on the best way to measure the activity. Please recall that it is usually better to get data from someone who is not a health professional.

Form C has four columns. In the first column write down the activity that you wish to monitor. This will come from the second to last column on form B. To fill in the second column your group will need to be inventive. Here you will want a reliable (observable) indicator that either is the activity itself (immunization) or is highly correlated with the activity you want to maintain (number of Papanicolau smears that arrive at the laboratory, for example).

In the third column identify who will report the information -- nurse, warehouseman, laboratory clerk, clinic clerk, etc.

In the last column put down the frequency with which you want the data. Everything does not need to be monthly. The frequency will depend upon the time period over which fluctuations on your indicator are expected to be visible.

EXERCISE B.

INFORMATION SYSTEMS

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

INFORMATION SYSTEMS

Michael H. Bernhart

Who Is Responsible for the Information System?

Let us begin these exercises by supposing that you are a moderately wealthy person who feels the need for a new car and a chauffeur. You and your family are tired of the small, noisy, unreliable car you own now and have often talked about how nice it would be to have a new one. You also would like to be freed from the chores of driving. Consequently, you hire a driver who also seems to know something about mechanics. Now here comes the key question?

> Would you give this driver a blank check and tell him to buy your family a suitable car?

If you answer "yes" to this question you are in the minority indeed. Most people would observe that the driver does not know what type of driving the car will do; the family's relative preferences for space, comfort, color; how much you can afford; what options you might like; and so on. While it might be reasonable to ask this driver to comment on his knowledge of the reliability of different makes, the choice of car will be made by you - the <u>user</u> of the car.

The example of giving a blank check to a hired chauffeur to select the family car may seem far-fetched. Yet every day, in every country, we see the <u>users</u> of information give blank checks to the operators of information systems with the instruction to purchase a "suitable"

information system. The only real difference between the car and the information examples is that the check is much larger in the latter instance.

The point of all this is that only the user of information can make a choice of which information will satisfy his needs. If he leaves that decision to the statistician or information specialist he will be continually dissatisfied with the result (usually this means blaming the information specialist for lack of sensitivity to be the true needs of the user). Most information specialists are aware of this problem and they try to get some guidance from the managers/users; too often, unfortunately, the manager abdicates his responsibility or provides such vague instructions (e.g. "give me a clear picture of health needs") that the information specialist is left to try to guess what the user's preferences and needs really are.

How Does the Manager Know What He Needs?

If the manager/user must be the one to specify the information he wants, how shall he proceed? Let us go back to the car purchase situation again for some illumination on this point:

You go shopping for your new car; how do you evaluate the different makes? The salesman for car X informs us that his model is composed of 2314 pounds of steel, 27.2 square feet of glass, 18.36 pounds of polymers, and is held together by 392 spot welds, 9321 machine screens, nuts and bolts, and rivets, and 424 fasteners. While the salesman is detailing the minor ingredients that are put into the

car you are no doubt backing toward the door. What you really want to see is the finished car and perhaps take a drive in it.

Almost the same thing happens in information system development: the specialist - all too often - comes to the manager/user with proposed forms on which to collect the raw materials for the system. The manager, because he is uncertain of how these things should be done, usually acquiesces as these seem to be reasonable inputs. But steel, glass, plastic etc., are reasonable inputs into the manufacture of an automobile. What the manager really needs to see are the output tables if he is to make an intelligent judgement on the utility of the system. Let us admit that it is easier to visualize the finished product of an information system from its raw materials than is the case for the raw materials that go into a car. But the basic point remains: The manager can only judge the usefulness of the finished product by inspecting the finished product itself.

The buyer of a car is limited in his choice to the models available on the market. The buyer (user) of an information system is more fortunate: since the product will be especially manufactured for him, he may specify precisely what he wants. This, of course, forces him to think more deeply about what he really needs. And he must make requests that are compatible with one another, within the capabilities of the specialist, and are not too costly. The temptation - to continue the analogy - to order up a product that not only handles well on the highway, but that also can fly, hold twenty passengers, submerge

below the water, travel 100 km., on a liter of petrol, and cost $ 100 must be resisted. In short, the user/manager must sketch out the kind of product he has in mind and discuss it's feasibility with the people who will have to design it (the information specialist) and keep it running (the employees who generate information).

In the following sections we start to explore how such sketches might be made.

Categories of Information

There are as many ways of categorizing information as there are writers on the topic. However, since we are concerned with the perspective of the manager/user, we will select categories consistent with that perspective:

1. The manager uses information for "public relations" activities. Generally there are two uses:
   a. The manager may want to present data that shows that his organization needs more money. He may wish to illustrate that his people are already overworked, yet the task to be done is still enormous.
   b. The manager may wish to show that his organization is successful - that past resources have been invested wisely.
2. Data may also be used for control. Here the manager wants current information on what people are doing. Are they where they belong? Are they qualified? Are they working reasonably hard? This kind of data normally comes from supervisors; employees do not reliably report "control" data on themselves.

3. Data is used for motivation. This is in the form of feedback to employees on how they are progressing toward the organization's goals.

4. In the short term the manager will need to re-allocate resources to respond to current needs. Such current needs may be an epidemic or simply a workload too large for a facility. The manager will want two kinds of data to know when such situations have arisen:
   a. Workload information;
   b. Notification of urgent current needs (viz. an epidemic).

5. With a slightly longer time horizon, the manager will want data to help him program his resources over the near future to best attain the organization's objectives; this is often called "operational planning". The types of information required are:
   a. The objectives;
   b. Resources that will be available;
   c. Anticipated needs for services to attain the objective.

6. With an even longer time horizon the manager needs information to determine if the objectives themselves should be changed; this is called "strategic planning" by many.

(Note that we do not mention data for operational research. This is a specific instance where data is collected to evaluate the effect of a single experiment. Sometimes the necessary information can be obtained from the organization's information system; other times special data must be collected; the need for this data terminates with the experiment).

Frequency, Accuracy, Timeliness

It is necessary for the manager to specify -

- how frequently he requires data;
- how accurate the data must be;
- how timely, or recent, must the data be.

Exercise No. 1.

As managers, decide how frequently you need each category of data that we listed above.

- Public Relations Data (Circle one)

  Daily Weekly Montly Yearly As Needed

- Data for control (Circle one)

  Daily Weekly Monthly Yearly As Needed

- Data for Motivation

  Daily Weekly Monthly Yearly As Needed

- Identify Un-Met Needs

  Urgent Needs (Circle one)

  Daily Weekly Monthly Yearly As Needed

  Workload (Circle one)

  Daily Weekly Monthly Yearly As Needed

- Operational Planning

  Available Resources (Circle one)

  Daily Weekly Montly Yearly As Needed

  Health Needs (Circle one)

  Daily Weekly Montly Yearly As Needed

- Strategic Planning

  Changing Disease Patterns (Circle one)

  Daily Weekly Monthly Yearly As Needed

- Changing Resources (Circle one)

  Daily Weekly Montly Yearly As Needed

Exercise No. 2.

Now do the same thing for the accuracy of the data you will need. "High" means high data accuracy, "Low" means rough estimates.

- Public Relations (Circle one)

  High Medium Low

- Data for Control

  High Medium Low

- Data for Motivation

  High Medium Low

- Identify Un-Met Needs

  Urgent Needs

  High Medium Low

  Workload

  High Medium Low

- Operational Planning

  Available Resources

  High Medium Low

  Health Needs

  High Medium Low

- Strategic Planning

  Changing Disease Patterns

  High Medium Low

Changing Resources

High Medium Low

Exercise No. 3.

Finally, perform the same type of rating for each information category concerning the timeliness or currency of the data. Current means up to the minute; recent means no more than a month old; historical means no more than half a year old; stale means more than half a year old.

--Public relations (Circle one)

Current Recent Historical Stale

--Data for control

Current Recent Historical Stale

--Data for motivation

Current Recent Historical Stale

--Identify unmet needs/Urgent needs

Current Recent Historical Stale

--Identify unmet needs/Workoad

Current Recent Historical Stale

--Operational planning/Available resources

Current Recent Historical Stale

--Operational planning/Anticipated needs

Current Recent Historical Stale

--Strategic planning/Changing disease patterns

Current Recent Historical Stale

--Strategic planning/Changing resources

Current Recent Historical Stale

The decisions above will be more useful to you if presented together as in a matrix. For now, bring forward the decisions already made and enter them in the first three columns of Form A:

Exhaustiveness of the Data

Sometimes you will want to have every scrap of data on a problem (very costly) and other times it will be sufficient to sample a few places to inform you adequately. In practice, this determines whether you will collect data from all facilities and observationspoints or whether you need to draw information from a representative sample. There is a third possibility: if accuracy requirements are low, you may be able to get by on the general impressions you have developed through observation; this is particularly true if the cost of making an error is low.

Thus there are three categories of exhaustiveness:

(a) universal coverage;

(b) sampling;

(c) impressions.

Exercise No. 4.

Please return to the matrix (Form A) and determine for each category of data the most common level of exhaustiveness that will be required: universal, sample, or impressions.

Accessibility.

We would hope that in the exercise on "frequency" of data you listed several categories "as needed." That would imply that such data would not be routinely transmitted up the hierarchy. For example, the public relations information may be required only when a budget presentation is being made. The same may be true for much of the planning data; that only needs to be collected to coincide with planning exercises. That collection of data may come from already existing records or it may be necessary to go into

the field and obtain first hand data. Thus we can think of three kinds of situations for the manager:

(a) reports come to him on a fixed interval basis;

(b) data is obtained by collecting existing information from operating units (either by sending clerks to tabulate it, having supervisors collect it, or requesting the unit staffs to aggregate the information and send it in);

(c) field studies are conducted to obtain the data: interviews or inspections actually take first hand readings.

Exercise No. 5.

Back to Form A again. This time enter the degree of accessibility of information that is required for each category:

(a) reported-transmitted to manager automatically

(b) recorded-data is available at the point where it is generated but must be requested

(c) Not recorded-no records are available; field studies are needed.

Summary

You have made significant progress already; by simply reading across Form A you may see for each category:

- o whether you will record data or not;
- o how exhaustive the collection effort must be;
- o whether the data will be automatically transmitted;
- o how often you will want it;
- o how accurate it must be: and
- o how current it must be.

The Exercises

In the preceding section we discussed what data are used for. Of course there are other questions to be answered such as, "how current must the data be?" or "how complete must it be for our purposes?" and so on. In the first set of exercises, exercises one through five, you will make some general judgments for each use of data concerning: how frequently it should be collected, how accurate it should be, how timely it needs to be, how completely must you collect data, and whether it needs to be immediately accessible or not. Of course, you may initially feel that all data should be up to the minute, recently collected, readily available, perfectly accurate, etc. Forget it; you are dreaming. No organization can afford to collect perfect information. Your job in the first five exercises will be to decide on what is adequate.

In exercises six through nine, you will specify the type of information that will be actually collected. You can see that the final step will be to bring all of the exercises together and to list for each type of data how accurate it must be, how ofter it should be collected, etc.

What Data?

The above question brings us closer to our payoff. So much for the general scheme--now for the actual components of the system. We may most easily decide on what data to collect by proceeding through the categories. Where a category has been dealt with in another exercise we will make reference to it.

Public Relations

Recall that we divided the public relations data into two:

(a) data to show that we are needed;

(b) data to show that we are doing well.

We are needed. Here we want to demonstrate the existence of some problems that are not solvable with our current resources. A good scare is useful in stimulating public and official support of the Ministry.

Exercise No. 6.

On Form B enter some health problems and potential "scare" diseases that you feel may prove useful in the contest for resources against competing agencies.

We are doing well. The Ministry also needs to justify the investments made in it in the past. This can be in the form of numbers of activities ("we are busy") as well as improvements in the national health ("we are effective").

Exercise No. 7.

List no more than five activities and five results on Form B that will testify to the good works of the Ministry. (Five is probably more than enough if presented as representative of the Ministry's broad range of successes.)

Control

We said earlier that control data is most reliable if it comes from supervisors. The supervisors need a checklist, or guide, to tell them what information to collect. That is the subject of a different set of exercises, Supervision, which were completed by the Assistant District Directors. This task has already been accomplished.

Data for Motivation

This also is incorporated in the Supervision exercises. Briefly, it requires that an indeicator related to each of the top priority diseases of the Ministry be identified. This was also done in the Objective Setting exercises, earlier. The instructions in either exercise will suffice; the results of those exercises may also be adopted.

We do not mean to pass lightly over this category, however. The data generated here is perhaps the most important and broadly useful in the information system: it tells you the short-term results of your efforts. As a consequence it is aggregated at many levels of the hierarchy and useful at all of them.

Workload Information

It is very easy to get a good picture of the workload of a unit with just a few statistics. Our only real interest is in volume of activities--we cannot check quality with statistics other than to inquire into survival and cure rates. The smaller the unit, of course, the fewer indications needed to get a good picture on whether the unit is fully utilized or not. Note that it is sometimes easier to visualize the workload if we see some ratios; that is:

patients per physician hour; vaccinations per nurse hour; laboratory tests per technician hour; etc.

Exercise No. 8.

On Form B list the most informative workload indicators for the facilities named.

Urgent Unmet Needs

This is well performed in the Ministry.

Available Resources

For operational planning purposes, an exercise entitled: Taking an Inventory of Resources has been developed. We direct the reader to that set of instructions.

Health Needs

This is fairly open-ended and determined by the situation of a country. For example, we normally do not survey for frost-bite in tropical countries. Since, however, you are most concerned with identifying the prevalence of the most common (and non-trivial) health problems, the list need not be a long one.

Exercise No. 9.

See if a listing of no more than fifteen health problems on Form B does not exhaust the most prevalent ones.

Conclusions

An intelligent--even a mechanical--analysis of Forms A and B should provide an adequate sketch of the information needs of the Ministry (plus the information from the other referenced exercises). We trust that the data requirements will be modest; this is desireable as it may encourage

more careful handling of this limited data and better use of it by managers.

FORM A

PUBLIC RELATIONS	FREQUENCY	ACCURACY	TIMELINESS	EXHAUSTIVENESS	ACCESSIBILITY
DATA FOR CONTROL					
DATA FOR MOTIVATION					
IDENTIFY URGENT NEEDS					
MEASURE WORKLOAD					
OP. PLANNING RESOURCES					
OP.PLANNING HEALTH NEEDS					
STRAT. PLANNING CHANGING DIS. PTTNS.					
STRAT. PLANNING CHANGING RESOURCES					

FORM B

"WE ARE NEEDED. . . ."		"WE ARE DOING WELL . . ."		WORKLOAD				HEALTH PROBLEMS
PROBLEMS	SCARE DISEASES	ACTIVITIES	RESULTS	CLINIC	CENTER	HOSPITAL	LAB	
1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.	2.	2.	2.
3.	3.	3.	3.		3.	3.	3.	3.
4.	4.	4.	4.		4.	4.	4.	4.
5.	5.	5.	5.			5.		5.
						6.		6.
						7.		7.
						8.		8.
								9.
								10.
								11.
								12.
								13.
								14.
								15.

EXERCISE C.

SUPERVISION

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

March 15, 1981

Project in Hashemite Kingdom of Jordan

Dr. Michael Bernhart

SUPERVISION

In these exercises we will look at three very different objectives of supervision. Supervision is a complex process and it is also one of the most important (in fact it may be the single most important) management tool by which an organization works to achieve its objectives.

The three objectives of supervision are:

1. To ensure compliance with requirements of the organization.

2. To aid the workers of the organization in maintaining their professional skills.

3. To motivate the workers to pursue the organization's goals.

Before beginning the exercises, let us examine each of these objectives of supervision to see how they are different from each other:

#1. Compliance. Every organization has certain minimum standards which it expects the employees to meet. These include puntuality, sobriety, maintaining accurate records, not stealing the organization's supplies, and so on. Since these are minimum standards of behavior

an employee is rarely rwarded for meeting the standard; however, he will be punished for falling below the standard. Supervision for compliance is a policing function.

#2. Professional Competence. Every organization needs employees who are qualified to carry out their duties. This is especially true in a health organization where the professional skills are often highly specialized and the failure to exercise proper skill will cost human lives. To maintain or improve skills may require an occasional refresher course. Such a course may be conveniently given on the job. In fact, on-the-job-training is frequently the best as it takes place in the exact environment where the skills will be utilized. The supervisor who provides on-the-job-training must do three things:

a) identify the skills that the employee needs;
b) identify where the employee is deficient in those skills;
c) teach the employee the right skills.

Note an important point in the (b) task above -- identify skill deficiencies. In essence, this means finding an area where the employee is not performing well enough. However, do not confuse this task with the "policing for compliance" objective of supervision. The supervisor who polices for compliance is looking for someone to punish. In contrast, the supervisor who looks for deficiencies in professional skills is looking for someone to teach. You can see immediately that if the employee thinks that a supervisor is looking for things to punish he will hide any deficiencies. This attitude will make it almost impossible to teach him as he will not acknowledge that he needs the teaching. Because of this conflict between the roles of teacher and policeman they can never be conducted by the same person. The supervisor who wants to teach an employee on Wednesday cannot be the same supervisor who reprimanded the employee on Tuesday. In fact, the two supervisors should not even come from the same office.

#3. Goal Motivation. After we have made sure that an employee complies with the minimum standards and is competent in the proper skills, there is still one more thing that we need to do and that is to have the employee

work on the proper tasks. This is often called motivation. Without motivation, the employee may work on the wrong tasks or may not work as hard as he is capable of. The simplest way to ensure that the employee works up to his full ability on the right tasks is to have clear measurable goals. The supervisor who is concerned with motivation will be interested in:

a) what are appropriate goals:

b) communicate them to the employees:

c) evaluate to see if the goals have been attained:

d) correct situations where goals have not been attained.

This third supervisory objective is not concerned with compliance, nor with teaching, but with results. In spirit the objectives of results oriented supervision is closer to the teacher model than the policeman. Consequently, the teacher and motivator are often the same person.

EXERCISE I - SUPERVISING FOR COMPLIANCE

Supervising for compliance is actually the simplest type of supervision and it is what most new supervisors routinely fall into. You need to determine the following in setting up a compliance supervisory system:

1. Who will do it?
2. What will they check?
3. Where will they go?
4. How often will they visit?

#1. Who will perform compliance supervision?

You can make a more logical assignment if you first answer the following questions:

-- What sections or offices of the organization handle discipline?

For example: Administration, District Director, Investigator General, etc. (Perhaps no one does which may signal the need for a new section.)

_____

_____

(Your Answer)

-- Who is in the best position to suspect that there is a lack of compliance in a facility (other than the staff of the facility, of course)?

_____

_____

(Your Answer)

-- Has someone been carrying out this type of supervision in the past? May be they should continue.

_____

_____

(Your Answer)

-- Now that you have considered these factors, who do you think would be the best person or group to perform the policing role?

_____

_____

(Your Answer)

#2. What will the "policeman" check?

Commonly we will find checklists here. Each organization has requirements unique to it; however, we commonly find the following elements on a checklist:

- Punctuality of workers
- Workers put in full day's work
- Records are properly maintained
- Supplies all accounted for
- Warehouse in order
- Equipment functioning properly
- Building is clean and well maintained.

Note that the above list does not mention professional abilities. The incentive to professionalism should come from pride (handled by the teacher and the motivator) and not from fear of punishment.

Make your own checklist on the basis of:

- your organization's requirements;
- those things that can reasonably be checked by a supervisor in one or two hours visit:
- those requirements that are most probably violated:

- those requirements that are most important to the functioning of the facility.

If necessary, make separate checklists for the different types of facilities: e.g. hospitals, labs, clinics, etc.

_____
Facility

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

#3. Where will inspections be made?

In deciding where to investigate you have three options to choose from:

a) Investigate all facilities on a periodic (but secret) schedule.

b) Investigate only those facilities where you suspect problems.

c) Investigate all facilities periodically plus special visits to facilities where you suspect problems.

The decision on which option you choose depends upon whether or not you have a reasonable basis for suspecting problems. Such a basis usually comes from statistical reports or informal communications about what is going on in the facilities.

If you have no reliable way of knowing when a problem may be developing in a facility, then you must choose option (a) - a regular schedule of visits to all units. Of course there must be some randomness in the schedule so that the facility staff cannot predict the arrival of the investigators.

On the other hand, if you have good information that will alert you to problems and you have limited staff for policing, then choose option (b) - visits only to suspected "problem" facilities.

Finally, if you have ample staff for supervision and fairly good information on problems in facilities, choose option (c) - regular visits to all facilities and special visits to "problem" facilities.

Which option do you choose?

_____

_____

(Your Answer)

#4. How often will you investigate?

The frequency of the visits is easy to calculate. If you chose option (a) in the preceding step (regular visits to all clinics), the formula is:

$$\frac{\text{Number of facilities to inspect}}{\text{Number of inspectors} \times \text{Inspections per day}}$$

For example, if you have one inspector who can visit two facilities per day and there are 80 facilities to visit, then each facility should be visited every 40 working days or roughly six times a year. $\frac{80}{1 \times 2} = 40$

If you chose option (b) in the preceding step the frequency at visit question is not relevant - your supervisor will only make inspections when you suspect a problem.

If you choose option (c) in the preceding step, you may calculate the regular visits the same way as above. You realize that there will be an unknown number of special visits as well.

EXERCISE II - SUPERVISING TO IMPROVE PROFESSIONAL SKILLS

The role of teacher is often more satisfying than that of policeman. It also requires special abilities:

-- First, the teacher must know more about the specific subject matter than the person being taught.

-- Second, the teaching supervisor must understand the job of the employee so that he knows what abilities are needed.

-- Third, the teaching supervisor must be able to determine where the employee needs to improve his skills.

- Finally, the teacher must be able to communicate - in effect, to teach.

It would be convenient if we could develop a guide for all situations, but we cannot. Each person will require different assistance. There are, however, some questions that the teaching supervisor must answer in every case:

a) What are the most common tasks this person performs?

b) Of those tasks, which are the most critical?

c) What help does the person have to ensure that the tasks are performed properly?

d) What resources does the person have to ensure that the final outcome of the task is successful?

Let us illustrate these points:

When we look at the duties of General Practitioner we realize that the general physical exam is an extremely important task; it is a task that may be broken into smaller tasks. Of those smaller tasks we may also decide that taking a good history is important. When we note that this particular GP is the only physician in the center and he is assisted by a practical nurse who is unlikely to correct him in an error, we become even more convinced that he must be fully competent on his own. Finally, we see that there are no patient records; this convinces us that the ability of the GP to take a history and correctly interpret the information is essential. As a consequence, we ask the GP to take histories from several patients and we discuss both his method and his interpretations after each one.

In this example we have illustrated the four points indicated earlier:

- identify the common tasks (general exam)
- identify a critical task (history)
- evaluate the help received in performing the task (nurse);
- evaluate the resources that contribute to the task (records).

We said that it is impossible to predict exactly what type of training will be needed by each individual; however, we can narrow down the possibilities somewhat. We know - if we think about it - that certain people in certain facilities do fairly predictable tasks; that is true for lab technicians, clinic nurses, midwives, thoracic surgeons, etc. When we have determined what those probable activities are, then we can select an appropriate teacher.

As a quick exercise in how this logic is applied, write down the ten most common tasks of a health center physician - do not omit patient education if that is part of his duties in most centers.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Now identify the critical tasks - the ones that are performed often and are the keys to good medical service and good health for the patient. Below each critical task, write down how you will evaluate performance of the task. Generally that will be by observation of a demonstration, but there are other methods; for example, you might simply quiz a physician on his knowledge of therapies for different diagnoses.

Finally, you must select the person who will do the teaching. Obviously it must be someone who is competent enough in the tasks for the student to respect and listen to him. But the teacher need not be the world's greatest expert; often times the district officials are well qualified to do the job.

Who would you choose to teach/supervise the critical tasks in the list you prepared?

_____

_____

(your answer)

EXERCISE III - MOTIVATING

No topic in management has received as much attention as the problem of motivating employees. Each year brings a new theory and new words to describe how to get the best out of our employees. From all of this theorizing, some constant themes emerge:

-- One theme is that employees should not be de-motivated by low pay, uncomfortable work conditions, lack of facilities, and hostile supervisors.

-- A second theme stresses that employees will do a task more willingly if they have some say in organizing the work.

-- A third and undisputed theme is that workers need a goal to orient their efforts.

Generally supervisors can do little about low pay. However, almost all supervisors take note of the working conditions and condition of facilities, and try to obtain some improvement there. Thus, the first motivating theme is normally addressed by enlightened supervisors.

With regard to the second theme--participating in organizing the work--many schemes have been tried. However, if you address yourself to the question of goals first, you will see that you need not concern yourself as much with organizing tasks: if people know what results they are supposed to produce, they will attempt to organize the work in the most efficient way possible. Therefore, let us pass directly to issues surrounding goals.

What Makes a Good Goal?

Almost anything can be expressed as a goal. Good goals--ones

that motivate behavior--have the following in common:

1. They are usually quantitative; that way an employee can measure his own progress towards the goal.
2. They are moderately challenging. If the goal is too hard, the individual may give up; if too easy, the worker may feel insulted.
3. They provide immediate feedback. If a worker has to wait for years to see measurable results from his efforts, he may well forget what the goal was.

Goals can be expressed either as results (for example, cure rates) or as activities that are closely related to results (for example, immunizations). As a warm-up exercise, specify what would be an appropriate indicator for the following general objectives; try to think of measurable indicators that will be quickly available:

Objective	Your Goal Would be Expressed in:
Example 1. Eliminate Poliomyelitis	"Percent of children vaccinated against polio"
Example 2. Reduce Fertility Rate	_____
Example 3. Decrease child malnutrition	_____
Example 4. Contain cholera	_____
Example 5. Reduce Hypertensive Heart Disease	_____

If the preceding were objectives of your organization, you would set goals for each facility expressed in terms of the indicators you chose. You might ask staff members of the facility to set the goals with you; that way they may feel more committed to the goal and they certainly have less excuse for failing to attain the goal.

The entire process would go like this: To take a simple example consider the objective of fertility reduction. You select as a goal the number of couples who are using contraceptives. Since they most likely go to your clinic or the local pharmacy for contraceptives, you need only keep track of the amount of contraceptives that are sold. You and the clinic staff agree that roughly half of the couples should practice some kind of artificial birth control (demographers can tell you the impact this level will have on fertility and population growth rates). So, if the pharmacy supplies contraceptives to 10% of the couples, your clinic should strive to reach the other forty percent. A chart on the wall showing how many couples are presently enrolled will help remind the clinic staff of how much progress they have made and how much more needs to be done.

In the space below, list the high priority objectives of the Ministry of Health of Jordan on the left hand side and the indicators you will use as goals on the right:

Objective	Goal (Expressed in Specific Terms)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

March 15, 1981

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

Project in Hashemite Kingdom of Jordan

Dr. Michael Bernhart

APPLICATION

Now that you are an expert in designing supervisory systems, we ask you to design one for your district. You will follow exactly the same steps that were taken today. Attached are some brief instructions and forms.

Compliance

1. Create checklists for supervising Health Centers, Maternal and Child Health (MCH) Centers, Clinics, and District Hospitals.
2. Decide who will perform the supervision.
3. Decide on the frequency of visits.
4. Train the investigators.
5. Send them on their way.

Professional Skills

1.(a) On Form A list the critical skills for a health center physician.

(b) On Form B list the critical skills for a health center dentist

(c) On Form C list the critical skills for a center or clinic nurse

(d) On Form D list the critical skills of a midwife.

2. On each form name the person who should do the supervision.
3. Train those individuals.

4. Send them on their ways.

Motivation

1. On Forms E through I list the objectives of the Ministry. (There is a separate form for clinics, centers, mobile teams, district offices, and hospitals).
2. Underline (_) those objectives that can be affected by the facility in question.
3. In thesecond column write down indicators that will be used to measure progress toward the objective.
4. Make enough copies of each form for every such unit in you district.
5. Set numerical goals for each unit--either with the staff or alone.
6. Communicate the goals to the facilities.
7. Design a method for the facility staff to keep track of progress.

FORM A--HEALTH CENTER PHYSICIAN CRITICAL SKILLS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

_____
Supervisor

FORM B--HEALTH CENTER DENTIST CRITICAL SKILLS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

_____
Supervisor

FORM C--NURSE (HEALTH CENTER OR CLINIC) CRITICAL SKILLS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

_____
Supervisor

FORM D--MIDWIFE CRITICAL SKILLS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

_____
Supervisor

FORM E--HEALTH CLINIC

Name: _____

	Objectives	(Goal (Expressed in Specific Terms)	Target
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

FORM F--HEALTH CENTER/MATERNAL AND CHILD HEALTH (MCH) CENTER

Name: _____

	Objectives	Goal (Expressed in Specific Terms)	Target
.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

FORM G--MOBILE TEAM

Name: _____

	Objectives	Goal (Expressed in Specific Terms)	Target
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

FORM H--DISTRICT OFFICE

Name: _____

	Objectives	Goal (Expressed in Specific Terms)	Target
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

EXERCISE D.

DECISIONS

DECISIONS

Everyone makes decisions, starting each day when we decide which clothes to wear. For some decisions we are free to pick from many alternatives, for others there are only a few courses of action open to us. The exercise that follows asks you to write down the decisions that need to be made (you might not be the person who actually makes those decisions at present) in the part of the Ministry where you work. You may be tempted to write down the decisions that are already covered by law--don't bother; the end result of this process is to determine where decisions should be taken; those already determined by law are of less interest because we cannot change who will take those decisions. Also, do not include medical or technical decisions that are taken; however, if you are in doubt as to whether the decision is too technical or not, write it down; we can discuss it later.

To stimulate your thinking let us provide some examples of decisions from different areas:

Personnel:

Should a position be filled

What qualifications does a person need for a position

Finance:

What reports should be prepared

What information should they receive

Who should receive them

Operations:

What should be the operating hours of clinic X

What staff should be in the clinic

What activities should they concentrate on

Who should make home visits--how often

What villages should the mobile team visit this month

Please try to think of decisions that are made frequently (not once every two years) and where it is not already obvious who should make the decision (such as who should report a fire in the building--obviously the first person who sees it). These decisions will be incorporated in an approval limits manual which is described in the next section. After you have read what an approval limits manual is--so that you understand where you are headed in this exercise--we will ask you to make a list of the decisions in your area of responsibility to be used in that manual.

Approval Limits Manuals

The Approval Limits Manual is a document that specifies how decisions are made in an organization. It contains a listing of all of the major decisions that are regularly made and indicates who must be consulted prior to a decision, who must approve the decision, who must authorize or make the final decision, and who must be informed of the decision after it has been made.

In the following examples we will use the following code:

D = Decide; makes the final authorizing decision. There can be only one D for a decision.

A = Approves; makes preliminary approval; can veto the decision but lacks the authority to implement it.

C = Consulted; is asked to offer an opinion which is not binding on the decision.

I = Informed; told of the decision after it is made.

Minister	Under Secretary	Dir. Basic Health Services	Dir. Medical Services	Reg. Director	Program Director	Sub-Prg. Director	Clinic/Hosp. Dir.	Personnel Dir.	Finance Dir.	Accounting Dir.	
	D		A	A	C		I	I			Hire MD Specialist
				D			A	I			Grant Leave
	D								A	I	Purchase of Budgeted Item
D		A or A		A	C	C			C	I	Purchase of Non-Budgeted Item

Four cases are presented above (they are to illustrate the use of the codes, not to show how a particular decision should be made). In the first case--the hiring of a medical specialist--the final decision is shown to be taken by the Under Secretary. First, however, the Director of the region where the specialist will be employed has given his approval as has the Director of Medical Services. The Program Director (probably hospitals in this case) has been consulted. After the decision is made the hospital (or clinic) where the specialist will be employed must be informed as must the Personnel Department which will start a file on the new employee.

In the second example we have a request for leave from an employee in a region. We see that the chief of the facility approves the request, the final decision is taken by the Director of the region and Personnel is informed.

The third decision involves the purchase of an item that is in the budget. The Finance Department approves the request, signifying that the item is budgeted, and the Under Secretary authorizes the purchase. Accounting is then notified.

Contrasting slightly is the last example which is the purchase of an item that is not budgeted. Notice that this is a more complex decision since the implications are far-reaching. First the Regional Director who will use the item approves the request. Two people are then consulted--the sub-program director (let us say in this case, Maternal-Child Health) and the Program Director (to continue the example that would be the Basic Health Services Director). The BHS Director would then approve or disapprove it; if he approves he would send it to the Minister who, before taking final action would consult with the Finance Department to determine funds availability. If the Minister decides to make the purchase, Accounting is informed so that it may make the proper entries in the ledger. Since the sequencing of this decision is important, it probably requires a written procedure to describe the steps.

Note that we do not signify who may make a request or a proposal on the chart. It is assumed that anyone may take the initiative within the organization.

Examples of Poor Decision Structure

There are three patterns of decision making to guard against that the approval limits chart may reveal:

The first is concentration of authority which is shown by a vertical column of D's . . .

D

D

D

D

D

. . . under a single position. It is doubtful that this person can afford the time to make good decisions on everything.

The second problem is an excess of democracy which shows up with a great horizontal string of A's . . .

D A A C A A A I

. . . which signifies that many people have veto power over a decision. This broad search for approval may make some people feel good but it is doubtful that their participation has added much to the quality of the decision.

The third problem is incomplete delegation which is revealed when a person's superior has retained veto power over a decision . . .

A D C C I

This pattern indicates that the subordinate (with the D) must make the final decision on a matter which his boss has already approved. We can imagine that only rarely will the subordinate challenge his superior's decision; the real decision has been made by the superior.

Instructions

Recently you were asked to list your responsibilities. Thinking about what you are responsible for is an excellent way to identify the decisions that you need to make. Therefore, to start, list below, in general terms, some of the major responsibilities that you presently have:

1.

2.

3.

4.

5.

Having thought about those responsibilities should make the next step easier. List the decisions that you make in your job or are made by people under your supervision.

1.

2.

3.

.

.

.

EXERCISE E.

HEALTH ADMINISTRATOR'S IN-BASKET EXERCISE

Health Administrator's In-Basket Exercise

Role

You are Dr. Mahmoud Al Razza, Health Director of the Nabatea Region. You have been on annual leave and were recalled after ten days to attend a special conference abroad. A physician in the Central Office was supposed to go to the conference but became ill so the Minister nominated you. You have been away from your office for ten days and must leave almost immediately for the airport in the Capital City to catch the plane to the conference. The conference lasts three weeks so you must try to solve as many problems as you can before you leave. It is Friday afternoon and you have only one hour to go through the it ms in your in-basket before leaving for the airport. The date is June 11.

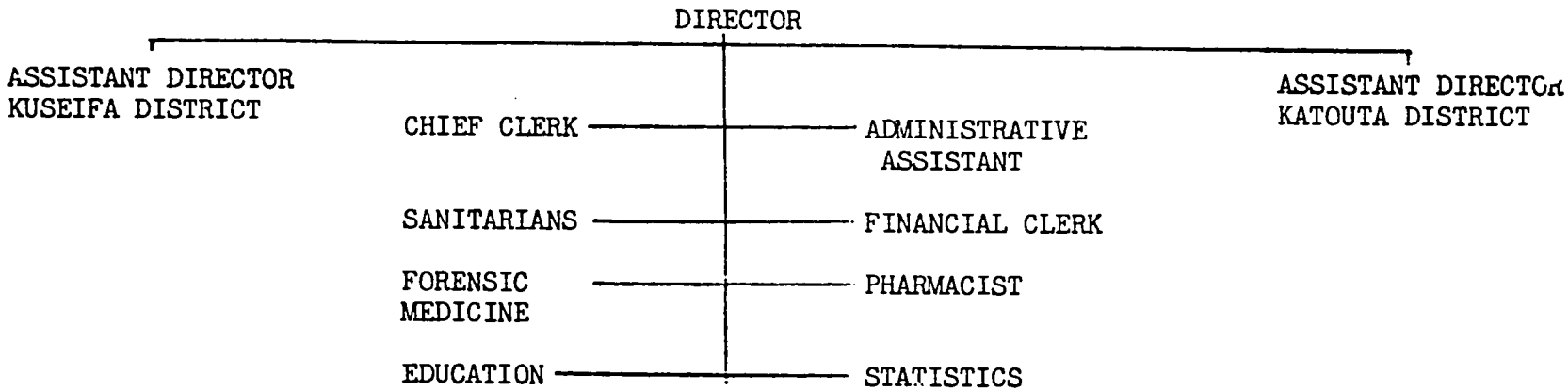
Instructions

Behave just as you would in the above situation. If you would write a memo, then write it; if you would calculate numbers, then do that.

The materials attached are what you find in your in-basket plus a few documents that will give you an idea of the resources the Ministry of Health has in your region.

Prepared by Michael H. Bernhart and Olga Quintana for AUPHA @ 1981. Funding was provided by the AID Office of Rural and Administrative Development, contract # AID/ta-c-1480.

Nabatea Region - Ministry of Health



MONTHLY ACTIVITY REPORT

March
Month

	Nabataea Hosp.	Kuseifa Hosp.	Katouta Hosp.	Nabataea HC	Cairo HC	Wadi Lum HC	Nabataea MCH	Cairo MCH	Wadi Mud VC	Wadi Mad VC	Wadi Mid VC	Wadi Mod VC	Wadi Med VC	Wadi Sot VC	Nabataea Dist.	Kuseifa Dist.	Katouta Dist.
Admissions	72	41	29														
Discharges	67	46	60														
Outpatient				350	261	104			43	14	*	162	91	108			
Internal Med	114	–	180														
MCH	143	167	90				17	12									
Orthopaedic	46	14	10														
Dentistry	98	105	100	69	82	13											
Deliveries	27	43	30														
Surgery	16	–	20														
Lab Tests																	
Blood	208		104		14												
Urine	117		?		14												
Water Samples															65	30	42

* no report

HC = Health Center
MCH= Maternal-Child Health Clinic
VC = Village Clinic

MONTHLY ACTIVITY REPORT

April
Month

	Nabataea Hosp.	Kuseifa Hosp.	Katouta Hosp.	Nabataea HC	Cairo HC	Wadi Lum HC	Nabataea MCH	Cairo MCH	Wadi Mud VC	Wadi Mad VC	Wadi Mid VC	Wadi Mod VC	Wadi Med VC	Wadi Sot VC	Nabataea Dist.	Kuseifa Dist.	Katouta Dist.
Admissions	93	50	30														
Discharges	103	41	20														
Outpatient				381	205	84			110	37	*	140	105	88			
Internal Med	179	13	210														
MCH	104	200	100				25	19									
Orthopaedic	31	42	20														
Dentistry	118	131	100	94	48	21											
Deliveries	38	24	30														
Surgery	21	-	20														
Lab Tests																	
Blood	144		100														
Urine	130		100														
Water Samples															65	30	45

* No Report

HC = Health Center
MCH= Maternal-Child Health Clinic
VC = Village Clinic

MONTHLY ACTIVITY REPORT

May
Month

	Nabataea Hosp.	Kuseifa Hosp.	Katouta Hosp.	Nabataea HC	Cairo HC	Wadi Lum HC	Nabataea MCH	Cairo MCH	Wadi Mud VC	Wadi Mad VC	Wadi Mid VC	Wadi Mod VC	Wadi Med VC	Wadi Sot VC	Nabataea Dist.	Kuseifa Dist.	Katouta Dist.
Admissions	80	46	30														
Discharges	74	49	40														
Outpatient				489	196	65			86	42	*	121	111	97			
Internal Med	197	93	200														
MCH	142	131	100				14	32									
Orthopaedic	41	42	20														
Dentistry	114	106	100	131	56	11											
Deliveries	44	31	30														
Surgery	17	-	20														
Lab Tests																	
Blood	165		100														
Urine	107		100														
Water Samples															65	30	45

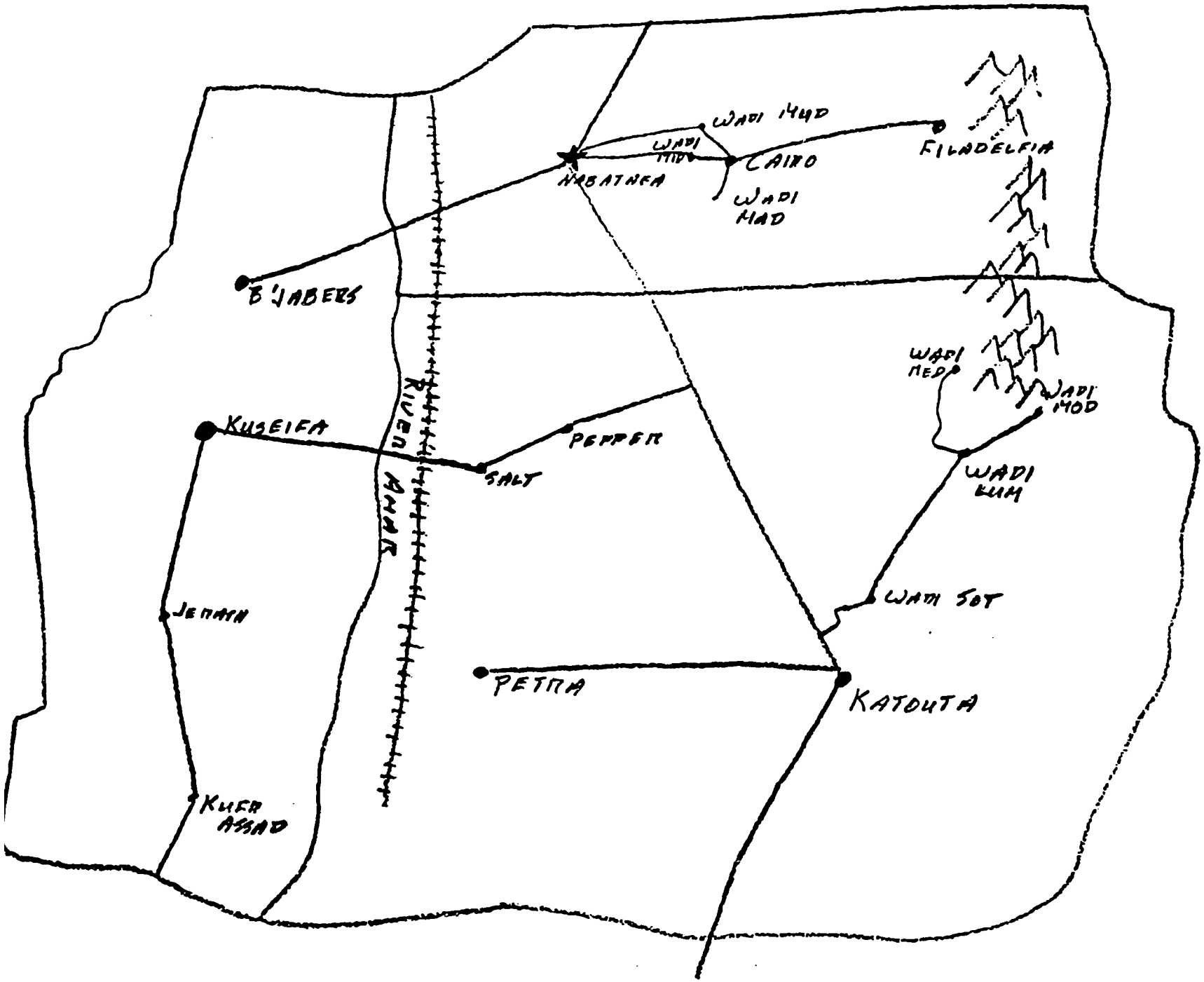
* No Report

HC = Health Center
MCH= Maternal-Child Health Clinic
VC = Village Clinic

AS OF 31 MAY, 1981

	Specialist	G.P.s	Dentists	Nurses	Asst. Nurses	Lab Technicians	Pharmacists	Clerks	Servants	Health Educator	Sanitarians	Administrators	Midwives
Nabataea Office		2						3	3	1	2	2	
Kuseifa Office		1						1	1		1	1	
Katouta Office	1							1	2		1	1	
Nabataea Hosp.	5	3		2	7	2	2	2	9			1	
Kuseifa Hosp.	3	2		1	6		2	2	11			1	
Katouta Hosp.	4	1		2	5	1	2	2	9			1	1
Nabataea H.C.	1	2	1		3		1	1	1				
Cairo H.C.		2	1		2	1	1	1	1				
Wadi Lum H.C.		2	1		2		1	1	1				
Nabataea MCH					1			1	1				3
Cairo MCH									1				2
Wadi Mud VC					1								
Wadi Mad VC					1								
Wadi Mid VC					1								
Wadi Mod VC					1								
Wadi Med VC					1								
Wadi Sot VC					1								

NABATAEA REGION



TO: DR. MAHMOUD AL RAZZA

FROM: DR. MARWAN AL QASEM, DIRECTOR PREVENTIVE HEALTH

RE: HEALTH PROMOTION TEAMS

DATE: JUNE 8

Next week the first teams of health promotors will be graduating and we would like to place one team in each region on an experimental basis. The team is composed of two health educators who make home visits encouraging sanitaton, nutrition, etc. and who, in other countries, have been found effective in greatly reducing the demand for medical services. Since the team also refers people for treatment it is best if they can work close to a health center. Would you kindly indicate an area of your region where we can assign a team before next week.

4 June

To: Dr. Mahmoud
From: Dr. Ahmad Sharkas, Assistant Director, Kuseifa

Sheikh Ibn Ajlouni went to the Minister to request a health center for his village of Wadi Mud and the Minister asked me to ask you to study the request. Last year the Sheikh made the same request but stopped bothering us after the Ministry of Education put a school in his village. The nurse in the Wadi Mud clinic estimates that 800 people live in the village but has no idea of how many are in the area; the doctor has been going once a week to the village from the health center in Cairo. The Minister told me that the Sheikh had probably been talking to his acquaintances in the Majlis and the Minister was expecting some pressure fairly soon from that quarter. The Minister would like your recommendation with the justifications as soon as possible. He says he will support your recommendation but would like you to communicate the decision to the Sheikh yourself.

6 June

TO: DR. MAHMOUD

FROM: REGIONAL ACCOUNTANT - MR. SAMI

The hospital supply budget for May indicates that they were planning to perform 200 chest X-rays and spend 600 Dinars. Actually 240 X-rays were performed and 720 JDs were spent. I sent the following to the hospital director:

ACTUAL COST	BUDGET COST	VARIANCE	
720	600	120	unfavorable

He called me, mad, saying that he did not have an unfavorable variance. I told him that facts are facts and that figures do not lie. I think you better call him and calm him down.

6 June

To: Dr. Mahmoud

From: Dr. Khoury - Minister of Health

As you know we computerized our operations last month. Dr. Armond brought the following information to my attention.

The computer printout shows that the monthly budget for the physical therapy department of the general hospital in your region included the following:

10,000 therapy treatments
3 therapy hours/treatment
2 Dinars/therapy hour
Total cost 60,00 Dinars

The actual results for the past month were as follows:

9,000 therapy treatments
28,800 therapy hours
Total cost 80,640 Dinars

It also printed the following:

Variance Analysis Under Static Budgeting		
Actual Cost	80,640	
Budgeted Cost	60,000	
Variance	20,640	unfavorable

Could you please briefly explain what happened.

TELEGRAM
HEALTH REGION NABATAEA

ATTN DR. AL RAZZA

OUTBREAK OF CHOLERA IN NORTHWEST OF COUNTRY REQUIRES IMMEDIATE TRANSFER OF MEDICAL PERSONNEL.. REQUEST YOU NOMINATE ONE PHYSICIAN AND NURSE FOR TEMPORARY TRANSFER.

DR. HANNA ODEH
UNDERSECRETARY
10 JUNE

9 June

To: DR. MAHMOUD

From: MR. AL JADID, ASSISTANT ADMINISTRATOR

Would you please make a decision on which foto-copier to buy, if any? Dr. Hassan Ibrahim, Director of the Central Hospital, has been waiting for two months. Remember that he wanted more clerks which the Undersecretary rejected. Then the Minister agreed that the hospital could have a copier if sufficient savings could be shown.

We looked at two machines which are available, A and B: Photocopying machine A would cost 3,900 Dinars. There would be cost savings in the form of (a) reduced clerical time in using carbons, (b) decreased carbon paper cost, (c) a 6 percent increase in the volume of work performed. These savings, including the higher ouptput, are estimated to be 1500 Dinars per year. However, there will be an increase in paper expense of 200 Dinars per year that would not otherwise be incurred if the machine were not acquired. The useful life of the machine in 5 years.

Photocopying machine B is a faster machine which would cost 4,550 Dinars; it would have a 4 year useful life. There would be cost savings in reduced clerical time, decreased carbon paper cost, and an 8 percent increase in the volume of the work performed. These annual savings are estimated to be 2170 Dinars. However, there will be an increase in paper and maintenance expense of 350 Ds per year that would not otherwise be incurred if the machine were not acquired.

Which machine do you recommend if you think the purchase justified?

June 10

Dear Dr. Al Razza,

I am writing to inform you of an opportunity. As you know, the Ministry was authorized to contract with a private builder for a new health center in your disttict. There has been interest in this utiliaztion of private industry in the government and HRH the Prince has indicated that he would be available to inaugurate the facility. I know that he will be leaving the country on August 10 but if you can get the center operational by then, I will extend the invitation. We already have the staff selected so you do not need to worry about that. HRH is awaiting an answer from me so I would appreciate your early reply.

Thank you,

Sami Khoury, M.D.
Minister of Health

Dr. Mahmoud,

With regard to the attached, I thought you might like the following information:

The contractor says he will need two weeks to complete the blueprints before he can begin construction. However, he can start to clear the ground immediately which will take a week He further estimates -

Pour foundation	1 week
Walls and roof	3 weeks
Finish interior	1 week
Finish exterior	1 week
Install wiring	3 days

The plumber said it would take 1 week to put in the pipes and fixtures and the painter said they could complete the inside and outside painting in a week. I also talked with the landscaper who said he could put in the shrubs in two days but if you wanted grass you must allow at least three weeks from planting and have water available.

By the way, you remember that it is now taking about 10 days to get equipment from the warehouse - even when we ask them to rush.

INTENTIONALLY
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Teaching Note
Health Administrator's In-Basket Exercise

Objectives

This exercise has been used with middle and upper level health program managers in pursuit of the following objectives:

1. Examine the decision-making style of the participants.
2. Explore the utility of quantitative decisions aids and the use of data.

Time Required

Role play - 1 hour
Discussion - 2 hours

Nothing precludes the addition or substitution of other administrative situations to respond to the interests or needs of a group of trainees. Of course the time allowed should then be adjusted; generally the time for the role play should be too short to complete all situations.

Decision-Making Style

The exercise provides grist for discussion of the following:

1. Setting priorities. Given the time pressure, the role players should set priorities (in our experience few do) and work on the most pressing problems in the In-Basket.

2. An administrative problem can be:
   a) resolved
   b) deferred
   c) delegated
   d) referred upward
   e) ignored

3. Selection of analytic approach. All of the seven situations permit the use of quantitative data in their resolution. To our surprise a few trainees have resolved every situation intuitively while others have erred in the other extreme--based all decisions on the numbers; either approach will be difficult to defend in the discussion.

Prepared by Michael H. Bernhart for AUPHA 1981.

The Problems

1. Cholera. Most feel this is the priority problem. Data may be used by checking the facilities and the activity reports. Probably a team should be dispatched from the Wadi Lum Health Center.

2. Health Promotion Teams. Several criteria can be introduced:

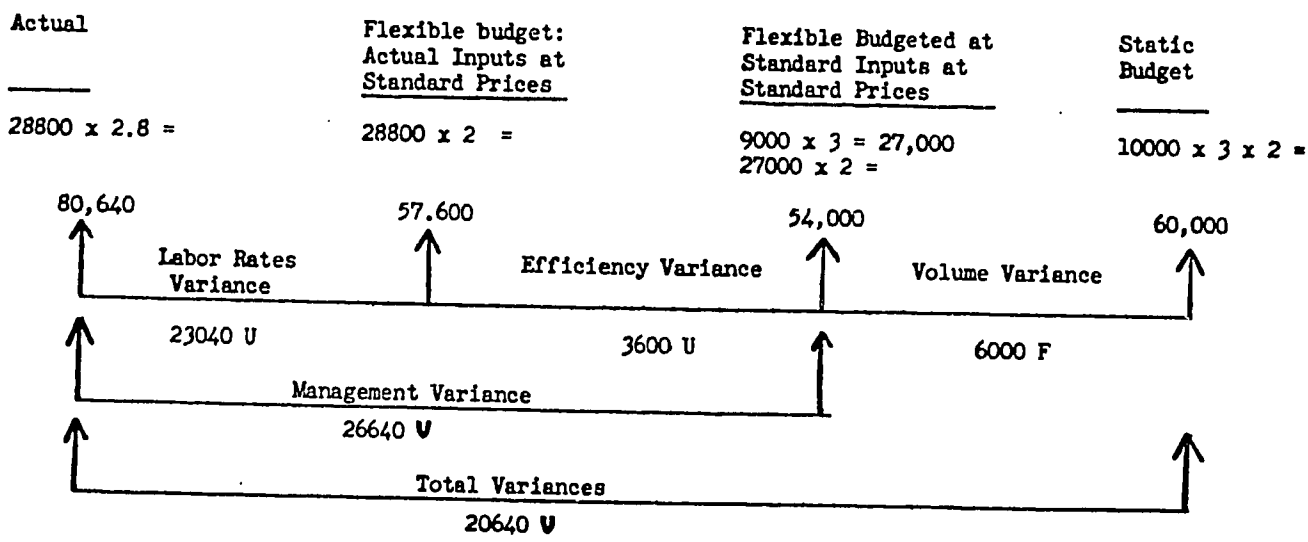
--service to an unserved region;
--place team to facilitate evaluation;
--relieve pressure on busy facility (Nabataea).

3. Sheikh Ibn Ajluni. Participants will differ in their perceptions of the urgency of this problem. In the country where the materials were developed, the problem could safely be deferred. The activity report provides no justification for upgrading the village clinic to a health center. Other options might be explored such as assigning the Health Promotion Team as a sop.

4. Hospital Supply Budget. This presents a simple, but lamentably common, misunderstanding over the meaning of a volume variance. It is also a deferable problem.

5. Physical Therapy Budget. This is a more complex budget analysis problem which permits discussion of controllable vs. uncontrollable costs, comparison of static and flexible budgets, and different kinds of accounting variances.

VARIANCE ANALYSIS UNDER FLEXIBLE BUDGETING



6. Foto-copier Purchase. The numbers reveal little difference in net savings:

	Copier A	Copier B
Price	3900	4550
Operating Cost	1000	1440
Total Cost	4900	5950
Gross Saving	7500	8680
Net Saving	2600	2730

The decision may turn on qualitative factors: technological obsolesence (machine B has a shorter pay back period and could be changed for a newer model earlier), difficulty in replacing equipment (A has the longer life), staff satisfaction (B is faster), etc.

7. Clinic Construction. The group can be coached through a PERT diagram presentation of the project which shows that construction can be completed in 7.5 weeks including equipment and lawn. Do they then "buy" the estimates? What pressure can be put on the contractor?

Suggested Teaching Approach

Relative emphasis will depend upon the needs of the trainees. None of the analytical tools that are introduced are sufficiently sophisticated to dwell on with trained managers; however, many programs are managed by physicians who continue to think of themselves as health professionals first--such a group could benefit from a full exploration of the analytic techniques. We have found it useful to put labels on the techniques--PERT, variance analysis, incremental analysis, etc.--to de-mystify management "science"; this is particularly helpful where the program officials tend to under-manage.

One approach is to discuss first the individual situations and the resolution of each; the group will probably have done fairly well on these. Then turn to questions of general approach:

Did you review all situations before beginning?
Did you establish priorities?
Did you delegate the delegate-able?
Did you defer the non-urgent?
Did you mix numerical analysis with common sense?
- and so on-

The group may not fare as well on these questions, but their earlier success might permit them to acknowledge more readily their failures here.

EXERCISE F.

PREPARING A JOB DESCRIPTION

AUPHA

HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

PREPARING A JOB DESCRIPTION

The Ministry of Health is rearranging its internal structure. One element of an organization is the organization chart which you have seen. Another element is a description of the jobs performed by the positions shown on the chart. Presumably no one knows better what needs to be done in a job than the person who occupies or will occupy it. That is why you are being asked to draft your own job description. Please remember that this will be a draft, not a final document. We will hold a seminar on the job descriptions in late August at which time yours and the other job descriptions will be discussed and revised to make them consistent with one another.

Instructions

A job description can be a nuisance if it is so detailed that it is a straight jacket which allows the individual no flexibility to respond to new situations. It can also be a great help to a new person in a job (this is an important point in the Ministry where rotation of personnel has been high in some positions). You will need to strike a balance between flexibility and specificity.

Your job (any job) consists of three elements:

(1) Responsibilities--the reason why your position exists;

(2) Authority--the power to discharge your responsibilities;

(3) Activities--the things you must do as you carry out your responsibilities.

In addition, you interact with others in three ways:

(a) You are supervised by someone;

(b) You may supervise someone;

(c) You coordinate and collaborate with several people.

The instructions are simple (their implementation is not so simple):

(1) Write down to whom you report (from Organization chart);

(2) Write down with whom you will collaborate (only part of this is from Organization chart which cannot hold all of the possible interactions);

(3) Write down whom you will supervise;

(4) List your principal responsibilities (if the list goes much beyond a dozen you are perhaps using too much detail);

(5) List the authority you will have or will share with others (each responsibility should be covered by some authority although the two lists may not correspond perfectly.) Note that the project on the Decisions Limits Manual is also looking at this issue. Dr. Issa can advise you on how that will affect the distribution of authority.

(6) List the activities (but don't get carried away and list neither infrequent nor unimportant activities.)

We look forward to seeing the results of your efforts in late August.

EXERCISE G.

TAKING AN INVENTORY OF RESOURCES

AUPHA

ASSOCIATION OF UNIVERSITY PROGRAMS IN HEALTH ADMINISTRATION
1755 MASSACHUSETTS AVE./WASHINGTON, D.C. 20036/SUITE 500/(202) 387-8811/CABLE: AUPHA WASH DC

HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

TAKING AN INVENTORY OF RESOURCES

Michael H. Bernhart, Ph.D.

December 1980

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

TAKING AN INVENTORY OF RESOURCES

PURPOSE

The purpose of this task* is to help directors determine:

a) what resources they have available under their control;

b) which of these resources are not being fully utilized.

The first part of the inventory is easy to do -- it consists of making a list of all of the ; people, equipment and facilities.

Such an inventory is more useful if it contains greater detail. For example, the simple word "vehicle" tells us less than does the word "truck" which in turn is less informative than the complete description "1977 truck - GMC, flat bed, stake sides, capacity = 10 tons, engine new 23,000 kilometers ago, differential will soon require servicing."

This last description lets the director know a great deal more about how this resource can be used and what its limitations are. Other resources should be inventoried in the same detailed way: for personnel, the director would like to know about: specialization; training; work habits (ambitious, lazy, etc.); personal qualities (intelligent, mean, etc.);

---

* Dr. Anwar Bilbeisi and Mr. Khalid Al-Jadid have successfully carried out this task for the Kingdom as a whole.

biographical data (age, sex, town, etc.). Complete personnel files will contain this information.

The second part of the inventory is more challenging -- and more fun. That part deals with the level of utilization of a resource -- is it fully utilized or not? Let us say at the beginning that no resource should always be fully utilized; there are two reasons for this:

1. The resource would soon be exhausted. Even a machine must be shut down sometimes for repairs.

2. There would be no spare capacity for emergencies. If, for example, we built exactly enough hospitals and beds to just barely handle the normal case-load, what would happen if there were an epidemic or war? Where would these victims go? Thus, every resource should be programmed so that it will normally have a little spare time that can be used to handle unforeseen events. It is only when that spare time becomes noticeably large that we worry.

PROCEDURE

To make an accurate inventory will require that you go into the field and count up the resources and measure their level of utilization. Before leaving the office, however, it will

be necessary to decide how you are going to measure level of utilization; since this is the tricky part of the job, let us first explore some of the problems and methods.

MEASURING UTILIZATION

C. Northcote Parkinson, the famous English humorist and expert on management, wrote "Work expands to fill the time available". He gave examples to demonstrate his point, of men and women who spend the entire day completing a simple task. The purpose of mentioning Mr. Parkinson and his theory, is to raise the point that activity and productivity are not the same thing. We all have seen people who accomplish very little, but appear to be busy all of the time. We may even have noticed that we ourselves were able to get large amounts of work done when that was demanded; on other occasions we may have been busy all day long, but actually accomplished very little. The point of all this is that there is a difference between being busy and being fully productive. It is easier to see this difference in others than in ourselves: when we are "busy", we believe that we could not possibly get any more accomplished than what we are already doing.

As we stated at the beginning, one result of this task is to help directors determine if resources (people, supplies, equipment) are being fully productive. Obviously, if the director finds a resource - a landrover for example - that is not fully utilized, then some more work can be found for it.

Important: No one should worry that the purpose of this exercise is to eliminate resources that are not being fully utilized. There are too many people in the Kingdom who need health services for the Ministry to throw away its resources. Rather, when an underutilized resource is found, the director can find new uses so that the resource (let us say a person) can be fully useful.

The reader may think that people will resist any changes that will make them more fully utilized, That is not true. Yes, people are often not fond of more work; however, almost all people are delighted to be more useful. Thus, when a change results in a person being more useful to his friends, or community, or colleagues, that person will soon feel that the change was a good one. If the change just resuls in more work for a person -- and not more usefulness -- the person will continue to resist the change.

Some Examples

A Poor Director -- a poor director is concerned that people look busy. He assumes that idleness is laziness and that workers who are busy are also productive.

A Good Director -- in contrast to the above, a good director makes no assumptions when he sees idle or busy workers. He wants to know how much is being accomplished. Let us consider some examples below that illustrate how the productivity of different resources can be calculated.

Resource: Hospital - everyone is familiar with the most common measure of hospital utilization - bed occupancy rate. We all know that an average occupancy rate of 30% is too low. (We also know that there are simple tricks to increase the rate - notably make each patient stay longer.) We also know that something is wrong if patients are lying on the floor in the corridors.

Resource: Operating room - a simple measure is the number of hours in a week that the OR is in use or scheduled for use. If we see that next week's schedule calls for only three

hours of use and last week's report showed little more, then this space might be better used for something else and the equipment could be transferred to a nearby facility if there is one.

Resource: Health Center Physicians - suppose that we time a physician and see that he takes about seven minutes with each patient. We observe that he is thorough with each patient and is giving them good health care so we assume that this particular physician needs seven minutes per patient to deal with the types of health problems that his patients bring him. . But when we look at his log book for several different days, we find that he has been seeing 80-90 patients per day in recent months. That means that he has been either working extra hours or giving rushed, lower quality care to the patients. Obviously we must provide help for this physician.

THE GENERAL METHOD

To calculate the level of utilization of a resource you need two numbers: how productive a resource <u>is</u> and how productive it <u>could</u> be. For example if we find that a cytologist in the lab needs three minutes to carefully examine a slide, plus needs to rest and arrange her work for about ten minutes every hour, we can calculate that in an hour she could examine 16-17

slides and in an eight hour day examine around 130 slides. We might be fortunate enough to find a record of her work or we may need to check the amount she does for a few days. If she does 72 slides on the average per day, then we may say that she is 55% utilized.

The general method is old, tried, and true. When it was developed in the 1920's, it was called scientific management.

THE BASIS OF MEASUREMENT

A major concern is finding the appropriate basis for measurement. Deciding what is to be measured is a task that should be done prior to leaving the office. Basically, we are deciding what will be the measure of productivity -- patients seen? beds occupied? vaccinations given?

We will suggest some to get you started --

Hospitals -- bed occupancy rate; length of hospital stay
MCH Centers -- number of women enrolled; number of assisted deliveries
Mobile Teams -- number of vaccinations
Nutrition -- number of malnourished children receiving supplements

Health Education -- number of home visits; number of lectures and attendees.

Please remember that you are not evaluating whether people are working well or not, but rather whether they are usefully employed. Not every utilization figure must result in a percentage; sometimes it is more useful to use as a standard of comparison what is being accomplished in a comparable facility. For example, if the surgeon in hospital A performs surgery five times a day and the surgeon in hospital B does so five times a month, then there is reason to ask if the surgeon in B is being fully utilized.

WHERE TO LOOK: SUTTON'S LAW

W. Sutton was a bank robber in the US in the 50's. He robbed only banks - never jewelry stores trains, couriers or anything else. Why? "Because banks are where the money is," was his answer. Sutton's Law means to look only where you expect to find the greatest chance of being rewarded. Physicians practice Sutton's Law naturally: if a patient comes to a physician with red, dis-charging eyes, no physician would begin by examinning the patient's feet.

When it comes to determining the utilization level of resources, Sutton's Law tells us to look where the money is. The director cannot possibly evaluate the utilization of every resource under his control. It takes as much effort to evaluate the utilization of a surgeon as a servant (in fact it probably takes less effort to study the surgeon's productivity); the more valuable resource is the surgeon - therefore study him because it is more important that he be well utilized. The same comparison can be made between hospitals and clinics - the money is in hospitals. This is merely to say that the director should place more effort on the management of his most valuable or costly resources.

We did not provide examples of judging the utilization of equipment; there are two reasons for that:

1) it is hard to do;

2) by judging the utilization of the people who use the equipment or the facility where it is located, you often will know if the equipment is well utilized. There are always exceptions, of course; particularly where there is more equipment than there is staff to handle it (2-X-Ray machines, one radiologist for example). Consequently, you may

not have to make utilization studies of much equipment.

IMPLEMENTATION

As always, there is a form to guide you. You will see that it has two parts to correspond to the two objectives of this task. The left side is a descriptive inventory of available resources. The right hand side is for evaluation of the level of utilization of the resource. From left to right you would put down the resource, its characteristics, whether you were going to evaluate its utilization, and if so,the basis for measurement, what standard you had set (where feasible), the productivity you observed, and the percentage of full utilization (where you had set a standard).

This task requires some time and ingenuity. Note that two men were able to perform the task for most of the Kingdom in less than two weeks.

INVENTORY

DESCRIPTION		LEVEL OF UTILIZATION				
		Evaluate ? Y N.	BASIS OF MEASUREMENT	STANDARD	OBSERVED	%
FACILITY						
PERSONNEL						
Category	Characteristics					
EQUIPMENT						
Type	Characteristics					

EXERCISE H.

PROGRAMMING

AUPHA

HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

SPECIAL INSTRUCTIONS--PROGRAMMING

Dr. Bilbeisi

Dr. Subeheh

Dr. Lubani

One of the foremost rules of management science is that the person who makes a plan should also be responsible for executing it. Since you three will not be directly responsible for executing plans, you probably should not be making too many in isolation from the regional and field people who will have to execute the plans. Logic would dictate that they (regional and field staff) should be involved in making their own plans. Unfortunately, they lack experience in this area which you three possess. What I would like to do here is to put in your hands a programming guide for you ultimately to use with regional people. First of course, you will have to become proficient in the application of the guide (you will also be field-testing it and improving it). To gain proficiency I propose that you program one priority disease for each region. for example, enteritis in Ajlun, measles in Ma'an, etc., for each of the five new regions. Second, you will need to demonstrate to regional officials that programming can produce useful results; you will have your five regional programming exercises to show them. Third, you will have to sit down and lead them through the exercise; this will occur in September and October. Since you will program a total of five diseases- one for each region- I would recommend that you begin with a simple case such as an easily prevented disease in a small region and work up to more difficult situations such as diseases that must be attacked on several fronts.

AUPHA

HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

PROGRAMMING

Programming--what is it? Here the word means matching up the resources of an organization to its objectives. You will start with the Ministry's objectives and targets for your region and decide what activities must be conducted to achieve those targets. Then, you will determine the extent to which existing resources can achieve that level of activities. Finally, you will determine where you need additional resources and how existing resources must be modified to achieve the targets. Stated as a series of questions, the process is as follows:

1. What are our objectives (for example, reduce measles, enteritis, hypertensive heart disease, etc.)?
2. What targets or levels do we want to achieve in your region in the coming year for each objective (for example, 20% reduction in deaths from neonatal tetanus)?
3. What activities will we have to perform to reach those targets (for example, 7000 DPT vaccinations, laboratory analysis of 3500 throat cultures)?
4. What level of activities can we reach with existing resources (for example, 3/4 of the targeted vaccinations?
5. What is needed to insure that the existing resources function properly (commonly training, supply, supervision,etc.)?
6. What resources are lacking that we need to achieve the targets (personnel, clinics, etc.)?

General Comments

This set of instructions, like the other four prepared by AUPHA for the Ministry in the past, should be used as a general guide to your work. Although you will find forms and step-by-step instructions, do not think that you can proceed mechanically through the exercise. This is for two reasons:

1. The instructions do not take in every possibility; in some cases they might lead to a wrong conclusion. As you know, providing health care is a complex business.
2. You are professionals possessing vast experience and excellent judgement. Rely on yourselves and modify the instructions when and where you feel it necessary.

The purpose and end result of this exercise will be to determine what activities need to be conducted by each facility, what resources must be modified, and what new resources must be obtained to achieve the high priority objectives of the Ministry. Naturally, the Ministry will want to be sure that its highest priority objectives will be achieved. You are not trying to plan how to use all of the available resources. In fact, you will find many resources left over of different types. Those resources will be used to meet the lower priority health problems.

Your task is obviously a very important one as it will, in large measure, determine the success of the Ministry in the coming year. It is only fair to warn you that the task is as difficult as it is important and will require considerable time and intelligence to complete.

First Step--Objectives Into Targets

His Excellency, the Minister, will provide you with a final list of objectives--probably in order of importance--in mid or late July. Take those objectives and set targets for each objective. (Targets for many of the objectives will have been

set already by Dr. Subeheh during June.) When you have finished setting the targets, obtain the Minister's preliminary approval of the target levels before proceeding. At this point, you will not know what resources will be required so the Minister can only approve the target levels in principle--he may have to modify them later if the resources required to reach the objective would far exceed those available (he might also wish to increase the targets if it appears that many resources are not being fully utilized).

The targets you set must be:

- reasonable, yet challenging;
- measurable so that you know exactly how much progress has been made;
- related to the objectives set by the Ministry.

1. Reasonable, yet challenging. If a goal is too easy, we become bored after a while; if it is obviously too hard, we quickly give up. Therefore, a goal for health care cannot be a wish for the ideal, but rather a realistic expectation of what can be accomplished with a good effort.

2. Measurable. Fortunately, health goals can be quantified. This is important as it is easier for personnel to compare their progress against a goal that is stated, "death from neonatal tetanus to be less than 5 per 1000 births" than it is to measure progress against a vague goal such as "a significant improvement in infant health."

3. Related to Ministry's objectives. Since the presence of challenging quantified targets will motivate personnel to pursue them, these targets or goals should obviously be related to the diseases which the Ministry wishes to eradicate.

***

PROCEDURE

On Form A write down in the first column the diseases that the Ministry has identified as priority diseases. In the second column put down the target (or goal or objective) in quantitative terms for the country. In the third column put down the time by when you expect the objective to be attained. Generally, this will be a year or less; remote goals are not good motivators.

***

EXAMPLE

Priority Disease	Target	Time Period
Dread Grzotz[1]	300 cases confirmed	1 year

Recall that for this exercise you are only going to program the activities for a (different) priority disease for each region. On Form A1 write down the region, the disease, and the target for that disease in that region. After you have done that, pick the region where you want to first run through the exercise.

Second Step--Targets Into Activities

Treatment or prevention of each disease requires well-defined activities. As physicians, you are well-aware of what those activities are and you also know how to treat or prevent each of the priority diseases most economically (recall that they are priority diseases because in part, they can be dealt with economically). There are several ways to approach this task of identifying the activities; the following steps are suggested.

[1]A fictitious disease.

Use one copy of Form B for each priority disease. You will note that it is divided between Direct Service and Support activities. Direct service activities are those activities where you are in direct contact with the patient--assisting a woman during delivery, vaccinating a child, suturing a wound.

***

PROCEDURE

On Worksheet 1 which is attached to Form B, (the information on the worksheets will be transferred to Form B later), write down the main direct service activities; do not break-up a task into fragments--for example, if the task is to vaccinate, simply write that and not "sterilize syringe, load syringe, swab arm, etc."

EXAMPLE

Worksheet 1

DIRECT SERVICE ACTIVITIES

DISEASE Dread Grzotz TARGET FOR DISEASE 300 Cases

Activity	Number of Activities to Reach Target
1. Vaccinate under 5's with PDQ Vaccine (Single Dose)	5000/year
2. Outpatient care - (early diagnosis) 3 visits per victim	200/year
3. Intensive care - (late detection and diagnosis) 10 days hospitalization	100/year

The example shows that our fictitious disease can be largely prevented by vaccinating children under five years of age. Even with good immunization coverage we still expect 300 cases to be confirmed per year (that was the target, remember?) and we must plan to handle those cases.

We have estimated in the example that 200 cases will show up early enough in the health centers and clinics to be dealt with on an outpatient basis; the remaining 100 will come to us so late that hospitalization will be required.

Each disease requires its own copy of Worksheet 1 for each region.

Support activities are those that allow the direct activities to be carried out. They include, among many things, laboratory work, education of patients, and delivery of supplies. Do not include administrative support such as payroll, statistics, supervision, etc., as these are spread over all activities. On Worksheet 2, write down the main support activities required to deal with the disease you are considering.

EXAMPLE

Work Sheet 2

SUPPORT ACTIVITIES

DISEASE Dread Grzotz
TARGET 300 cases/year

Activity	Number of Activities to Reach Target
1. Educate Parents on need for vaccine and detection	10,000 home visits
2. Educate teachers on early detection	Ten 1 day seminars
3. Lab screening--sputum	1000 samples

As we continue the example we see that the major support activities are to promote the immunization campaign and educate for earlier detection of activities. Note what is not included as a support activity--the cold chain; that is because it is a resource (or group of resources) and is not an activity. We look at the necessary resources later.

As you complete a Worksheet 2 for a disease in each region be aware of this distinction between activities and resources.

***

Activities take place in different settings. The setting will--as we shall see--often determine the kinds of resources needed. In the simplest terms, direct services can be provided either in the field (as by a mobile team or in a school or home), or as an outpatient service, or thirdly, as an inpatient service. You can immediately see that whether an activity is performed in the field, in an outpatient clinic or health center, or as inpatient hospitalization makes a great difference in the types of resources needed.

PROCEDURE

Consider the direct activities on Worksheet 1 and decide whether they are field, outpatient, or inpatient activities. After making your decision, write the activity and the number of times it must be performed in the appropriate column on Form B.

***

The same argument can be made for support activities. Although the activities can take place in many settings it is probably adequate to consider only three:

(a) field facilities or staff--such as education during home visits;

(b) regional facilities or staff--such as in hospital laboratories or offices;

(c) central facilities or staff--laboratory, office, Al Bashir Hospital, etc.

What you need to determine here is who should carry out the activity; note that regional and central office staff can work in the field. As before, divide the support activities on Worksheets 2 into these three categories and write them in the appropriate columns on Form B.

EXAMPLE

Form B

DISEASE Dread Grzotz
TARGET 300 cases

DIRECT SERVICE ACTIVITIES

FIELD (#)	OUTPATIENT (#)	INPATIENT (#)
Vaccinate PDQ (5000)	Diagnose and Treat (3 visits x 200 cases)	Intensive Care (10 days x 100 cases)

SUPPORT ACTIVITIES

FIELD (#)	REGION (#)	CENTRAL (#)
Parent Education and Motivation (10,000 visits)	Teacher Education for Detection (2 seminars X 5 regions*)	Lab-screen Sputum (1000 samples)

*In our example we have been programming for a country (hence "5 regions"); you will program for only a region.

THIRD STEP-WHO WILL PERFORM THE ACTIVITIES

Let us stop at this point and reflect upon the total process again. In summary, we started with the Ministry's objectives and expressed them in specific targets. These targets were then translated into activities that have to be performed if the targets are to be met. Now at this juncture it would be pleasant to figure out the resources needed for the total activities and to order up a package of those resources. Unhappily, the resources that will be used already exist and only a few additional resources can be obtained during the year; thus we must try to figure out how to reach the targets with those resources that already exist. Generally, you will encounter three situations:

(a) Resources (people, equipment, facilities, and supplies) that are perfectly suited to perform the activities in question.

(b) Resources that could perform the necessary activities, but first need to be modified in some way. This modification could include training new skills or motivating people to accept new tasks. Facilities can also be modified or used for more than one purpose, e.g., hospital wards make good lecture halls for educational programs. It is usually in this area that we need to be most creative. As you know, the practice of medicine leads to technical specification; we often fail to realize that a skilled surgeon might, in some cases, be more profitably utilized as a health educator.

(c) The third situation that you will encounter is where there are no resources at all (nor can any be easily modified) to perform the necessary tasks. Here you will have to propose the hiring or purchase of new resources.

In very general terms what you will be doing from here on is simply determining whether the target for a disease can be achieved with existing resources, or whether modifications need to be made to the resources, or whether the target can only be fully achieved if new resources are obtained.

TWO ALTERNATIVES

This process of assigning resources to activities can be done in any number of ways. I will describe two popular methods that are used and let you choose which one you prefer--one method employs parallel forms and the other method uses a map; with some experience you will perhaps detect situations in which one method is superior to the other.

PARALLEL FORMS

The first question before assigning resources to activities is, what resources do we have? Fortunately you have a very complete (uniquely so) inventory of resources prepared by Dr. Bilbeisi and Mr. Al Jadid. Not only do you know what is generally available, but also you have information on the under-utilization of many resources. First let us group the resources from the Bilbeisi-Al Jadid report so that they may be more easily matched up to the activities. As you will recall, we grouped the activities as:

Direct Activities
- Field
- Out-Patient
- In-Patient

Support Activities
- Field
- Region
- Central

Let us use the same categories for grouping the resources (this creates the parallel forms); however, we will make a further breakdown of resources--we will list resources as:

- People (physicians, nurses, etc.)
- Facilities (clinics, health centers, labs)
- Equipment (vehicles, x-ray, etc.)

Now, this initial division is preliminary--resources, people and equipment can be shifted from one area to another; e.g., regional personnel can work in the field. Furthermore, resources may cross the line between direct service and support. Therefore, this first grouping is simply to help us proceed and the final resource groupings could be different. The fact that resources can be moved like this also means that you should not agonize over whether something belongs in one column or another; as long as the resource is listed on Form C it will probably be ultimately used.

There is a short cut you may wish to take here. Since you have already identified the activities to be performed, you have some general idea of the resources you will need. Thus, as you enter the resources on Form C you may decide not to clutter it up with resources that are plainly not needed to deal with the disease you are programming for. (As an example, many of the central support services may not be needed.)

Once you have put as much information on Form C as you will need, the process of assigning begins. You will simply assign the activities from Form B to the resources on Form C. It is most convenient to make assignments to facilities--for example, 200 vaccinations to health center X. Of course, remember that the ability of health center X to perform 200 vaccinations depends not only upon its internal resources but also on the number of people in the community who need to be vaccinated (this is why I often favor a map which provides a reminder of the quantity of health services needed in a community.)

You may need a scratch pad or worksheet to keep track as you do the assigning. For example, of the 5000 PDQ vaccinations against Dread Grzotz, you might assign 300 to clinic A, 100 to health center B, and 500 vaccinations to mobile team C; that is a total of 900 vaccinations, leaving 4100 to go. Another way to approach the task is essentially from the bottom up: here you would ignore--initially--the target for the region and assign targets to each facility and unit. When you had finished you would sum those assignments and compare the total to the global target for the region. If the summed assignments is larger than the target, you could adjust the target or reduce the assignments--in any outcome this bottom-up approach tells us something about how realistic the targets are.

You will proceed down through the activities on Form B, assigning them to people and facilities on Form C until you either have all of the activities assigned from Form B or you run out of resources on Form C. If you run out of resources on Form C and still have activities left unassigned, you may do two things:

(1) Assign activities to resources on Form C which have not yet been utilized and which will need to be modified if they are to do the job properly. As we noted earlier, that modification might be training of people or using facilities for novel purposes. The necessary modification should be entered on Form D so that preparations may begin to do the modification.

(2) If modificaiton of existing resources does not permit accomplishment of all of the activities, then you will have to propose additional resources. Form E is for this purpose.

MAP

This second method scarcely needs explanation to you. Rather than put the resource availability information on Form C it is entered on a large map.
You have seen the color coding, pins, stars, and other things that are put on a map to signal the presence of a clinic, hospital, etc. What is used for these purposes depends primarily upon what is at hand. Again, just as above, assignment of activities is made by writing down the number of activities to be performed by a facility beside the facility on the map; e.g., 50 blood samples. Forms D and E are also used with the map when normal resources do not absorb all of the necessary activities.

GENERAL CAUTIONS

Programming is complicated enough without getting excessively detailed. You certainly do not need to program out randomly occuring activities. Let us say, for example, that we expect 30 cases of the Dread Grzotz to require a tracheatomy during the year; it is pointless to assign these tracheatomies to hospitals as programmed activities. All we can do is make sure that there are a few unassigned resources left in the region after our programming that can handle these random situations.

Since we have presented the task as a series of steps you should be cautioned about becoming excessively mechanistic. For example--the procedure permits you (although I doubt that you would make this mistake) to progressively assign activities until they were all assigned. A blindly mechanical approach to this task might allow great sections of the Kingdom to be assigned no activities to protect the people from Dread Grzotz if the 5000 immunizations, etc., were all assigned to the first ten facilities (clinics, mobile teams, etc.) on the list. You want to not only meet the targets, but also you want to accomplish that equitably.

FORM A
TARGET-SETTING

Priority Disease	Target	Time Period
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

FORM A-1

Region	Disease	Target	Time Period
1.			
2.			
3.			
4.			
5.			

FORM B WORKSHEET 1

DIRECT SERVICE ACTIVITIES

Region_____ Disease_____ Target for Disease_____

Activity	Number of Times Activity Must be Performed to Reach Target
1	
2	
3	
4	
5	
6	
7	
8	

FORM B WORKSHEET 2

SUPPORT ACTIVITIES

Region_____ Disease_____ Target for Disease_____

Activity	Number of Times Activity Must be Performed to Reach Target
1	
2	
3	
4	
5	
6	
7	
8	

Region_____ Disease_____ Target_____

FORM B

DIRECT SERVICES ACTIVITIES			SUPPORT ACTIVITIES			
FIELD #	OUT PATIENT #	IN PATIENT #	FIELD #	REGION #	CENTRAL #	
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

INSTRUCTIONS FOR COMPLETING FORM C (C-1 through C-6)

You can see that Form C is actually composed of six forms. We have taken each column of Form B and given it a separate page here as so much information must eventually be put onto this form. The procedure for completing these forms starts out rather mechanically. The first thing you will need to do is to fill in the first two columns ("Resource" and "Quantity") taking the information directly from the Bilbeisi/Al Jadid report of available resources. You may see that in our example (still combatting Dread Grzotz) we have listed a mobile team on Form C-1 as a field, direct service resource; on Form C-2 we wrote in the first of many clinics and health centers as the direct service, outpatient resource; on Form C-3 we entered Al B ashir as one of the inpatient resources (the other hospitals in the region itself would also go on this form); and so on. You can readily see that you may need several copies of each of these forms to get down all of the resources in or available to a region. As stated in the general instructions, you will always have in the back of your mind the diseases that you want to deal with and consequently you may not bother to list those resources that could make no possible contribution to combatting those diseases.

Once you have entered the resources in the first two columns, you take Form B in hand and proceed to the last two columns on Form C. Here is where you must exercise judgment - deciding how much of the global target should be assigned to each facility or program. In the example we have illustrated how a resource might be asked to take on new responsibilities. On the example of Form C-1 we have assigned the mobile team in the region its usual task of vaccinations (200 against PDQ) but we have also directed it to become involved in home education as we feel this is an important element in the early detection and treatment of this disease. We have assigned all the advanced cases of Dread Grzotz to Al Bashir and we have sort of guessed that Clinic X might see 5 active cases on an outpatient basis during the year; with more conviction we have stated that Clinic X should take 30 or more sputum samples to screen for this disease.

You can certainly see what follows from this form: Each facility will have its assignments of activities to cover the priority diseases. You can simply copy down the assignments and quantities from the Form C's for each unit in the Ministry and send those assignments out to the units involved. The personnel in those facilities will know what is expected of them and the assignments will form the basis of evaluation and supervision of the units.

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EXAMPLE

RESOURCES
DIRECT SERVICES-FIELD

Form C-1

Resource	Quantity	Assignment	Quantity
Program: Mobile team			
Personnel			
Nurse	6	Vaccinate PDQ	200
Pediatrician	1		
Driver	2	Home visits for parent education	500
Equipment			
Landrover	3		
Thermos	8		

RESOURCES
DIRECT SERVICE-OUTPATIENT

Form C-2

Resource	Quantity	Assignment	Quantity
Facility: Clinic X			
Personnel			
Physician	1	Diagnose/treat Dread Grotz	5 cases
Nurse	1		
Midwife	2	Take sputum sample	30
Equipment			
Autoclave	1		
Beds (recovery only)	3		

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RESOURCES
DIRECT SERVICES-INPATIENT

Form C-3

Resource	Quantity	Assignment	Quantity
Facility: Al Bashir			
Personnel			
Surgeon	4		
Pediatrician	6	Intensive care Dread Grotz	100 cases for 10 days
Obstretician	8		
Internist	7		
GP	4		
etc.			
Equipment			
X-ray	2		
Beds	200		
etc			

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RESOURCES
DIRECT SERVICES-FIELD

Form C-1

Resource	Quantity	Assignment	Quantity
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			

Form C-2

RESOURCES
DIRECT SERVICE-OUTPATIENT

Resource	Quantity	Assignment	Quantity
Facility: _____			
Personnel			
Equipment			
Facility: _____			
Personnel			
Equipment			
Facility: _____			
Personnel			
Equipment			
Facility: _____			
Personnel			
Equipment			
Facility: _____			
Personnel			
Equipment			
Facility: _____			
Personnel			
Equipment			
_____			

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Form C-3

RESOURCES
DIRECT SERVICES-INPATIENT

Resource	Quantity	Assignment	Quantity
Facility:			
Personnel			
Equipment			

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RESOURCES
SUPPORT-FIELD SERVICE

Form C-4

EXAMPLE

Resource	Quantity	Assignment	Quantity
Program: Education			
Personnel			
Nurse-Educator	1	Home visits for parent education re Dread Grzotz	750
Driver	1		
Equipment			
Landrover	1		
Slide Projector	2		

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RESOURCES
SUPPORT-REGION

Form C-5

Resource	Quantity	Assignment	Quantity
Program: Public Health			
Personnel			
Physician	2	Seminar for teachers (2 days) on detection of Dread Grzotz	2
Sanitarians	2		
Nurse-Educator	1		
Equipment			
Landrover	1		

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RESOURCES
SUPPORT-CENTRAL

Form C-6

Resource	Quantity	Assignment	Quantity
Program: Labratory			
Personnel			
Forensic Specialist	1	Analyse sputum sample for Dread Grzotz	1000
Citologist	3		
etc			
Equipment			
Microscopes	8		
Centrifuge	3		
etc.			

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RESOURCES
SUPPORT-FIELD SERVICE

Form C-4

Resource	Quantity	Assignment	Quantity
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			

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RESOURCES
SUPPORT-REGION

Form C-5

Resource	Quantity	Assignment	Quantity
Program:			
Personnel			
Equipment			
Program:			
Personnel			
Equipment			
Program:			
Personnel			
Equipment			
Program:			
Personnel			
Equipment			
Program:			
Personnel			
Equipment			
Program:			
Personnel			
Equipment			

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RESOURCES
SUPPORT-CENTRAL

Form C-6

Resource	Quantity	Assignment	Quantity
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			
Program: _____			
Personnel			
Equipment			

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FORM D

MODIFICATIONS
TO RESOURCES

REGION_____

DISEASE_____

RESOURCE	ACTION NEEDED

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FORM E

SHORTFALL

REGION_____

DISEASE_____

TARGET_____

Level achievable with existing resources _____

Percentage of Target _____

Recommended New Resources

Personnel

Facilities

Equipment

EXERCISE I.

THE INCENTIVE SYSTEM

THE INCENTIVE SYSTEM

Michael H. Bernhart

We scarcely need justify study of the incentive system of an organization. Incentives are what makes the organization move toward its objectives and, taken together form a system of the greatest importance. Whether an incentive system is a good one or not is often a topic of lively discussion within an organization. Since this system touches the lives of the members of the organization more directly than any other administrative system they are not interested in it and least objective about it. This excercise is designed to structure a more objective look at the incentive system.

Incentives vs. Disincentives

Employees focus on the disincentives and would have the listener believe that if the disincentives were removed, all would be well. That is not true and we will use an example to illustrate:

If a man is free of pathology, is he healthy? The answer, of course, is "not necessarily". While freedom from disease is a basic requirement for good health, being healthy means more; it normally includes muscle tone, weight, blood pressure, emotional equilibrium, respiration, etc. and we can all think of people we know who are not sick in the clinical sense but certainly are not healthy either.

The same distinction may be made between incentives and disincentives. The absence of disincentives gives us a satisfied employee; it does not necessarily provide for a motivated employee. And just as a person with

an impairment can still be fairly healthy, similarly, an employee can tolerate some disincentives and still be motivated. (Frederick Herzberg has written extensively on the distinction between motivators and de-motivators).

In this exercise we will continue this distinction between disincentives which affect satisfaction and incentives which affect motivation. In no sense are we saying that the two are completely unrelated; obviously a dissatisfied employee will be impossible to motivate. What we do is stress that the two be considered separately: just as the interventions that cure disease (drugs, surgery, etc.) are different from those that promote healthiness (diet, exercise, etc.), the interventions that reduce dissatisfaction are quite different from those that raise motivation.

Disincentives

There is little confusion over which are the disincentives in an organization. Any employee can reel off -

Low pay

Unpleasant work conditions

Harsh supervision

Inadequate supplies or support

Excessive hours

Unpredictable hours

Separation from friends/family

Constant travel

Lack of recognition

Low opportunity for advancement

Inequitable distribution of rewards

Favoritism

etc.

When the top management surveys the disincentives, it is immediately faced with two issues:

Is a given disincentive (source of dissatisfaction) due to a faulty perception or is there a real problem?

Is the source of dissatisfaction something over which the organization has power to correct?

Let us look briefly at each of these two questions:

Perceived vs. Real. Every one has heard about how much money someone's cousin is making in another organization. In reality the cousin may have exaggerated his income so as to seem more important. Such rumors have a great deal to do with the way people view their own incentive system. And, it is important to note, problems of this type are based largely on comparisons. Where they are, it is easy for management to investigate what the other organization is providing and set the record straight if the perceived differences are exaggerated.

Control over Incentives. The organization has limited control over major incentives. Notably, pay scales are usually decided elsewhere. Part of the process in examining an incentive system is identifying the extent of control over various incentives.

Motivation

Let us drop the word "incentive" in favor of "motivation". Motivation - in the sense used here - refers to direction and effort. Let us suppose that the major disincentives have been eliminated; what will an employee do? While some ambitious individuals may start inventing tasks, most will fall into a routine that they feel is generally expected of them. If that routine perfectly fits what the employee should do, all will be well; however, that rarely occurs. Consequently, it is necessary to make the employee look beyond the routine to the purposes of his or her job. In effect, the employee must ask, "why am I employed here and what do I need to do to achieve that purpose?"

We can help the employee in answering that question by providing clear goals. In fact, research has indicated that goals are one of the primary motivating forces.

Research has also shown that many people - particularly professionals - find motivation in further developing themselves by taking on challenging tasks in their professional area; this is often referred to as personal development or personal growth.

Finally, studies on the effects of employee participation in designing the work have indicated that such participation increases motivation. Employees can participate intelligently in job design, particularly where there are goals present to guide the design task.

Motivators, then, are:

Goals

Self-Development

Participation

Examining Disincentives

The procedure for looking at disincentives is simple to comprehend, slightly more difficult to apply (1) you begin by selecting a disincentive and determine if any group within the Ministry perceives that it is a "victim " of this disincentive. (2) If such a group exists, is the perception based on a realistic comparison between what this organization offers and others offer. (3) If the answer is "no", then the perception must be set straight; if the answer is yes, we proceed to the question of control. (4) Can the Ministry reduce the disincentive? Inmediately. Over the long term. Only with the collaboration of another organization. No control over the disincentive. (5) If it is determined that the Ministry can affect, either alone or with collaboration, the disincentive, then the Ministry must decide if the problem is great enough to warrant the actions needed to resolve it. This last decision is made only after all disincentives have been examined; the ministry may not be able to attack all of them simultaneously and must set priorities.

Instructions

On the forms provided proceed across the colums. In the example "embarrassing uniforms", we have identified two groups that suffer from this disincentive. For both groups we acknowledge that the new option of the present uniform cannot be changed--they do look silly. We can only remedy the waiters' uniform by appealing to the Ministry of Tourism which controls uniforms for the country. We can change the orderlies' uniform ourselves. In both instances we decide that the effort is worth making because the silly uniforms is causing orderlies

to resign and waiters to hide in the kitchen.

Perhaps it is already obvious, but in filling out the form, levels may mean hierarchical levels or work groups or professional groups.

EXAMPLE	EXAMPLE	EXAMPLE	EXAMPLE	EXAMPLE	EXAMPLE	EXAMPLE
	PERCEPTIONS		CONTROLLABILITY			
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
Embarrassing Uniform	1. Waiters	yes	no	no	Min Tourism		yes
	2. orderlies	yes	yes				yes
	3.						
	4.						
	5.						
	6.						
	7.						
_____	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	PERCEPTIONS	CONTROLLABILITY					
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
PAY	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
WORK CONDITIONS	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	PERCEPTIONS		CONTROLLABILITY				
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
HARSH SUPERVISION	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
INADEQUATE SUPPLIES OR EQUIPMENT	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	PERCEPTIONS	CONTROLLABILITY					
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
EXCESSIVE HOURS	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
UNPREDICTABLE HOURS	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	PERCEPTIONS		CONTROLLABILITY				
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
SEPARATION FROM FRIENDS/FAMILY	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
CONSTANT TRAVEL	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

DISINCENTIVE	PERCEPTIONS LEVELS AFFECTED	CONTROLLABILITY ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
LACK OF RECOGNITION	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
LOW OPPORTUNITY FOR ADVANCEMENT	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	PERCEPTIONS	CONTROLLABILITY					
DISINCENTIVE	LEVELS AFFECTED	ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
INEQUITABLE DISTRIBUTION OF REWARDS	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
FAVORITISM	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						

	DISINCENTIVE	PERCEPTIONS LEVELS AFFECTED	CONTROLLABILITY ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
(OTHER)	_____	1.						
		2.						
		3.						
		4.						
		5.						
		6.						
		7.						
(OTHER)	_____	1.						
		2.						
		3.						
		4.						
		5.						
		6.						
		7.						

	DISINCENTIVE	PERCEPTIONS LEVELS AFFECTED	CONTROLLABILITY ACCURATE PERCEPTION	IMMEDIATE FIX	LONG TERM FIX	CAN FIX WITH HELP	BEYOND OUR CONTROL	WORTH THE EFFORT
(OTHER)	_____	1.						
		2.						
		3.						
		4.						
		5.						
		6.						
		7.						
OTHER)	_____	1.						
		2.						
		3.						
		4.						
		5.						
		6.						
		7.						

Motivation

The three motivating factors listed earliers are goals, self-development, and participation in job design.

Assessing Self-Development Opportunities

Health professionals in general take pride in their skills. The structure of many health organizations, unfortunately, does not permit individuals to utilize or enhance their skills. If we analize the opportunities for a village clinic nurse, for example, we might find this:

Position: Clinic Nurse

can use full skills? Yes or No No

if no, due to : lack of opportunity

restrictions by organization

can develop further skills? Yes or No No

if no, due to : lack of promotional opportunities

restricted by organization

lack of training opportunities

In similar fashion, fill out the following forms for the major positions:

Specialist

G.P.

Administrator

Nurse

ASSESSING SELF-DEVELOPMENT OPPORTUNITIES

POSITION: _____

CAN UTILIZE FULL SKILLS? YES OR NO _____

IF NO, DUE TO: (circle answer) LACK OF OPPORTUNITY

RESTRICTIONS BY ORGANIZATION

CAN DEVELOP FURTHER SKILLS? YES OR NO _____

IF NO, DUE TO: (circle answer) LACK OF PROMOTION OPPORTUNITIES

LACK OF TRAINING OPPORTUNITIES

RESTRICTIONS BY ORGANIZATION

POSITION: _____

CAN UTILIZE FULL SKILLS? YES OR NO _____

IF NO, DUE TO: LACK OF OPPORTUNITY

RESTRICTIONS BY ORGANIZATION

CAN DEVELOP FURTHER SKILLS? YES OR NO _____

IF NO, DUE TO: LACK OF PROMOTION OPPORTUNITIES

LACK OF TRAINING OPPORTUNITIES

RESTRICTIONS BY ORGANIZATION

POSITION: _____

CAN UTILIZE FULL SKILLS? YES OR NO _____

IF NO, DUE TO: LACK OF OPPORTUNITY

RESTRICTIONS BY ORGANIZATION

CAN DEVELOP FURTHER SKILLS? YES OR NO _____

IF NO, DUE TO: LACK OF PROMOTION OPPORTUNITIES

LACK OF TRAINING OPPORTUNITIES

RESTRICTIONS BY ORGANIZATION

Assessing Opportunities to Participate and Goals

Participation in decisions regarding how the work is to be done is frequently at the pleasure of the superior. As it would be too onerous to evaluate every superior on this dimension, we will make a more general assessment of the current situation; we will also address the issue of goals simultaneously.

The question we must ask is very simple:

"How is the individual provided direction in his work?"

by constant supervision and orders,

by established procedures, or

through clear goals.

Generally you will find that the first answer is the most frequently used one. If you doubt that statement, consider what constitutes a good goal:

a) Quantitative. That way an employee can measure his own progress toward the goal.

b) Moderately challenging. Extremely difficult goals lead to frustration; very simple goals are an insult.

c) Immediate feedback. The results are known immediately so the employee can link his actions to the results.

Admittedly not every job lends itself to the formulation of these kinds of goals; most jobs, however, do.

For the major units (health centers, clinics, mobile teams, MCH centers, outpatient clinics, hospital wards, etc.) address the question stated above.

ASSESSING PARTICIPATION AND THE USE OF GOALS IN MOTIVATING

UNIT: _____

PRINCIPAL OBJECTIVE: _____

HOW IS DIRECTION PROVIDED TO EMPLOYEES?

SUPERVISION, ORDERS

ESTABLISHED PROCEDURES

CLEAR GOALS

UNIT: _____

PRINCIPAL OBJECTIVE: _____

HOW IS DIRECTION PROVIDED TO EMPLOYEES?

SUPERVISION, ORDERS

ESTABLISHED PROCEDURES

CLEAR GOALS

UNIT: _____

PRINCIPAL OBJECTIVE: _____

HOW IS DIRECTION PROVIDED TO EMPLOYEES?

SUPERVISION, ORDERS

ESTABLISHED PROCEDURES

CLEAR GOALS

EXERCISE J.

ACCOUNTING AND BUDGETING

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM
Project in the Hashemite Kingdom of Jordan

EXERCISE

Accounting

A. In the attached form, journalize the following transactions (Form A):

Date	Transaction
January 1.	1. The budget for the Ministry of Health, consisting of JD/1 000 000. is approved for the Year 1982. Approrpriations and estimated revenues are JD/1 000 000 each.
January 13	2. Purchase orders are issued for JD/28 000.
January 26	3. Payroll of JD/55 000 is paid (salaries, wages, and allowances)
January 28	4. Vouchers of JD/14 000 are approved for payment.
January 29	5. Vouchers previously approved are paid.

B. In the attached form, post the preceding transactions to the appropriation expenditure ledger. (Form B).

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

FORM A

Exercise 1 Answers

GENERAL JOURNAL

Date		Accounts and Explanations	Post Ref	Debit	Credit
Jan	1	Estimated Revenue			
		Appropriation			
Jan	13	Encumbrances			
		Reserve for Encumbrances			
Jan	26	Expenditures			
		Cash			
Jan	28	Reserve for Encumbrances			
		Encumbrances			
Jan	29	Expenditures			
		Cash			

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM
Exercise 1 FORM A

GENERAL JOURNAL

Date	Accounts and Explanations	Post Ref	Debit	Credit

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

Project in the Hashemite Kingdom of Jordan

EXERCISE

Accounting

MINISTRY OF HEALTH
APPROPRIATION EXPENDITURE LEDGER

Month and Day	Reference	Encumbrances			Expenditures		Appropriation	
		Debit	Credit	Open	Debit	Total	Credit	Available Balance

Assume you are the chief accountant for a Region. You are required to prepare a budget request for two programs for 1982. A (Laboratory) and B (X-rays). Also assume that the volume of services is equally distributed between two districts within the region (District I, and District II). Use the following information.

Program	Procedures (# of Units)	Unit Cost
A (Lab)	30,000	2 JD's
B (X-rays)	50,000	1 JD

Composition of Unit Cost

Object		Programs A (Lab)	B (X-rays)
10-16	Salaries and wages	60%	65%
25	Supplies	20%	25%
24	Public Work, Maintenance	15%	5%
20	Other expenditures	5%	5%

The Planning Council informs you that certain changes are expected to affect the costs of the programs in 1982.

1. Salaries and wages will increase 5%
2. Cost of supplies will increase 5%
3. Public work/maintenance will increase 10%
4. Other expenditures will not change .

Volume changes for 1982 are estimated as follows:

A (Lab) an increase of 10%

B (X-rays) an increase of 5%

For each (object) element of cost (salaries and wages, supplies, maintenance, etc.) of each program compute the unit cost. Prepare a budget request for 1982. Classify proposed expenditures for the lab by district within the region. Approximate if necessary.

Solution

A. Composition of Unit Cost

A (Lab)		A (Lab)	B (X-rays)
Salaries and wages 2(60%)	=	1.200	.650
Supplies 2(.20)	=	.400	.250
Public Work 2(.15)	=	.300	.050
Other expenditures 2(.05)	=	.100	.050
TOTAL		2.000	1.000

B. Budgeted Unit Cost

	A (Lab)	B (X-rays)
Salaries and Wages		
A. (1.20) + (5%)(1.20) = .06	1.26	
B. (.65) + (5%)(.65) = .03		.680
Cost of Supplies		
A. (.40) + (.05)(.40) .02	.420	
B. (.25) + (.25)(.05) .01		.260
Maintenance/Public Work		
A. (.30) + (.30)(10%) .03	.330	
B. (.05) + (.05)(10%) .005 .01		.060
Other Expenditures		
(No change)	.100	.050
Estimated Unit Cost	2.110 JDs	1.050 JDs

C. Changes in Volume.

A (Lab) Increase of 10% = 30,000 x 10% = 3,000

30,000 + 3,000 = 33,000

B (X-rays) Increase of 5% = 50,000 x 5% = 2,500

50,000 + 2,500 = 52,500

Budgeted Volume for A (Lab) = 33,000 Units

Budgeted Volume for B (X-rays = 52,500 Units

District I

Units of A = ($\frac{1}{2}$) (33,000) = 16,500

Units of B = $\frac{1}{2}$ (52,500) = 26,250

District II

Units of A = ($\frac{1}{2}$) (33,000) = 16,500

Units of B = ($\frac{1}{2}$) (52,500) = 26,250

Estimated Costs.

A (Lab) 33,000 x 2.11 = 69,630 JDs

B (X-rays) 52,500 x 1.05 = 55,125 JDs

D. SUMMARY

MINISTRY OF HEALTH EXPENDITURE BUDGET

EXPENDITURES BY PROGRAM

Ministry of Health	1980 Actual	1981 Budget	1982 Proposed
Laboratory	58,000	60,000	69,630
X-Rays	49,000	50,000	55,125

1980 figures as assumed.

E.

Program \ Districts	I	II	Total for Region
Laboratory			
Salaries and Wages			
16500 x 1.26 =	20,790	20,790	41,580
Cost of Supplies			
16500 x .42	6,930	6,930	13,860
Maintenance			
16500 x .33	5,445	5,445	10,890
Other expenditures			
16500 x .10	1,650	1,650	3,300
TOTAL	34,815	34,815	69,630

Variances

Exercise 2.

Assume that the proposed budget for 1982 was approved and that the expenditures for A (Lab) were equally distributed in District I. Also assume that 34,200 JDs were allocated to the Hospital in District I, the remaining 615 JDs were allocated to clinics and health centers. The hospital actual expenditures for the first quarter were as follows:

January	2,500 JDs
February	2,850
March	2,960
April	3,100

Using the form provided, prepare a monthly comparison report for the month of April.

EXERCISE K.

VARIANCE

VARIANCE

A variance is a deviation from expected outcomes which may occur because of changes in services, miscalculations of workloads, inefficient operations, emergency situations or a combination of these factors. In analyzing variances it is helpful to separate them into prices, efficiency and overhead. Of particular relevance is the overhead variance or "Fixed Cost Variance". It has become apparent that the largest percentage of health care expenditures would fall into the fixed or indirect category, therefore the allocation of these costs become paramount in unit costing. For instance if a hospital budget calls for 1000,000 dinars and 1,000,000 patient days are expected, the allocation rate will be 1000000/1000000 = 1 J.D. This rate then will be used throughout the year for costing purposes. Assuming that the number of pt*days turns out to be less than the expected an unfavorable variance will occur. If the actual number of pt*days exceed 1000000 the variance will be favorable. This favorable or unfavorable variance is called "denominator variance" because it is related to units of output.

Variances may also result from variations in prices, for instance if unexpected changes in prices produces a higher/lower overhead rate the price variance can be isolated by multiplying the actual units times the differences between the predetermined and actual rate.

* Pt refers to the word patient.

Predetermined Rate or Standard $\frac{1000000 \text{ JDs}}{1000000 \text{ Units}} = 1.0$ J.D.

Actual Rate $\frac{12000000}{100000} = 1.2$ J.D.

Actual Units = 1000000

Variance 1000000 (1.2-1) = 1000000 (.2) = 200,000 J.D. Unfavorable.

Another possible cause for variation is changes in efficiency levels. To isolate this variance the standard rate is multiplied by the difference between actual and standard units.

Standard or Predetermined Rate =.1 J.D. (Var Rate)

Actual Units 2000000 man-hour

Standard Units 1000000 man-hour

.1 (2000000 - 1000000) = 100,000 JD's

This variance deserves further analysis, if 1000000 represents standard man-hours allowed to achieve a given output, i.e. to provide nursing services in a 110-bed hospital, and in fact 2000000 man-hours were employed, the excess in man-hours times the wage rate per man-hours will explain the portion of the variance that is due to inefficiencies.

In order to investigate the sources of variations, it is important to have a monthly report that shows the budgeted amounts vs. the actual expenditures on a monthly basis. This report will also contain a column showing the budgeted amount for the year and the year-to-date expenditures.

At this stage it may be possible to develop more meaningful budgetary classifications. Budgetary classifications may be input or output oriented. An input oriented classification will use object of expenditures such as it exists today (Administration, supplies, capital equipment, etc.), the emphasis is on causes rather than purpose. Through the course of this experiment other classification or the rearrangement of existing ones may become apparent. An output oriented classification stresses purpose of expenditures i.e. preventive medicine. Since the present system also takes some programs (outputs) into account commingling it with an input oriented classification it seems reasonable to assume that a detailed analysis of the existing classifications will be warranted at this time.

Variance

	District Hospital	Monthly Comparison Date:			
Month of _____			Year to Date _____		
Budgeted	Actual	Variance	Budgeted	Actual	Variance

EXERCISE L.

FLOWCHARTING OF ACCOUNTING PROCEDURES

AUPHA HEALTH MANAGEMENT APPRAISAL METHODS PROGRAM

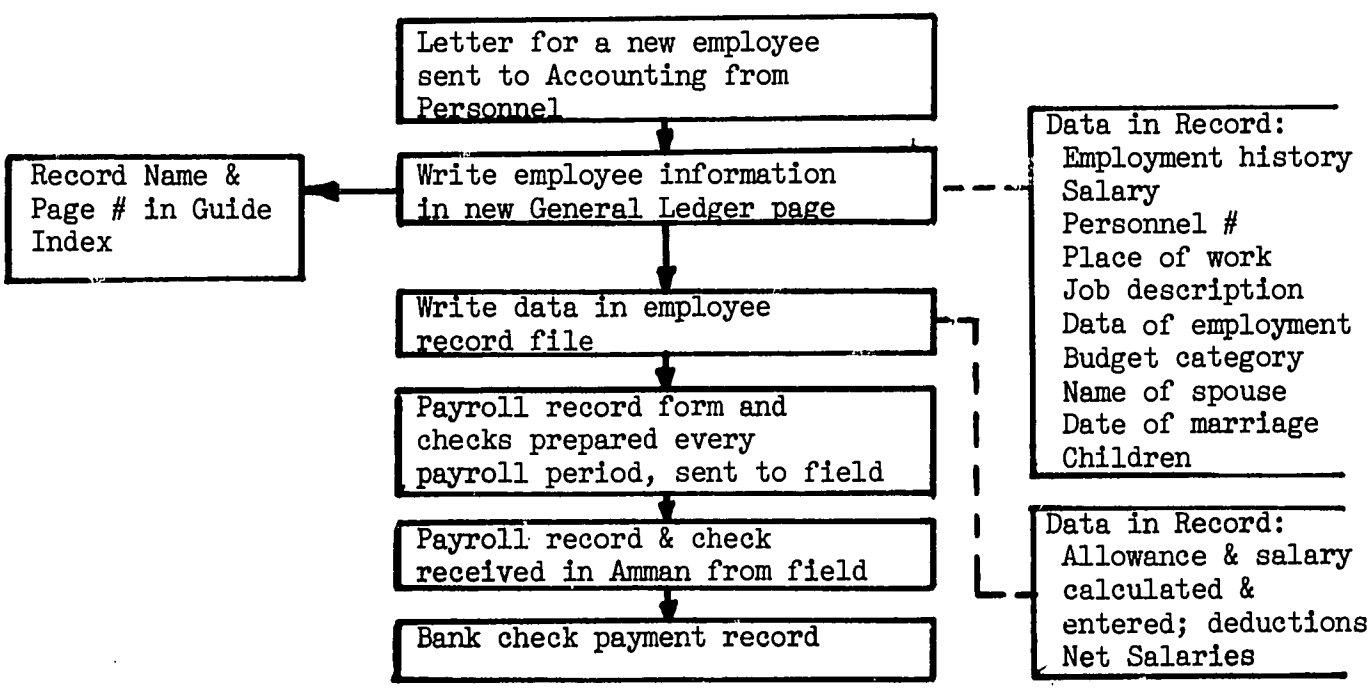
INSTRUCTIONS FOR FLOWCHARTING OF ACCOUNTING PROCEDURES
PREPARED BY DR. OLGA QUINTANA
25 AUGUST 1980

Flowcharting means to record the steps in a process or procedure in a simple or clear form. Each decision or calculation which changes the accounting information should be included in the flowchart. All of the places where the accounting information is recorded or stored should be included in the flowchart--even if the information is stored for only a short time. It is not important that a high quality of artistic work be followed in drawing boxes and line on flowcharts. A procedure which takes many pages to flowchart should be broken into several smaller flowcharts or flowchart modules.

Flowcharts usually have boxes and lines connecting the boxes. Words are written inside the boxes or beside the boxes to describe the procedure. The boxes usually mean that a calculation or decision is being made. The lines mean that data or information is being moved from place-to-place along the path shown. Usually the first step is put at the top of the page, and the last step is put at the bottom of the page.

The assignments for flowcharting in accounting are already divided into smaller modules, such as for payroll, etc. The steps taken to do the payroll accounting are shown below as an example.

SAMPLE PAYROLL ACCOUNTING PROCEDURE



EXERCISE M.

ACCOUNTING SYSTEM DESIGN

Who is to Blame?

This is an actual case study. The events took place over a four year period in a private, non-profit association in Latin America that provided family planning and maternal-child care services throughout the country.

In 1975 the association had a budget of $500,000 which was donated by two major funders and another small funder. Three assistant accountants and the chief accountant handled the books; this was a difficult job as each of the three funders demanded a different type of report.

In 1976 it was discovered that the administrative director and his assistant had embezzled a sum of money and were both fired. The funders were concerned - as was the Board of Directors - and new tight controls were instituted. More people had to approve expenditures and the issuance of checks. This slowed down the accounting somewhat and occasionally the books would be as much as one month late.

The organization continued to grow. By 1979 it had a budget of over $1.7 million which came from thirteen separate donors. As before, most of them requested unique reports. They also differed in how rigorous they were in auditing the use of their funds. Some of them demanded a separate bank account for their funds and the association had agreed to a special bank account for each donor.

The accounting had become quite complicated. For example, one person might receive his salary from three different donors. Also, construction had begun on a large clinic and checks had to be issued rapidly to contractors and suppliers.

The management of the association hired a fourth assistant accountant. One consultant recommended that the accounting system be computerized; this idea was rejected as the law of the country discouraged mechanization that led to unemployment. Another consultant said that the problem was in the information that arrived in accounting - it was hard to figure out the vouchers and post them properly.

No changes were made in the system and a fifth assistant accountant was hired. Still the work fell behind until it was rarely less than three months behind.

In November 1979 the association issued $40,000 worth of checks that were rejected by the banks for lack of funds in two bank accounts. The bad news traveled fast: All of the association's suppliers cut off their credit. Employees had trouble cashing their pay checks.

A few employees, incorrectly believing the association was bankrupt, quit to work elsewhere.

In disgrace, the chief accountant resigned and two of her assistants left with her. It was rumored that had they not quit they would have been fired.

A Presentation on Budgeting

Purpose

1. Review the budget process in Jordan.
2. Discuss static budgets.
3. Discuss flexible budgets.
4. Review methods to analyze variances.
5. Work problems.

Static Budgets

(1) Generally volume is based on the total number of:
   a. Procedures
   b. Treatments

(2) All procedures are treated as equal without regard for the intensity of services.
   a. All patient days are equal. Cancer patient/days are treated like normal delivery patient/days.
   b. All radiology procedures are equal. It does not take into account complexity, time, cost, etc.

(3) Departmental statistics are used for:
   a. Staffing budget
   b. Expense budget

(4) Most budgets based on historical trends in a department.

(5) Discuss pros and cons.

Compute the relationship between procedures and admissions.

Sample

	Historical			Budget
	1979	1980	1981	1982
Total Admissions	12000	12480	12980	?
Department:				
Radiology				
Total procedures	12500	12854	13200	?
Procedure/Admission	1.04	1.03	1.02	?

Notes: (1) 4% increase in admission per year
12480/12000 = 1.04
12980/12480 = 1.04
12980 X 1.04=519 12980+519=13,499

(2) .01 dec. in procedure for admission
Answer: 1.01, but to be safe use 1.02
If 1.01, 1.01 X 13499=13634
If 1.02 1.02 X 13499=13769

Sample

Radiology Department (Expense Budget)

	Historical			Budget
	1979	1980	1981	1982
Total procedures	12,500	12,854	13,200	13,769
Manhours	56,000	57,843	59,400	?(1)
Manhours/procedures	4.48	4.50	4.50	4.50
JD's/Manhours(given)	2.2	2.7	3.2	?(2)
Salary expense	123,200	156,176	190,080	?(3)
Supplies/other expenses	112,500	122,113	132,000	?(4)
JD'ssupplies procedures	9	9.5	10	10.5

Notes:
(1) 61,961=(4.50)(13,769)
(2) assume .5 Inc JDs per manhour=3.7
(3) (2.2)(5600)=123,200 etc.
(3.7)(61,961)=229,256
(4) assume .5 Inc in JD per procedure 10.5 X 13,769=144,575

Flexible Budgeting

(1) Takes into account fluctuations in volume.
(2) Differentiates between fixed and variable costs.
(3) Recognizes controllable and uncontrollable variances.

Determine:
Budgeted cost per procedure
Actual cost per procedure

If actual cost per procedure is greater than budgeted cost per procedure, result is Unfavorable Variance.
If actual cost per procedure is less than budgeted cost per procedure, result is Favorable Variance.

Variance Analysis

Difference between actual and budgeted expenditures.
Favorable - actual is better
Unfavorable - actual is worse

		Example
	Budgeted Cost	2,000
	Budgeted Procedures	200
	Budgeted Cost/Proc.	10
If:	Actual Cost	2,200
	Actual Procedures	220
	Actual Cost/Proc.	10

Budgeted Expenditure=Fixed Cost + [Variable Cost per procedure X # of Procedures]

1. Assume -
   Fixed costs are 400 JD's/Month Salaries
   Variable costs are 10 JD's/Procedures for Supplies
   Plan to perform 600 procedures in a month

Static Budget:
400 + (10)(600)=6,400

Flexible Budget:
400 + (10)(600)=6,400

Suppose
Actual costs are: 400 for salaries
5000 for supplies

Static Budget----	6,400	
Actual----------	5,400	
Variance----------	1,000	Favorable
Flexible Budget---	6,400	
volume---	0	
Management--------	1,000	Favorable

2. Assume that actual procedures are 500 and 700 respectively.

3. Assume that

Actual procedures are	650	
Actual costs are	400	JD's salaries
	7150	JD's supplies
TOTAL	7550	JD's

What is the variances?

Why have budgets?

1. To allocate financial resources to programs and activities. In the Ministry of Health it is a plan for expenditures.

2. Because financial resources are not unlimited.

3. Because it is required by law.

Types of Budgets

1. Object-of-expenditures - or line-item budget.

   a. Classification is input oriented.

   b. Designed to record the amounts to be spent for each line item, for instance: supplier and salaries, and for each sub-element (Region) of the Ministry of Health Fund.

2. Program Budgets -

   a. Classification is output oriented.

   b. Designed to relate spending for specific activity.

   c. Supplement line item budgets.

Program Budgeting

1. Identify programs and the health needs served by those programs.

2. Assign priorities to the different activities - (examine all programs to evaluate if they are achieving their objectives and at what cost).

3. Estimate the resources required to operate each program.

4. Functional unit costs could be developed.

5. Line item expenditures could be converted to program expenditures.

Object of Expenditure Budget

Salaries and allowances	10,000 JD's
Rents	300
Electricity and water	2,500
Communication	200
Training and transportation	100
Supplies	700
Maintenance	300
TOTAL	14,100 JD's

Program Budget

Administration	3,100 JD's
Malaria control	2,500
Child and maternal health	2,000
TB control	1,500
Oral rehydration	3,000
Vaccination	2,000
TOTAL	14,100 JD's

Workshop August 19, 1981

Definition of concepts:

Fixed costs: Do not change with changes in volume within a relevant range. example salary of a supervisor.

Variable Costs: Change with different levels of activity. Example supply expenses.

Controllable costs: Those which managers can directly influence. they may be fixed or variable. For instance travel is a fixed controllable cost, and overtime is a variable controllable cost.

Uncontrollable costs: Items over which management has no control. These costs tend to be associated with volume of output. For example as the number of procedures increases more supplies will be used. An uncontrollable cost may be fixed or variable.

- Salary of a department head--fixed
- volume increase in supplies--variable

Questionnaire Hospital and District Directors

1. Assuming that there are 4 months left in the fiscal year and you are asked to decrease your cost by 10%. What items would you consider? Please be specific.

2. Assuming the above factors, except that you have been informed that you could increase your expenditures by 10%. What items would you consider?

- 2 -

3. Assuming that you are asked to decrease your costs by 10% for the next fiscal year. What items would you consider?

4. Assuming that you are informed that your budget for the next fiscal year will be increased by 10%. What items would you increase?

A PRESENTATION IN COST CONTAINMENT

Olga Quintana

In the past few months there has been an increasing awareness in Jordan of the apparent need for controlling health care costs. This need can be better appreciated by Regional Director and regional accountants who are constantly exposed to the demand for increases in the level of services provided and to the shortage of revenues to support these services.

An initial step in cost containment is to classify each cost according to its characteristics. Generally, costs are grouped into controllable and noncontrollable and are classified into fixed, variable, or semi-variable.

Controllable costs are those which managers can directly influence depending upon the level of responsibility under consideration. Obviously, a cost that is uncontrollable at one responsibility level may be controllable at some other. It should be mentioned that responsibilities accounting is an integral part of the management process and should be based upon the organization structure. Apparently, there can not be a package approach to it, for it must be tailor-made to the particular organization's distribution of responsibilities. Nevertheless, certain aspects of costs such as high prices due to inflation, or increases in minimum wages, may not be controllable at any level.

It must be pointed out that it is very difficult to differentiate between controllable and uncontrollable costs without defining the scope of management responsibility. That is, it is fundamental that the boundaries of managerial authority be clearly determined in advance. For example, payroll costs may not be controllable by a hospital director. However, such costs may be controllable by the personnel manager at the central office. Also, it is important to take into account the time span. For instance, if a computer is leased for a period of five years, and if the time period for evaluation were one or two years, the yearly lease payments would be viewed as non-controllable. But if the time period for evaluation were five years then the lease payment could be viewed as controllable.

Costs are also classified according to their behavior pattern, that is into fixed, variable, or semi-variable. Fixed costs do not change with changes in volume within a relevant range, while variable costs do tend to change with different levels of activity. A semi-variable cost has both fixed and variable components. Volume may be measured by number of patient days, number of procedures performed, number of miles driven, or any other index. In a district, payroll costs tend to be fixed while supply costs are variable.

In the Ministry of Health, fixed costs may arise from yearly appropriations that reflect national health policies, such as expenditures for research or training which do not have a specific relationship with the volume of service provided. Or they may result from previous commitments such as maintaining a clinic opened even if it provides services to a very small percentage of the population.

The time span is also very important in determining whether a cost is fixed or variable. For example, payroll costs will be fixed for a year, but may be higher or lower the following year. It is important to note that a controllable cost could either be fixed or variable, for example, part-time labor is a controllable-variable cost while travel is a controllable-fixed cost.

A second step in cost-containment is to ensure that certain conditions which are essential for effective control are present. Further, it may prove valuable to form a study committee to evaluate these conditions. They are:

(1) A solid organizational structure and a chart of accounts that conforms with the organization chart.
(2) Cost centers that correspond with responsibility centers.
(3) An appropriate information system, and an accurate accounting system capable of generating useful information.
(4) The effective use of cost finding methodologies such as direct apportionment, step down, double apportionment or algebraic.

If any of these conditions are not present, cost containment efforts will be ineffectual.

The third step in a cost containment effort is to study the various accounting reports, and to examine variances between budgeted and actual costs. In fact, the budget, if effectively used, will provide valuable assistance in understanding and handling costs. In analysing variances, particular attention should be given to cost increases in personnel, supplies, and capital equipment; also the cause of the increase should be determined i.e., whether it is due to technological improvements, general price increases, or changes in the utilization level. It becomes apparent that this type of analysis would be facilitated by the use of flexible budgeting which recognizes fluctuations in volume, differentiates between fixed and variable costs, and acknowledges controllable and uncontrollable types of variances.

Generally, the objective of a cost-containment effort should be to improve productivity. This could be accomplished by increasing the level of services provided such as patient days or number of procedures, without increases in personnel, supplies or capital equipments; or by decreasing manhours and supplies without changes in the volume of services provided.

Commonly used techniques for cost control are reductions in purchasing, decreases in personnel, changes in operating procedures, and budgets. These steps, although not inclusive, should direct attention to areas where cost-containment efforts could be intensified.

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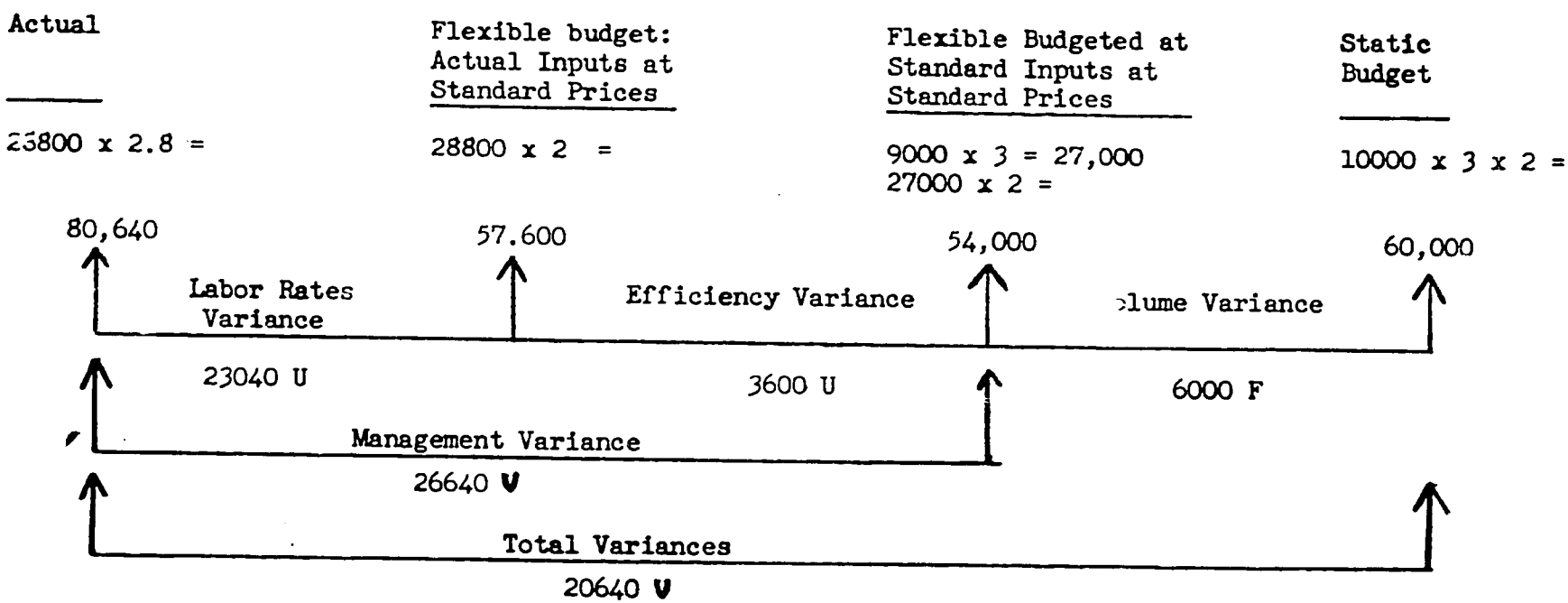
DEFINITIONS

1.	Volume Variance	:	Variance caused by operating at a different activity level than budgeted
2.	Labor-efficiency Variance	:	Caused by utilizing a different amount of labor hours per unit of output than budgeted
3.	Labor-rate Variance	:	Caused by a different rate per hour for labor than budgeted
4.	Material-usage Variance	:	Variance caused by utilizing a different amount of materials per unit of output than budgeted.
5.	Material-price Variance	:	Caused by purchasing materials at a different price than budgeted.

1 + 2 + 3 + 4 + 5 = Total variance

VARIANCE ANALYSIS UNDER FLEXIBLE BUDGETING