Handbook for Smallpox Eradication in Endemic Areas (1st revision)
Smallpox eradication unit, WHO
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ADMINISTRATIVE SUPPORT

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1. Introduction

Administration for the countries in which smallpox eradication programmes will be undertaken is a sociological and cultural phenomenon, which has evolved with the country and is an essential thread in its national fabric. In those countries in which a programme of smallpox eradication is being introduced it will be rare to find an existing administration that is completely adaptable to the needs of the eradication programme. Thus, from the beginning it will be a prime responsibility of those directing the programme to develop appropriate administrative requirements responsive to the needs of the programme.

The key to successful administration of an eradication programme is the assurance of sufficient administrative flexibility to meet the changing technical requirements of the operations. Problems will undoubtedly arise when these requirements must be serviced by existing public administrations which because of size and tradition tend to be inherently inflexible. Questions of payment of personnel working in isolated areas, distribution and cold storage of vaccine, action in epidemic situations, provision of adequate funds for necessarily extensive travel of central and intermediate level supervisory personnel are often unique to an eradication programme and the administrative problems relating to these activities must be carefully reviewed in advance. In most cases the existing administrative procedures will have to be modified or expanded, while in some instances it may be found that the technical programme may be slightly modified to fit in with the local administrative pattern.

Since, in almost every country, the smallpox eradication programme will be a part of the Ministry, or Department of Health Services, it may be assumed that many of the basic administrative questions, such as salaries and travelling allowances, personnel, and accommodation will be handled by the existing services. Since these functions as well as budgeting and organization have a significant bearing on the programme, the directorate of the eradication programme will need to be concerned with these aspects; a few general principles are noted in this section.

In two areas which represent the operational essentials of the programme - supplies and equipment and transport - the national programme director and the WHO adviser, if present, should and indeed must become personally and directly involved. In this section of the Manual these two problems are dealt with in greater detail in the form of outlines, lists, charts, and forms. What is presented are suggested models which are to be modified, expanded, or abridged, based on the existing situation and requirements in the individual countries.

Administration, like form, follows function and its efficiency does not necessarily result from any specific expertise on the part of those responsible, but largely from their power of observation combined with common sense and imagination.

2. Budget

The end results of budget planning are expressed in monetary terms. These end figures are obviously important as they represent the means by which the programme may be carried out. However, for those directing the programme they are only the end product representing an extensive analysis of the programme in terms of goals, time, operations, personnel, services, and equipment. Only after the work to be accomplished and the means to accomplish it have been carefully planned, may one begin to attempt the conversion into financial equivalents.

Budget planning for smallpox eradication begins quite simply at the "grass roots" level - How many persons are to be vaccinated or revaccinated during a given year and where are they? What is required for surveillance and assessment? It is essentially in reply to these basic questions that the entire programme and budget are built. From this base, one determines the amount of vaccine required, the organizational structure and personnel required beginning with the individual vaccinator and moving up to the Director of the programme, the equipment needed to carry out the vaccination the transport necessary for the movement of personnel and supplies, and the auxiliary technical and administrative activities necessary to service the programme.

The goals of the programme and the operational plan to achieve them have in themselves no financial equivalents but they determine the various elements of the programme which are easily expressed in monetary terms. For example:

- the operational plan determines the organizational structure necessary to carry out the plan;
  - the organizational structure determines the personnel on all levels required to staff the organization;
    - personnel strength known by number and grade, may be estimated in financial terms;

and

- the operational plan plus the organizational structure determine the amount and type of transport required;
  - the transport required will determine the requirements for drivers, mechanics, garage space, petrol, lubricants and spare parts.
    - All of the above elements may be estimated in financial terms.

The principle to be retained is that a smallpox eradication programme has been created and its budget is calculated, pyramid fashion, from the bottom, the culminating point representing the total figure necessary to carry out the operational plan.

The element of flexibility noted as a general requirement for the administration of SE programmes should be equally present in the budgeting. This should be present in the form of estimations for reserve stocks of equipment and vaccine to cover delayed deliveries or epidemic situations, sufficient quantities of spare parts for vehicles and mechanical equipment, "fire-fighting" personnel sufficient to cover outbreaks, and most importantly and usually most difficult to achieve, authority within the programme to shift moneys between sections of the smallpox eradication budget without time-consuming reference to higher authorities.

3. Organizational structure

Although no attempt can be made to describe ideal organizational patterns that would be suitable for all countries, the principle of establishing, very early in the programming, the organizational structure to carry out eradication should be heavily emphasized. It is necessary to clearly define the interior structure of the service as well as to place the eradication apparatus appropriately within the existing health structure.

Organizational tables should be prepared to indicate graphically:

lines of communication, both vertical and horizontal;

chains of command and responsibility;

liaison with outside sections or departments;

number and type of personnel in each unit or section.

In conjunction with these tables, job descriptions should be written to cover each post envisaged for the programme. These should note, in precise detail, the functions of each worker, the experience and education required for the post, the immediate supervisor above and those to be supervised by the holder of the job. Descriptions of this nature are useful for recruitment purposes and will eventually be a guide for the person holding the particular post.

4. Supply services

The supply function consists of a series of actions viz, estimating, indenting, receipt, storage, distribution, replenishment and accounting of the supplies needed for the execution of a programme. Not merely must supplies be adequate in quantity and of the right specifications, they must also be available at the right time and at the right place. A reliable flow of supplies is a critical factor in any eradication programme and, in instances, it has been established that a programme has fallen short of its original planning primarily on account of a breakdown in the supply mechanism.

A simple supply management procedure, and a description of the minimum facilities that are needed is outlined here. Variations should be developed to harmonize with the particular conditions in each country. This scheme, which is designed for relatively small programmes, may be elaborated in many respects if it is to cope with a large-scale operation.

4.1 Supply warehouse

Whether the supplies for the SE programme are housed separately or as a section of a central medical warehouse, certain attributes are essential. The space provided should be readily accessible and this factor is of particular importance when an independent depot is not provided for SE stores. It must be assured that SE supplies in central medical stores are not only quickly and easily obtainable, but that they may be controlled and inventoried at any time, independently from the general stores.

In many programmes, mechanical spare parts are kept separately in the store's section of the workshop or garage. Even in those cases where they are kept with the operational supplies, it is best that they be in a separate and self-contained unit.

4.2 Methods of storage

Materials must be stored in such a way that the work of receiving, dispatching and stock checking can be done systematically and with the minimum of staff. The following practices might, with advantage, be adopted:

4.2.1 Storage decks. Materials should, in general, be raised off the ground, as this produces greater cleanliness and less risk of deterioration or damage. (Suggested specifications for simple storage shelves are given in Fig. 1 at the end of the section.)

4.2.2 Layout. It should afford speedy identification of all items in stock. If a supply catalogue, or index, has been developed, systematically listing all the items in store, it would be convenient if the materials are also stored in the order of this supply catalogue.

4.2.3 Labels. It is of paramount importance that all items should be clearly labelled, giving the name of the item, brief specification and catalogue number (if there is a catalogue). If bins and shelves are used, a bin label should be affixed in front. For bulky items, a tie-on label can be used or identification directly painted on the bulk packing.

In the case of small consumable items which are used in large quantity, a small portion for current consumption may be kept on the appropriate shelf, and the bulk stocks preserved, with proper identification, in the bulk store section.

4.2.4 Unit piling. It consists of a systematic arrangement of materials in rows so that each row contains a given number of articles. This, apart from being orderly, enables quick checking of stocks.

4.2.5 Special storage. Some of the commodities used in SE require special precautions. Tyres should be stored upright on racks in a cool place and should never be stacked flat, i.e. one on top of another. It may be found necessary to keep certain small items of value (i.e. tally counters, compasses) or of general utility (ball-point pens, cotton, hand soap) in a specially locked section within the storeroom.

4.2.6 Cold storage. It is an essential for stocking of freeze-dried vaccine both at central and peripheral levels. A central storage depot for the vaccine must be found with a temperature of less than 10°C (50°F). In many cases, a room of this nature will not be available in the government warehouses and arrangements should be made well in advance of the arrival of the vaccine. Before vaccine is dispatched to the field, the responsible officers of the programme must be sure, preferably by means of personal inspection, that adequate cold storage facilities have been arranged in the peripheral areas.

4.2.7 Mechanical spares. These can be classified into fast-moving and slow-moving parts and while the former should be quickly accessible, the latter can be preserved in bulk store.

4.2.8 Metallic items. Those subject to rust should be treated with some form of preservative and moving parts of all mechanical equipment must be kept properly lubricated.

4.2.9 Preservation of stocks. It is the storekeeper's duty to ensure that when goods are issued from his store they are in as good a condition as they were when received. To this end, stocks should be periodically inspected, expiry date for vaccine should be noted, and periodical shifting of position for materials which remain in store for long periods is desirable.

In general the rule of "first in, first out" should be followed in issue of stores so that an even turnover is maintained and deterioration of old stocks is obviated. This is particularly important with respect to vaccine stocks where a constant control must be maintained over the expiration dates of each batch. Should vaccine be on hand which has passed the expiry date, it should be retested. Vaccine retesting should be arranged by the responsible officer by sending the necessary samples to Chief, Smallpox Eradication, WHO, Geneva. The procedure involved is outlined in section III, Technical Considerations.

4.3 Security

Security measures must be taken against internal and external hazard. The chief internal hazard is fire and, for this, all inflammable and combustible materials should be stored separately and chemical fire extinguishers provided. External security is concerned with pilferage. The keys of the warehouse should be with one responsible officer, usually the chief storekeeper, from whom, if possible, financial or property security should be obtained. The premises should be constantly patrolled by guards. Periodical surprise inspections by a responsible officer will keep the stores personnel on the alert.

4.4 Personnel

With the exclusion of the vaccine and the vehicles, which will usually be stored separately, neither the variety nor the bulk of the items necessary for an SE programme is extensive. Therefore storekeeping personnel may often be reduced to the minimum of one employee responsible for receipt, physical custody, and issue of stores. Even this one storekeeper may be superfluous if the stores are handled through a central government depot. The functions of control, accounting, and ordering of supplies are generally handled by the administrator or in large programmes by a specialized supply officer or clerk.

4.5 Forms

The number of forms in use, and the number of copies in which each is prepared, should be kept to the absolute minimum, but a certain number are indispensable if negligence, abuse and fraud are to be avoided. The following are some of the forms and registers commonly in use:

4.5.1 Stock control ledger or stock control cards (Annex I)

This is kept by the storekeeper or the administrator and in it all receipts and issues will be recorded. The pages in the ledger are numbered consecutively and the headings arranged alphabetically or, according to the supply catalogue, if one is developed. In any case, a complete alphabetical index of all items available in the warehouse, in its various sections, must be maintained, separately, or as a part of the stock control ledger. A new ledger should not be opened until the old one has become unserviceable. Rearrangement of headings, if necessary, can be made when a new ledger is opened.

At the top of the ledger sheet for each commodity, minimum and maximum stock levels should be given to serve as a guide for ordering replenishments.

From the functional point of view this information is more efficiently recorded on a series of large stiff cards in a file and, if a special store is to be organized for an SE programme, a card system is the more practical one to be instituted. However, a ledger system is the traditional one in most countries and, as long as one is assured that all the essential information is noted on the ledger, it may be easier, from a practical point of view, to continue with this system.

4.5.2 Receipt vouchers (Annex II)

Receipt vouchers are prepared in duplicate by the storekeeper; the original is given to the supplier and the copy kept by the storekeeper. The entry is then recorded on the stock control ledger or cards.

Notation of stores received must be entered in the stock control ledgers or cards, if possible on the same day on which they are received in the stores.

4.5.3 Issue voucher (Annex III)

When supplies are issued from the store they will be covered by an issue voucher prepared in duplicate; the original is signed by the receiver and is retained in the store, and the duplicate given to the receiver. The issue and the number of the pertinent voucher is then entered on the stock control ledger or cards.

The stock control forms, be they ledgers or cards, and the receipt and issue vouchers are the bases for any storage system. Depending on the situation and the extent of the operation, additional forms such as requisitions, indenting forms, inventory forms, and shelf cards may become necessary. However, the guiding principle is always to reduce the paper work to a minimum level consistent with satisfactory control and supervision of the stock.

4.6 Central control

In a programme where supplies are being distributed in a large geographical area and where they are often distributed directly to the field from the port of entry, bypassing the central stores, or kept in separate storage (i.e. vaccine), it is essential that there be a central system of control. Practically, this means that every item must be accounted for on the central stock control, even in those cases where the item has not physically been in and out of the central stores. This form of control, if rigidly adhered to, will avoid a great deal of effort in subsequently tracing supplies. Future supply planning is facilitated if all the information is complete on one central set of records.

In addition to all the information being centrally recorded, the ultimate responsibility for the supplies should be centrally and uniquely given to one officer, the administrator for the programme, in most cases. Through constant control of the recording system and frequent personal inspections, he should be in a position to know the location, the balances, and the re-order status of all supplies in the programme. The centralized control of information and responsibility is of great importance in an SE programme where equipment and material is being distributed over a wide geographical area.

4.7 Ordering of supplies

Among the most important of the administrator's functions is to estimate in advance and place timely orders for materials which will be needed for future programme activities. He must, for this purpose, not only keep in close touch with his technical colleagues but must himself be completely conversant with programme planning and programme developments. He must

watch monthly consumption in standard commodities, recognize and learn to anticipate periodical fluctuations in the demand for certain commodities and, relating this information to estimated future requirements, determine the quantity and timing of the purchases to be made. It is best that systematic periodical reviews be carried out at least twice yearly and perhaps more frequently for certain fast-moving items in order to make an intelligent forecast of future requirements and thus to ensure the uninterrupted progress of programme activities.

The factors to be recognized in ordering supplies are as follows:

(a) ordering time;

(b) estimated future monthly consumption;

(c) reserve stock;

(d) stock on hand;

(e) outstanding orders;

(f) time between periodic reviews.

4.7.1 Ordering time

The total elapsed time between ordering and receipt of goods is determined by the following:

4.7.1.1 Time taken for a request to be processed by a field unit, and to reach the central level.

4.7.1.2 Time required to process the request in the headquarters including the obtaining of the necessary approvals and, if need be, procedures regarding competitive bids.

4.7.1.3 Time for purchase order to reach supplier.

4.7.1.4 Time for supplier to execute the order.

4.7.1.5 Shipping time from supplier to port of entry or receiving warehouse.

4.7.1.6 Average time taken for local handling, port formalities, overland trans-shipment from port to central warehouse to field unit.

4.7.1.7 A time margin should be allowed for unforeseeable contingencies and unavoidable delays. This is obviously an unknown but essential factor, as the entire programme may be upset if supplies are planned for arrival in

a minimum rather than a maximum amount of time. Even past experience may not prove a reliable guide as many of the situations (i.e. vaccine arriving on a plane that crashes, vehicles coming from a factory that has had a labour shutdown) are completely unpredictable. After the above time factors have been taken into consideration, an arbitrary period of at least two months for imported supplies and one month for locally procured supplies should be added as a safety margin.

4.7.2 Estimated future consumption

In certain commodities the outflow each month is regular throughout the year, e.g. stationery. In others, there are particularly heavy consumption months and annual averages are not valid; every item will need separate calculation according to its operational use in the programme.

4.7.3 Reserve stock

In all commodities, it is prudent to maintain a reserve stock as a safeguard against breakdown in the delivery routine from the supplier and to meet unforeseen increases in consumption. At the beginning of the programme, with little experience on which to calculate a reserve stock, an arbitrary reserve based on three months consumption might be established for all items. Obviously this reserve will be eventually adjusted up or down based on experience of consumption and delivery.

4.7.4 Stock on hand

When ordering supplies, the stock on hand should be accounted. This may be higher or lower than expected depending on fluctuations in consumption in the preceding review periods and the new order must be adjusted accordingly.

4.7.5 Outstanding quantity on order

If there are stocks due on unexecuted orders, this quantity too should be recognized in calculating the quantity to order.

Having taken into account all these factors, ordering can be effected with considerable accuracy. It must, however, be clearly understood that no simple mechanical formula can be applied in the ordering of supplies. Past consumption is only a guide. Nothing can replace intelligent understanding of the programme and skilled measurement and forecast of its needs.

4.8 Supervision and control of stores

While the Administrative Section is responsible for ordering, stock control, and other functions described earlier, and the storekeeper is responsible for safeguarding the stores in his custody, the Director of

the SE Service should himself exercise constant supervision and control over the flow of supplies and the custody of stores. He should himself perform, or cause to be performed, periodical and surprise checks on the activities of both sections. It should be the rule that a report on such periodical inspections is prepared by him or submitted to him.

The report, prepared at intervals not exceeding six months, should include:

(a) a comparison of the stock control ledger entries with the receipts and issues;

(b) a test comparison of ledger balances with actual stocks;

(c) an inspection of the conditions of the goods in stock and the manner in which they are stored, especially under tropical conditions;

(d) a check on the expiry dates of perishables;

(e) an inspection of dangerous chemicals and inflammable materials which require special storage conditions;

(f) a general inspection of the conditions of store-rooms and yards, and locks and fastenings.

The administrator should also ensure that the storeman or others responsible for supplies report without delay in cases of loss, deterioration or damage or of any discrepancy between their records and actual stocks.

When an officer is about to proceed on leave or transfer, he must check with his successor the stores in his custody and both officers must sign a certificate of "handing over".

4.9 Imported supplies and equipment

As most of the equipment to be used in smallpox eradication programmes will be arriving from outside the country, it is particularly important that those in charge of supplies understand and closely follow the entire shipping procedure. Normally the destinee is informed when the goods are shipped and receives the original copies of the documentation. It is at this moment, and not when the goods arrive in the country, that the necessary formalities must be initiated with the local agents, government clearing units, and customs. Once the shipment has arrived it must be followed-up on a day by day basis until release to the programme has been effected. Knowing customs officials personally is often required if inordinate delays are to be avoided.

4.10 Freeze-dried vaccine shipments

Because of the necessity for cold storage and because of a relatively reduced bulk, vaccine shipments will generally be made by air freight. In this case it is absolutely essential that airport officials and customs units be forewarned and requested to release the vaccine immediately. Time spent in advance in explaining to these officials the nature of the vaccine and the reasons for very special handling should help to assure this necessary co-operation.

At the risk of being repetitive, it must be emphasized that the system outlined here has been made as simple as possible, taking into account the limited personnel resources in many of the countries where SE programmes are implemented. In course of time as programmes develop, activities expand and trained personnel become available, more complex stores accounting systems can perhaps be instituted, but then only if there is a proven need for them.

5. Transport

5.1 Control and preventive maintenance

The ultimate effectiveness of any transport system does not depend on the extent and capabilities of the garage repair facilities, but rather on a well developed system of control and preventive maintenance. In this sphere, the national supervisory personnel are able to exert a considerable influence even if in an almost total ignorance of the mechanics involved in the actual running of the vehicle. The brief notes on these two subjects as well as the attached forms are intended as a guide for the use of the senior national staff, the WHO adviser and for selective dissemination to all levels of supervisory personnel using or responsible for vehicles. The growth of a sense of "transport consciousness" among the personnel will markedly extend the running life of the vehicles and minimize the number of breakdowns, a sufficient number of which may easily paralyse the entire programme.

5.2 Supervision and control should be directed principally to the drivers, the use of the transport and petrol consumption.

5.2.1 Drivers

In most national programmes the drivers pose a potential problem. Because of the nature of their duties they have long stretches of inactivity, and the national personnel, not knowing how to drive, are completely dependent on them for any matters connected with the transport.

Drivers left to themselves for a period of hours usually engage in one of four activities:

(a) sleeping in the vehicle;

(b) wandering away from the vehicle into the village;

(c) undertaking a series of small do-it-yourself operations on the motor;

(d) using the vehicle for commercial purposes.

Forced to a choice, the first activity is to be preferred, the second is annoying, the third often proves positively harmful to the vehicle, and the fourth is illegal.

The solution lies in occupying as fully as possible the time of the driver when he is not engaged in driving. This is done by insisting on continual small maintenance tasks, primarily cleaning, or better and entirely feasible in a mobile eradication operation, integrating the driver into the vaccination team. Duties assigned might be:

(a) swabbing arms before or after vaccination;

(b) controlling provision of supplies to the vaccinators;

(c) setting up the vaccination area;

(d) crowd control;

(e) visiting houses to see that all persons report to the vaccination post.

5.2.2 Vehicle usage

The primary control over the correct usage of the vehicles that may be exercised by the responsible officers is constant supervision and inspection of the Log Book or Daily Movement Record, kept in the vehicle and filled out by the driver. With a well-designed form and occasional cross-checking against petrol consumption and field reports, it is very difficult to cover up non-authorized use of the vehicles.

A complete log book entry should cover the following points concerning daily movements:

(a) date;

(b) name of driver;

(c) time and milage reading at departure;

(d) details of trip movement;

(e) time and milage reading at return;

(f) total milage covered;

(g) signature of responsible officer using or dispatching vehicle;

(h) petrol - quantity, milage reading at time of intake, voucher number.

Most countries will have a form already in use. However, and this is often not the case, these forms should be simple enough to be understood and maintained by the driver himself. A sample of such a form is attached as Annex IV.

5.2.3 Petrol consumption

From the beginnings of any programme the consumption of petrol must be rigidly controlled, and disciplinary measures, where fraud is discovered, should be severe. The only accurate method of control is filling the tank to capacity on two separate occasions and checking the consumption against the milage between the two fillings. However, monthly reports will give a reasonable average if one accounts for the approximate amount of petrol in the tank at the beginning of the month and deducts the approximate balance remaining at the end of the month.

5.3 Preventive maintenance

5.3.1 Daily and weekly inspection

Whether the vehicle is housed in a central garage or on tour in the field, the driver should generally be responsible for the first levels of maintenance represented by daily and weekly inspections. These, however, are basic enough to be supervised and rechecked by any of the supervisory personnel by simple observation or with a minimum of training. A sample check list for these two inspections is annexed (Annex V).

5.3.2 Monthly inspection

This inspection is often performed by mechanical personnel in a central garage or workshop where the facilities are available to correct any deficiencies noted. However, no elements of this inspection are so complicated that the inspection and maintenance functions cannot be carried out by the driver and supervised by the responsible operational personnel. Any officers responsible for vehicles would be well advised to familiarize themselves with all the items involved, check randomly selected items on the list on an irregular basis, and, from time to time, carry out the complete inspection with the driver.

The list annexed (Annex VI) has been prepared for use in another programme in which Dodge Trucks are employed but the items are applicable to any make of vehicle.

5.3.3 Mechanics and specialized maintenance personnel

Because of the importance of a smoothly functioning transport fleet in the operations of smallpox eradication, specialized vehicle personnel should be attached directly to the programme. Even in those cases where the facilities of a central government workshop are used for repairing the vehicles, it is useful to have mechanical personnel directly attached to the programme who may be sent to carry out simpler repair operations in the field. This avoids the time consuming necessity of returning the disabled vehicles to a central garage. Mechanics directly attached to the programme are more likely to assume a sense of personal responsibility for the vehicles than the personnel of a central garage handling vehicles from various departments.

6. Special equipment - vaccination kits

Vaccination kits of various types are used in the different programmes. However, a universally acceptable vaccination kit for smallpox eradication programmes does not and should not exist. Any kit, or kits, proposed for a specific campaign should be assembled based on the specific requirements of the programme in a given country, taking into account the operational methods to be employed.

For a programme conducting vaccination by scarification, the possible components of a vaccination kit include the following:

(a) Freeze-dried vaccine - this may be supplied in vials or ampoules containing different numbers of doses, e.g. 20, 50, 100 doses;

(b) Reconstituting fluid (provided with vaccine);

(c) Small saw blade for removing top of ampoule - normally, this is packaged with the vaccine;

(d) Needle and syringe or medicine dropper - for transferring reconstituting fluid from the vial in which it is provided into the freeze-dried vaccine vial or ampoule. For some vaccines, the reconstituting fluid is provided in a tapered vial which permits transfer of the liquid directly without the needle and syringe or medicine dropper;

(e) Glass rods or toothpicks - for transfer of reconstituted vaccine to arm of vaccinee. In some instances the vaccinostyle is dipped into the vaccine; the vaccine which adheres is applied to the arm and scarification carried out. The needle and syringe or medicine dropper noted above might also be employed for this purpose. Whatever the transfer instrument employed, it is important that it be tested first in the field to determine: (1) Is sufficient vaccine supplied to the arm to permit a high frequency of takes? and (2) Can the stated number of doses be obtained from the vial or ampoule with the instrument employed?

(f) Small block of wood or rack for holding vaccine vials - vaccine vials are usually small and apt to be difficult to handle in the field and are such that they may be knocked over rather easily. Provision of a small block of wood with holes drilled in it or a metal or plastic rack for this same purpose has found to be most useful in many programmes;

(g) Vaccinostyles - a variety of types are available (see Section III, Technical Considerations).

(h) Spirit lamp - if reusable vaccinostyles are to be employed, flame sterilization of the needle may be carried out after each vaccination;

(i) Oilcloth sheet - to be placed on table, ground, etc. and on which the various instruments may be placed;

(j) Paper towels - for use as in (i);

(k) Plastic or paper bags - for disposal of emptied vaccine vials, lancets, etc.

(l) Flag with spike on end - in some house-to-house programmes, vaccinators insert flag in wall of house in which they are working so that they may be quickly located by supervisor;

(m) Picture of typical smallpox case - may be shown to vaccinees as part of a health education effort to point out the seriousness of disease and may be used in querying vaccinees as to whether they have recently seen illnesses similar to this as part of case finding approach;

(n) Cotton-wool or small piece of cloth - may be used with water to clean an obviously filthy vaccination site;

(o) Metal case and/or knapsack for carrying equipment.

As examples, two possible kits are illustrated below for the situations given.

Situation I - Example

House-to-house vaccination

Average 70 vaccinations per day

Duration of field tour - 12 days

Total number of vaccinations - 840

Amount of vaccine needed = 840 doses plus about 160 doses for wastage, etc.

Components of kit

	Item	Quantity
1.	Vaccine	50 vials of 20 doses each (1000 doses of vaccine)
2.	Reconstituting fluid for vaccine	50 vials
3.	Lancets, disposable	1000
4.	Oilcloth sheet	1
5.	Syringes, disposable with needle, 5 cc (for reconstituting vaccine)	50
6.	Block of wood for holding vaccine vials	1
7.	Metal case, hinged lid, with handle	1

Situation II - Example

Collection point vaccination

Average 180 vaccinations per day

Duration of field tour - 5 days

Total number of vaccinations - 900

Amount of vaccine needed = 900 doses plus about 100 doses for wastage, etc.

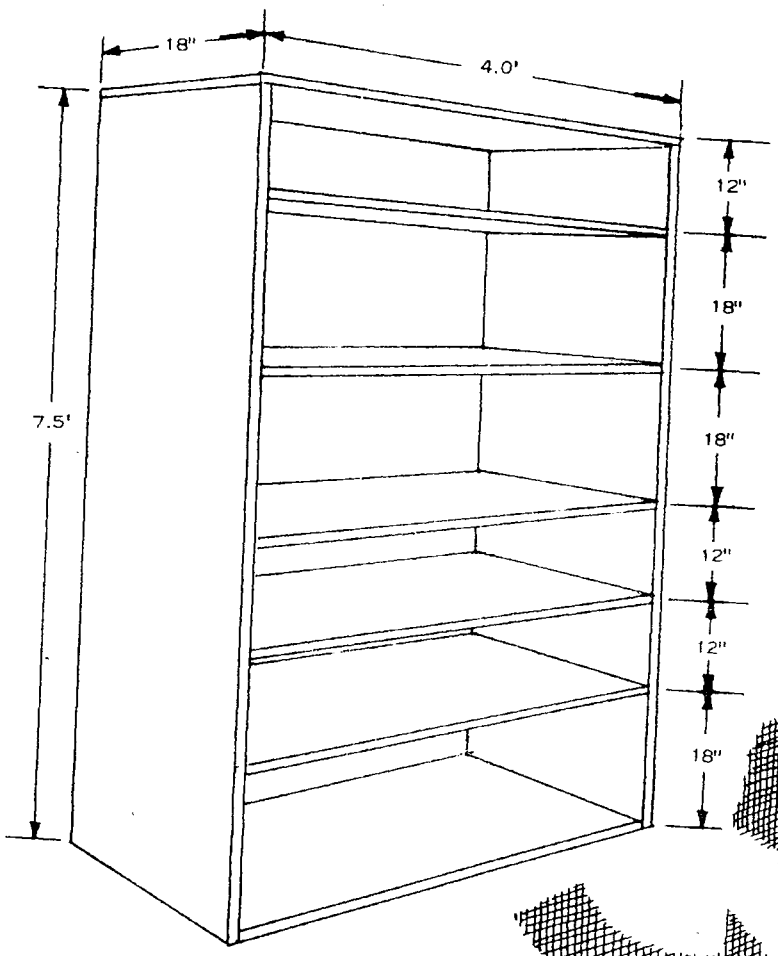
Components of kit

	Item	Quantity
1.	Vaccine	10 vials of 100 doses each (1000 doses)
2.	Reconstituting fluid for vaccine	10
3.	Vaccinostyles, reusable 10 times	100
4.	Oilcloth sheet	1
5.	Syringes, disposable with needle 5 cc	10
6.	Spirit burner	1
7.	Glass rods for applying vaccine to skin	10
8.	Metal case, cortina type, with handle	1

The approximate unit costs for selected items (purchased in quantity) are noted below:

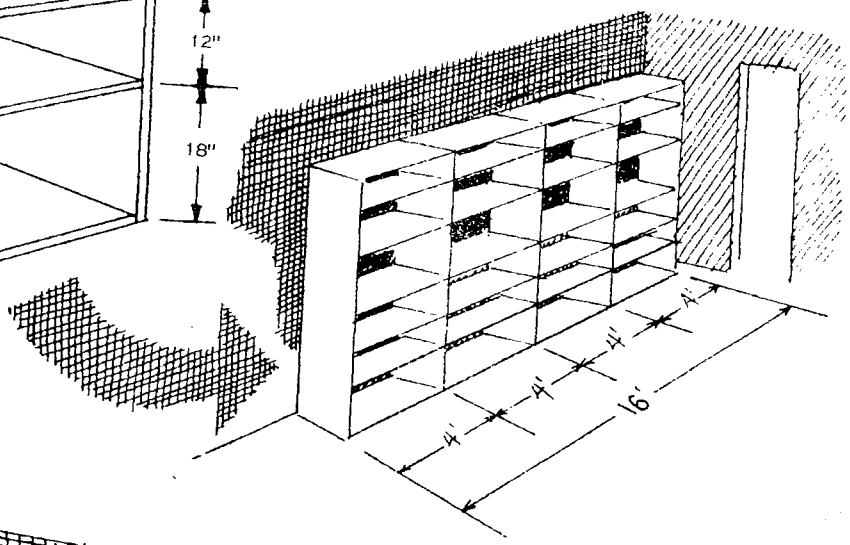
		Unit cost (US$)
1.	Needle and syringe, 50 cc, disposable	0.72 per doz.
2.	Medicine dropper	0.30 per doz.
3.	Vaccination devices (see illustration - Section III, Technical Considerations)	
	(a) Hagedorn needle	0.42 per doz.
	(b) 2" common sewing needle	0.21 per doz.
	(c) 2" straight pin	0.023 per doz.
	(d) Vaccinostyle	0.047 per doz.
	(e) Disposable vaccinostyle	0.024 per doz.
	(f) Bifurcated needle	experimental
4.	Spirit lamp	2.00
5.	Cotton-wool, 200 inches	0.18
6.	Paper towels	0.10 per doz.
7.	Metal case, hinged lid with handle	5.00-12.00 depending on type.
8.	Metal case, cortina type, with handle	

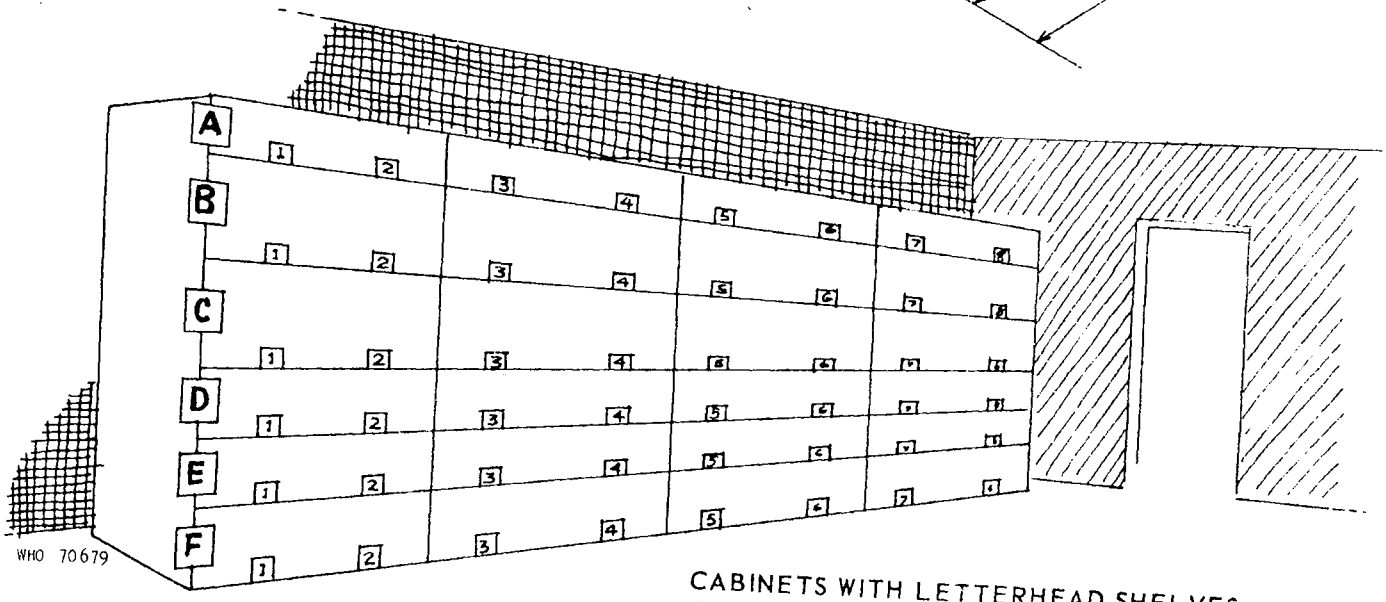
FIGURE 1



SUGGESTED
SPECIFICATIONS FOR
STORAGE CABINET

4 CABINETS - 16 LINEAR FT.





WHO 70679

CABINETS WITH LETTERHEAD SHELVES
AND NUMBERED SPACES

ANNEX I

MAX.	MIN.

STOCK CONTROL LEDGER

Article _____ Unit _____

Date	Receipt Voucher No. or Issue Voucher No.	From whom received or To whom issued	Receipts	Issues	Balance

ANNEX II

RECEIPT VOUCHER

I certify that I have received into store and taken on ledger charge the undermentioned articles:

Ledger folio	Article	Quantity	Unit	From whom received (inventory number or other reference to be quoted)

Date _____ _____ Signature

Storekeeper _____ Dept.

Note: (1) This voucher should be prepared in duplicate.
(2) Whenever possible, the original voucher will be signed by the supplier depositing the stores.

ANNEX III

ISSUE VOUCHER

No. _____

_____ Division/Zone

To _____ _____ 19_

The goods noted below have been received by the undersigned.

Quantity	Description

Received the above in good condition

_____ Signature

Date _____ _____ Office

Note: To be prepared in duplicate.

DAILY LOG BOOK FORM

Section or location _____

Driver _____ Date _____ Vehicle No. _____

Time of departure	Milage at departure	Details of trip	Time of arrival	Milage at arrival	Total No. of miles	Signature of dispatcher or responsible officer	Petrol		
							Quantity	Milage	Voucher No.

Total milage:

Maintenance checklist

Tyres _____ Doors _____ Battery _____

Horn _____ Oil _____ Radiator _____

Lights _____ Indicators _____

Checked _____

(Transport Officer/Administrator/
Responsible Supervisor)

Signed _____

(Driver)

ANNEX V

VEHICLE INSPECTION CHECKLISTS

DAILY

1. Tyres
2. Radiator
3. Battery
   - Distilled water
   - Cables
4. Oil pressure
5. Oil level
6. Petrol
7. Alternator
8. Lights - indicators
9. Doors
10. Cleanliness
11. Correction of unusual noises
12. Horn

WEEKLY

1. Tyres
2. Radiator
3. Battery
4. Oil:
   - Level
   - Leaks
5. Petrol: Leaks
6. Hydraulic fluid level
7. Air filter
8. Exhaust heat riser
9. Oil pressure
10. Alternator

ANNEX VI

INSTRUCTIONS FOR PERFORMING MONTHLY TRUCK INSPECTIONS

The inspection points listed below are vital to the operating efficiency of the vehicle. Every effort should be made to see that all inspection points are in satisfactory condition when the inspection is completed. This list bas been prepared specifically for Dodge Trucks and the letters and number in parentheses following the items refer to the Dodge Truck Service Manual. However, the list may easily be adapted to the particular vehicles in use in any given programme.

OUTSIDE TRUCK INSPECTION

Doors:	Check to see that **doors open** and close properly. Is there sufficient grease on door strikers and latches? (SM 23-4)
Windows:	Check for cracks, breaks, and leaks. Make certain that window mechanism operates freely. (SM 23-10)
Bumpers:	See that bolts and tow hook are tight.
Headlamps:	Check mounting of lamps for tightness and that lamps are not broken or bulb burned out. (SM 8-87)
Tail lamps:	Check mounting of rear lamps. See that reflectors are clean and bulbs not broken or burned out. (SM 8-88)
Turn signals:	See that lights operate properly in both directions. (SM 8-88)
Side view mirror:	Check the mounting bracket and see that the glass is not cracked or broken. Replace if necessary.
Windshield wipers:	Check the condition of rubber blade. Make certain that no metal scrapes on the windshield. (SM 8-82)
Spare tyres:	Check tyres for recommended inflation. See that mounting bracket is secure and that locks are in place. (SM 22-1)
Luggage rack:	See that rack and mountings are secure. Are rubber gaskets in proper condition to avoid leaks?

UNDER HOOD INSPECTION

Hood:	See that the hood closes tight and easily, and that the latch is lubricated. Latch should operate properly without binding. (SM 23-3) See that the hinge mechanism operates smoothly without binding and that the mounting screws are tight. (SM 23-3)

Annex VI

Radiator:	Check for correct water level. Water should be clean and not rusty. Be certain hoses are not cracked. Check hose connexions for leaks. (SM 7-3)
Fan belt:	See that the belt is not frayed and that it is properly adjusted. Replace if necessary.
Battery:	Be sure water is at proper level. Make certain posts are clean and free of corrosion. Battery cable connexions must be tight and lubricated. (SM 8-1)
Oil:	Check oil level dip stick for proper oil level and whether oil is clean. See that oil filter is not leaking. Tighten if needed. (SM 0-8) Are there any oil leaks around engine gaskets? (SM 9-7)
Fuel filter:	See that line filter is clean and free of water. (SM 14-1)
Carburetor:	Check for fuel leaks and proper throttle linkage. (SM 14-0)
Air cleaner:	Check oil level. Make certain oil is clean. (SM 0-11)
Clutch master cylinder:	Check hydraulic fluid level. Make sure that fluid is not leaking from cylinder. (SM 6-5)
Brake master cylinder:	Check hydraulic fluid level and see that fluid is not leaking from cylinder. (SM 5-9)
Water pump:	Check the bearing for squealing sounds. Lubricate or replace if necessary. Check the bearing and seals for leaks. (SM 7-4)
Crankcase vent valve:	Check for a clogged line or inoperative valve. (SM 0-10)
Crankcase breather cap:	See that cap is clean and that oil blowback is not occurring. (SM 0-11)
Manifold heat valve:	Make certain valve moves freely and that it is well lubricated. (SM 11-5)
Steering gear box:	Be sure that lubricant is at proper level. Check seals for leaks. (SM 0-15)
Motor mounts:	Check for broken or loose mounts. Tighten or replace as needed.
Distributor cap:	Check for corroded connexions. Check cap for cracks. Check inside of the cap for wear at the rotor connexion. (SM 8-52)

Distributor rotor:	Check spring connexion for any wear or corrosion. Make certain wiper connexion is smooth and free of corrosion. (SM 8-52)
Points:	Make sure that points are clean and that the gap is correct. (SM 8-52)
Plugs and wires:	Make certain plugs are clean and that the gap is correct. Check for cracks in porcelain. Check wires for cracks or bad insulation. Check resistance of wires. (SM 8-72)
Voltage output:	Be sure that voltage across battery with engine running is 14.2 volts. (SM 8-1)
Valves timing:	Check the sound of valves with the engine running. Remove valve cover and adjust valve tappets if necessary. (SM 9-1)
Bearing knocks:	Listen to engine while it is running. Any bearing knocks or grinding sounds? (SM 9-1)

UNDER TRUCK INSPECTION

Tyres:	Check tyres for recommended inflation and even wear. (SM 22-1)
Front wheels:	Rotate wheels to check bearings. Check each wheel bearing by shaking wheel parallel to axle. Check lubricant level. (SM 2-16) Make certain hub seals are not leaking. (SM 2-16)
Shock absorbers:	See that mountings are not worn or loose. (SM 17-1)
Springs:	Check for broken leaves. Make certain that connexions on each end are tight. Check the rubber grommets for wear. (SM 17-1)
Radius rod:	Check for bearing wear and if rod is bent.
Steering arm:	Check for bearing wear and adjustment. (SM 2-10)
Emergency brake cable:	Check for frayed cable or excess slack. (SM 4-5)
Oil pump:	Check for leaking seals. (SM 10-2)
Oil filter:	Check for leaks. (SM 9-106)
Clutch slave cylinder:	Check seals for leaking hydraulic fluid and clutch arm linkage. Replace if leaking.
Fuel pump:	Check for leaks. (SM 14-47)

Annex VI

Fuel tank:	Check for leaks. Make sure mounting brackets are tight. (SM 14-50)
Fuel lines:	Check for leaks. Make certain lines are not crimped. Are line positioning clamps in place? (SM 14-50)
Differential drive case:	Check front and rear lubricant levels. Make sure there are no seal leaks. (SM 2-18, 3-16)
Universal joints:	Check universals to make certain there is no bearing wear or excessive play. Check bearing seals. (SM 16-1)
Transfer case:	Check seals for leaks. Check lubricant level. Check shift linkage for wear. (SM 21-56)
Transmission:	Check seals for leaks. Check shift linkage for wear. Check lubricant level. (SM 21-22)
Welch plugs:	Check for rust or leakage of water. Rust around the edges of the plug openings indicates a seepage leak and the plugs should be replaced.
Wiring harness:	Check the wiring going to auxiliary equipment to make certain it is not frayed or that insulation is broken. See that wiring clamps are in position.
Muffler:	Check muffler and tail pipe for holes. Make sure mounting clamps are tight.
Loose bolts:	Take a general look at underside of truck to make certain nothing is loose or out of place.
Frame and body:	Check for any damage and condition in general.

INSIDE CAB INSPECTION

Steering wheel:	Check for excessive play in the wheel. Check for bearing wear. (SM 19-1)
Horn:	Sound horn. (SM 8-86)
Turn signal lever:	Check for excessive play. (SM 8-88)
Rear view mirror:	Make certain mounting is tight.
Sunvisors:	See that mountings are tight.

Gear shift lever:	Check for excessive travel. With engine running, check ease of meshing gears. (SM 21-15)
Clutch pedal:	Check length of travel. Check wear of tread pad. (SM 6-1)
Brake pedal:	Check length of travel. Check wear of tread pad. (SM 5-2)
Cab tightness:	Check for signs of water leakage. (SM 23-10)
Seats and belts:	Check for tightness of mountings. Check belts for frayed webbing.
Fuel indicator:	See that indicator is working. (SM 8-75)
Heat indicator:	See that radiator is working and indicating normal temperature. (SM 8-75)