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**STUDY OF THE LOGISTICS OF  
DRUGS AND MEDICAL SUPPLIES**

**DEPARTMENT OF HEALTH  
REPUBLIC OF THE PHILIPPINES  
COMMENTS ON THE THIRD PROGRESS REPORT  
FROM FPC TO DOH**

**A Report Prepared by PRITECH Consultants:  
JIM RANKIN**

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## Introduction

The Foundation for People's Concern (FPC) has divided its studies of DOH Logistics into four areas which are standard components of the logistics cycle: Selection, Procurement, Distribution, and Use. The Third Progress Report from FPC offered key findings and observations (eight major points), preliminary reports on three phases of the logistics cycle, and a Summary of Options for DOH Logistics. Also included was the FPC workplan for developing the final study report.

After review of the FPC Inception Report, the Second Progress Reports, and now the Third Progress Report (including reports from FPC field studies), it is clear that FPC has managed to focus the Logistics Study in areas where change can be attained and measured, and that FPC has done an excellent job of gathering information on how the various logistics streams in the DOH systems currently function.

The Third Progress Report offered eight key findings:

- a. Major attempts at improving logistics should key on procurement, given that this phase of the cycle takes an average of five months at DOH.
- b. Central Office bulk purchasing is often less economical than regional purchasing for many commonly used items.
- c. The current organization with one central and twelve regional warehouses is not efficient.
- d. Procedures for allocating items purchased by the Central Office do not allow optimal use of the items.
- e. DOH pharmacies do not have adequate staffing, on average, to allow expansion of responsibilities, given current work loads.
- f. There appears to be no standard method in user facilities for managing and accounting for drugs and supplies provided by DOH, nor are prescribers informed as to types and quantities of DOH items in stock.
- g. Many facilities have problems with expired drugs as well as excessive quantities of items which will expire before use.
- h. The records and reports used in DOH pharmacies need to be rationalized to avoid duplications and waste of time and effort.

These key findings are borne out by the data gathered in field visits and from analysis of DOH procurement activities.

The Third Report identifies several potentially viable options which could improve DOH logistics, and compares advantages and disadvantages with each other and with the current system. Since the FPC report is a discussion paper, no firm suggestions were made as to which option would be best.

The comments in this report are not meant to dispute the key findings, or the options which have been presented, but to provoke analysis and comment. This report is divided, like the Summary of Options, into four sections:

Selection, Procurement, Distribution, and Use.

## Selection

### **Planning for drug requirements**

It seems that only sketchy data is available to vertical programs or consuming institutions when they estimate drug requirements, and therefore the accuracy of estimates may vary.

Assuming that some reliable data can be obtained, there are computer models which can help estimate drug and supply needs based on morbidity patterns, actual consumption, or both.

One model which forecasts needs based on morbidity uses the spreadsheet program Excel; this was developed by WHO.

Three models have been developed by Management Sciences for Health (in cooperation with USAID and WHO). One is a spreadsheet based model based on morbidity (using Lotus 1-2-3) which has been tested in Nigeria and Zimbabwe.

The second is a data base program (using D-Base) which allows both morbidity and consumption based forecasting. This model has been used frequently for training in forecasting techniques, and for actual needs forecasting in Costa Rica.

Finally, another spreadsheet model has been extensively used in the Caribbean; this model forecasts needs based on monthly (or quarterly) consumption.

It is true that usage based estimates are the key to most modern inventory control systems, but this method is not reliable when the supply system suffers from chronic shortages, unless forecasting formulas are adjusted for stockouts. It will not work if records of consumption are not reasonably accurate.

Usage based forecasting does not necessarily demand short ordering times, in that the forecasting formula can be set to vary quantities based on lead-times, as well as procurement periods (see the Manual on Monthly Consumption Forecasting).

Forecasts based on epidemiology are not reliable if the data on population, disease patterns and incidence is inaccurate or unavailable.

When both consumption and epidemiological information are of doubtful consistency, it is useful to apply both forecasting techniques to see how closely they agree; one must remember that neither formula will give a true value if the data is bad. Copies of reports and manuals which relate to these forecasting methods are appended to this report:

"Estimating Drug Requirements, A Practical Manual" WHO, 1988

"The Drug Estimation and Monitoring System" MSH, 1988

"Forecasting Spreadsheet, Monthly Consumption Version" MSH, 1988  
"Draft Manual for Quantification of Drug Requirements"  
Nigeria FMOH/WHO 1988  
**Balancing needs with resources**

Balancing needs with resources is obviously difficult when resources are severely limited.

It is suggested that available financial resources would not be adequate to supply all needed drugs to DOH health facilities, even if the most rational procurement and distribution system were in place. There are, however, steps which could be implemented to decrease the gap between needs and resources, although they are beyond the scope of the FPC study. No doubt many of the following measures are already being considered.

The DOH should definitely tender only for items which are on the national formulary list (either core, or complementary). Once this requirement is met, and funds still are not adequate to meet demand, a next step could be to assure that the most vital products are procured first, and that non-vital items are procured only if and after the need for vital drugs has been satisfied.

This is accomplished through categorization of the procurement list into vital and non-vital items (which may not be the same as essential and complementary drugs). The list of vital drugs for one institution or program may differ from that of another, though all items should be on the national list.

The procurement service could compile the lists of vital and non-vital drugs, based on input from program managers and appropriate therapeutics committees, and conduct separate tenders for the two categories, or at least order the two categories separately - vital first, then non-vital. Although some doctors may initially resist this concept, many may be willing to accept the idea if it means that at least the "vital" drugs are always in stock.

The government can implement drug use review programs to monitor how effectively DOH drugs are prescribed and dispensed, and implement educational and incentive (or disincentive) programs to improve prescribing and thereby decrease overall drug costs. Apparently a review program to monitor and promote generic drug use as part of the FPC scope of work, and this could be the foundation of a more comprehensive drug use review program.

MSH has helped develop a computer program (ORSMAP) for USAID which is helpful in monitoring drug use. It is still waiting for final revisions in the program and documentation, but it may be ready for wider use in the next few months. There are several other commercial programs (mostly useful in the hospital inpatient setting) which may be worth consideration. We will forward details on these programs on request.

Cost recovery through sales of drugs from government outlets can be increased, which would allow more funds for drug purchases, if the revenue is captured and spent on drugs. Although it is reported that DOH pharmacies do not have the space or staffing to expand sales, this may prove to be worth trying on a limited scale (as will be suggested later).

If, after all possible measures have been taken, there is still a gap between need and resources, DOH will need to consider the options noted in the FPC report. Interim solutions will be needed in any event until need and resources are eventually made equal.

As implied in the report, none of the options are ideal; many countries have found it useful to assign budgets to districts, regions and/or institutions, and then let the user determine priorities. As noted by FPC, this can blank out some desirable public health programs, so these programs must be dictated by the central level. This can be part of the budget allocation process.

### Procurement

#### **Venue of bidding**

It is noted that Central Office procurements have produced inordinate delays and uneconomical prices in many cases. There is, however, much to recommend Central Office management of the tender process. One of the most important benefits is the ability to more easily maintain effective monitoring programs.

It may be possible to have the Central Office develop and update the list of qualified suppliers, and conduct the annual tender, but not directly purchase the drugs.

Such a system would provide that institutions and vertical programs order directly from suppliers selected through the centrally conducted tender process. Each purchasing entity would be provided with a list of tender items, primary vendor, and tender price. The Central Office might only directly order those items (if any) which required processing or packaging before delivery to consuming institutions.

In this model, Central Office might only tender for those items which are used widely enough to generate interest from suppliers; regions or institutions could conduct their own tenders for remaining drugs or supplies, with the provision that only suppliers on the "qualified" list could be used.

Since most large suppliers are located in or near Manila, this centralized tender might provide the best prices (with acceptable quality), assuming that the split award provisions are dropped. Payment could be managed centrally or could come directly from the purchasing agency, whichever is most efficient (and timely).

This model is similar to one used in the Eastern Caribbean to tender for seven countries; it is also like the system which is used by the US Federal Government in the Veteran's Administration and Indian Health Service, and by US hospital purchasing groups.

If a Central Tender for most high use items is considered to be too cumbersome, each region could (as noted in the report) handle all tendering, or Central Office could tender only for certain programs or institutions. If either is done, however, it might be useful to maintain a Central Office program to monitor regional tenders for price and compliance with national policies, and to monitor and report on supplier performance.

The list of qualified suppliers should probably still be maintained centrally, and only suppliers on that list should be eligible for tenders (if the qualification and monitoring process can be more effectively managed).

### **Bidding strategy**

As noted in the FPC report, one obvious reason for lower regional prices is the Central Office practice of splitting tender awards. This provides little incentive for vendors to offer the lowest possible price, as has been proven in other settings such as the Caribbean, where the Barbados Drug Service (BDS) splits awards, and pays much higher prices than the Eastern Caribbean Drug Service, even though the BDS has far greater volume.

If the bidder specifies the quantity he will supply, this may promote collusion, since suppliers can agree to split the total quantity among their bids. If purchasers are not forced to order the whole years supply at once, it is easier for a winning vendor to supply all of the annual quantity, and makes it unnecessary to split awards.

If the prequalification process, supplemented by monitoring programs for products and suppliers, is adequate, the tender process need not fear selecting the lowest price from qualified suppliers. This would remove the need for a "two envelope" system.

### **Frequency of bids and order quantities**

Annual tenders are used in most countries, and most pooled procurement programs. As noted by FPC, this consumes the least administrative time, and it also provides price protection for the purchaser. As discussed above, annual tender does not necessarily mean that all items are ordered at once.

Order quantities need not always be guaranteed in the tender request. In many pooled procurement situations in the US, as well as in the Eastern Caribbean Drug Service, tender quantities are not guaranteed, but are presented as estimated need. Orders are placed periodically throughout the year by each user. Although

vendors naturally prefer guaranteed quantities, they will accept estimates and still provide attractive prices if three conditions apply:

- a) Estimated quantities are reasonable, and subsequent purchases are at least close to estimates.
- b) All members of the pooled procurement group adhere to the "sole source" provision - they order only from the approved tender source for all tender items (unless the primary tender source can't supply).
- c) Payment is made within a reasonable period.

#### **Computer assisted tendering**

MSH has developed a tendering and procurement program for the Eastern Caribbean Drug Service which is used to manage tenders and track purchase orders. The system is now designed for use with a centralized tendering system, but could be adapted for regional tenders. The program could be transported to the DOH system if needed and with USAID approval. Appended to the report is a description of ECPRO with documents produced by the system.

#### **Prequalification of suppliers**

BFAD should probably be responsible for conducting supplier prequalification, registration, and monitoring programs. The qualification process need not always be too time consuming.

If periodic testing and site visits are used judiciously, and a vendor performance monitoring program is in place, suppliers could be prequalified once. Assuming performance on subsequent tenders and results of site inspections and routine testing are been satisfactory, it may not be necessary to re-qualify the supplier for each tender.

The vendor monitoring program should track supplier lead time, service percentage, and compliance with all provisions of the tender agreement. DOH should remove suppliers from the qualified list if they do not comply with all contract terms.

Although one government objective is to promote domestic pharmaceutical capacity, it may be wise to include international suppliers, including non-profit suppliers, in the tender process to assure that prices remain competitive with international prices. Domestic suppliers could be given a margin of preference to assure their viability.

#### **Price rules**

Most pooled procurement and government tender programs demand a fixed price for the contract period, since prices generally go up rather than down over time. Unless the economy is in a state of wild fluctuation, vendors should in most cases be able to live with one year guaranteed pricing.

A floor price may help to weed out nuisance bids and unqualified suppliers, but the prequalification and monitoring program should take care of most of these problems. If DOH does wish to establish a floor price, MSH publishes annually a list of international prices for essential drugs (copy appended).

### **Acceptance test/inspection**

It is reported that the BFAD testing process produces delays in the procurement process. If an effective procedure of qualifying and monitoring suppliers is implemented, it may be possible to reduce testing to occasional (but regular) sampling from delivered lots, rather than testing each lot. This could be supplemented by regular unannounced inspection visits to supplier facilities, with testing of items from production runs.

If not already present, a product problem reporting program should be implemented to solicit reports in simple format from DOH facilities on potential defects in DOH drugs, with testing of those reported items and recalls as necessary. Pharmacists and physicians should be strongly encouraged to participate, and should be given feedback on results of investigations resulting from their reports.

The system of periodic testing and site inspections, along with a program for reporting suspect products, has been used by the US FDA for many years with few problems until recently; those recent problems were not due to a poor system but rather to a few bad people in the system, and a failure to enforce provisions of the system. The same sort of system is used by most "developed" countries.

The problem of counting delivered quantities is similar to that of testing; in most cases, the "molecular" count method should suffice. Once effective monitoring and reporting systems are in place, suppliers who cheat on quantities should quickly be weeded out of the qualified supplier list.

### **Distribution**

#### **Responsibility for transport**

As noted above, it may prove feasible to order some tender items for delivery directly to the consuming institution. The suggestion of hub warehouses deserves strong consideration to handle items which are not directly delivered, assuming transport can be regularly arranged from the hub warehouses.

Small volume orders may indeed be reluctantly supplied by vendors directly to purchasers, but this can in most cases be solved by introducing rational forecasting and ordering procedures. There will always be some emergency orders, but if good relationships are developed with contract vendors they should be willing to

cooperate; after all, they do supply small quantities to commercial outlets when needed.

The Prime Vendor concept has recently become popular in the US. In this model, a commercial middleman (the Prime Vendor) contracts to obtain tender items from vendors who have tender awards. The Prime Vendor then warehouses the tender items and supplies them to the ordering facility at the tender price plus a standard markup (usually 2-5 percent). This largely solves the warehousing and delivery problem, but it is only possible where suitable commercial operators (usually drug suppliers who are not manufacturers) are in business. The one point which most Prime Vendors insist upon is prompt payment after delivery (usually within 30 days).

#### **"Push" versus "Pull" allocation**

In many effective logistics systems, most orders are filled through a pull system, with precalculated minimum and maximum order levels. In some cases orders are pulled directly from vendors, and in others from warehouses similar to the proposed "hubs" (which in turn pull from the vendor as needed). There is no reason that the flow of drugs should slow down if the inventory management system is working.

It can be argued that the highest benefit of a pull system is that personnel at all stages of the system are engaged and must work together; if this is impossible, "push" is needed.

As noted by FPC, the push system may be required when supplies are short throughout the system, and "equal misery" is needed. Even in such cases the pull system can be used with adjustments in minimum and maximum levels and with good communication between warehouses and consuming facilities.

There will always be some situations and some items which warrant "push" distribution, but the less this is needed the better.

#### **Retention of contingency stocks**

The safety stock at each level should be based on the lead time from the source (whether vendor or warehouse). This can freeze some medications in inventory and result in wastage, but if the supply pipeline is flowing regularly and FIFO is used this won't be a major problem.

Although zero retention avoids spoilage in the warehouse, the items may spoil at the RHU if allocation is not appropriate to the level of actual need.

#### **Warehousing or Storage**

The hub warehouse concept seems much preferable to either one giant central warehouse or twelve regional warehouses,

particularly if a "Prime Vendor" program is not feasible.

It should be easier to manage three or four warehouses well than twelve, and the problems with central storage at one warehouse and shipment to all levels have been documented in the FPC study.

Assuming the hub warehouse will be use as a source from which consuming facilities will pull drugs and supplies, the DOH system will indeed require reorganization so that the hub warehouse can obtain supplies from vendors, and distribute them when orders are received.

It is unclear how orders would be authorized to and from hub warehouses and how payment to vendors would be arranged, if vendors deliver directly to the hub warehouse. This could be done through the Central Office, if communications are good and if a order monitoring system at the Central office is in place. A computer program such ECPRO (mentioned above) could help.

Appended to this report are two documents which may be useful in planning warehouses. The first ("The Storage handbook") is a standard warehouse reference. The second document is a draft manual which discusses the design of pharmaceutical warehouses.

### Dispensing/Use

#### **Releasing decision**

As mentioned, a proper prequalification and supplier monitoring program should minimize the risk of releasing lots for use prior to completion of testing.

Tender contracts should provide protection for DOH as follows:  
If the supplier has been paid and his drugs fail a compendial test, he should be responsible for the costs of recalling the items in question and for refunding payments. If any payments to the vendor are due, refunds can be deducted. If not, but the supplier is generally reliable, he can replace the items. If the supplier is not deemed reliable, he should be delisted. The contract should provide for recovery through court action if necessary.

A sample tender agreement from the Eastern Caribbean Drug Service is appended.

#### **Reporting of Stocks status**

One simple method of tracking stock status can be implemented with a pull allocation system. On the order form used at each level, a column can be included to indicate stock on hand.

At the warehouse level, a computer inventory system can easily track stock status by item and by program. MSH is now investigating computer inventory systems (including the Swedis

program) and will share the results of this process when FPC needs the information.

### **Outlets as retailers to general public**

It is mentioned that 27 separate reports are employed in DOH pharmacies. Although not all pharmacies are forced to compile all 27 reports, it is clear that a paperwork reduction initiative could improve operating efficiency.

The FPC report mentions some data on prescription workload in hospital pharmacies. It would be useful to see a compiled report on how many prescriptions per person day on average are filled in the various sorts of DOH pharmacy. In US Government supported health center pharmacies it is considered standard that one pharmacist without an assistant should fill 60-75 prescriptions per day, in addition to managing inventory, counseling patients, interacting with medical staff, and preparing necessary reports (including charge slips for each item dispensed).

If an assistant is added, the number should reach 90-100 per day. From the data reported, it seems as though some DOH pharmacies may exceed 75 prescriptions per pharmacist day, but that most of the pharmacies fill less than 60 per pharmacist day.

If the number of required records and reports in DOH pharmacies could be brought down to manageable levels it may be reasonable to try to expand the services of at least some of the pharmacies and provide generic drugs to the general public.

It seems that the accounting and revenue reporting systems are already in place for sales, and if they function in an acceptable fashion, the government might be able to purchase more drugs for the system (assuming that revenue would be used for drug purchases).

If accounting for different types of stock is a problem, this could be handled by different codes on the same record, rather than different records.

As noted in the case of warehouses, computers can solve the problem of record keeping and reporting easily, if funds for purchasing and maintaining computers (and for training) are available. There are any number of software programs on the US market which are suitable for use in DOH pharmacies. A brief listing of some is appended to this report, but MSH will provide more information on these systems (as well as systems designed for inpatient use in hospitals) as needed by FPC.

### **Generic Dispensing**

Although the government is making a strong effort to encourage generic prescribing, it is unclear whether generic dispensing (substitution) for brand name prescriptions is legal, and if so

whether it is being actively promoted by DOH.

In most settings, it has been found that generic substitution authorization is the best (and in some cases only) way to assure maximum use of generic drugs in a health care system.

This may well be a thorny issue with organized medicine, which may not wish to allow any substitution authorization to pharmacists. In some countries pharmacy legislation, if there is any at all, is outmoded and does not address the issue of generic substitution.

If, however, the political will is there to pass necessary legislation, the success of generics will be greatly enhanced. In many countries (including the US) generic substitution is authorized both in the public and private sectors.

Sample state regulations from the United States are appended.

#### CONCLUSION

I hope that these comments and appended documents will prove useful to FPC and to DOH. It is very unfortunate that my visit to Manila was aborted, but it may not have been that essential. The job done by the Foundation for Peoples Concern on this project is admirable, and quite complete.

We wish FPC and DOH the best success in implementing badly needed improvements to the logistics system, in the face of severe constraints and not a little opposition.

We would welcome the opportunity to provide any further assistance that FPC may deem necessary, at any time during the project. I plan to discuss these comments with you as soon as communication systems return to normal.