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## CHAPTER 43

# Security management

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## SUMMARY

Security breaches include theft, bribery, and fraud. They can have a substantial, and sometimes disastrous, economic and health effects. A comprehensive security system includes—

- Analysis of the sources of security breaches
- Determination of methods to improve security
- Consideration of costs and savings
- Implementation of security measures

Security breaches can be found through a mix of informal and formal investigations, independent inventory counts, consumption comparisons, and surveys of medicine outlets. The conditions that lead to theft often include—

- Shortage of the products in the market or at service-provision points
- High product demand
- High product value and hence a good open market for the product
- Economic conditions that lead people to market stolen products
- Weak security measures that make theft easy

Theft prevention may require—

- Providing unique identifiers for all pharmaceutical supplies
- Dealing with the sources of theft
- Closing the outlets for stolen medicines
- Improving record keeping and instituting a perpetual inventory control system
- Improving salaries for staff members who handle medicines
- Controlling access to the storage facility

Controlling bribery requires mechanisms to prevent suppliers from influencing the choice of medicines, purchase quantities, and selection of suppliers.

Fraud control requires close attention to quality assurance procedures and routine stock control procedures. Security measures may be expensive, but they are often very cost-effective.

### 43.1 Introduction

Theft, bribery, and fraud can interfere with the effective functioning of national pharmaceutical supply systems. In some countries, security breaches can be the single most devastating problem for pharmaceutical programs. A strong security system can—

- Minimize shortages
- Minimize abuse or misuse
- Contribute to accurate record keeping on medicine consumption and disease prevalence

In one Central African country, a hospital pharmacist routinely allowed for losses of 80 to 90 percent on certain medicines when she placed her orders to ensure that she received enough supplies to treat hospital patients. In an extremely poor Southeast Asian country, losses caused by theft are estimated to be more than 30 percent of the total pharmaceutical supply, despite theoretically strict accounting requirements for medicines. The government medical store in an East African country is reported to have placed an order for more than 100,000 U.S. dollars' (USD) worth of pharmaceutical cocaine, which vanished from the wharf when it arrived.

Pharmaceutical pilferage was a problem in a facility in one West African country. Managers took measures to make

pilferage difficult, including reinforcing doors and windows, clearly and systematically shelving medicines, putting into place a perpetual inventory system for fast-moving and high-demand pharmaceutical products, and limiting unauthorized access to the store. Despite those measures, medicines still disappeared. Suspecting that the facility's storekeeper might be involved, the managers announced a plan that denied their own free access to the store and gave the storekeeper the authority to search the managers when they exited the store. In addition, the managers made the storekeeper financially responsible for any future losses, which prompted him to voluntarily quit his job, indicating that the storekeeper was comfortable working there only as long as he was able to pocket some of the medicines. Most losses or thefts are caused by employees working alone or in collusion with others.

Other examples can be cited. In a Central American country, inventory records showed that stock levels of oral ampicillin, antibiotic eye ointment, and dozens of other products were intentionally overstocked—enough for three, five, ten, and up to thirty years—because government buyers received special “commissions” for their purchase. Theft of antibiotics for black market sale and treatment of sexually transmitted infections is common in many countries. Hospitals in the United States have a difficult time controlling staff pilferage, and several incidents in recent years have involved theft and resale of significant quantities of public-

sector medicines. In a scandal involving pharmaceutical suppliers and airport personnel, a consignment of antiretroviral medicines (ARVs) headed to an African country from a European country was flown back to Europe before it even reached the store.

Security breaches can and should be confronted. Theft and wastage are caused by a mixture of cultural, political, and economic factors. Nevertheless, even when bribery and theft are coordinated or condoned at high levels, countries have been able to reduce these activities when supply system managers have made a strong commitment to do so.

Improving security involves analyzing the sources and nature of security breaches, developing methods for improving security, and comparing the costs of security measures with the financial and public health costs of inadequate security. Country Study 43-1 shows how Ethiopia assessed and addressed security concerns before introducing a new antiretroviral therapy (ART) program.

In 2004, the World Health Organization (WHO) launched a Good Governance for Medicines program to—

- Raise awareness of the impact of corruption in the pharmaceutical sector
- Increase transparency and accountability in medicine regulatory and supply management systems
- Promote individual and institutional integrity in the pharmaceutical sector
- Institutionalize good governance in pharmaceutical systems by building national capacity and leadership

The program website (<http://www.who.int/medicines/ggm>) offers many resources that relate to the issues covered in this chapter.

## 43.2 Analysis of security breaches

Security breaches include theft, bribery, and fraud, and they can occur at all levels of the pharmaceutical supply cycle, including procurement, storage, and distribution. Shortages caused by these activities can lead to suffering and death.

### Country Study 43-1 Securing antiretrovirals from theft: Ethiopia's experience

In 2005, Ethiopia started its first large-scale public program to distribute ARVs free to patients with HIV/AIDS through selected public hospitals. Previously, ARVs were only available from private pharmacies to patients who could afford their cost. Because the initial phase of the treatment program was limited, the government gave first priority to clinically eligible patients with low or no income and to special groups, such as children and pregnant women. When the availability of ARVs increased, a policy of universal access replaced screening patients based on income. Because the demand for ARVs outweighed the supply, and because ARVs are high-value and high-demand products, preserving the limited supply of ARVs through secure storage was of paramount importance.

Following an assessment conducted by Management Sciences for Health's Rational Pharmaceutical Management Plus (RPM Plus) Program, a parastatal pharmaceutical procurement and distribution organization called PHARMID was given responsibility for clearing, storing, and distributing ARVs at the central level. RPM Plus evaluated and recommended PHARMID based on the availability of separate storage space; security of the premises (strong walls, secure ceiling, metal doors, barred windows, armed guards); limited access to storage spaces; adequate record keeping and inventory control; history of security breaches; measures against culprits; availability

of insurance on products and safe transport; and presence of a dedicated store manager for ARVs.

RPM Plus also assessed the public hospitals that were to distribute ARVs to patients and found that all aspects of the storage capacity, security, and record keeping were weak. Because putting ARVs into such a vulnerable environment would be risky, RPM Plus helped the facilities address security concerns through a number of interventions, including renovating the physical infrastructure (improve storage space; reinforce walls, ceilings, doors, and windows); providing lockable storage cabinets and dispensing booths; developing information system tools for inventory control, reporting, and auditing; and developing standard operating procedures and training staff members in how to use them.

Now, the public hospitals store ARVs in separate bins and monitor their movement weekly. Specific staff members are assigned to manage ARVs, and access to the medicines is limited to these people. The treatment register that is maintained for all patients in the program gives a running total of patients and the medicines they have taken. The register makes it easy to calculate the number of medicines dispensed, which ensures that the inventory status is reliable. The register is an important monitoring tool that helps minimize the vulnerability of ARVs from theft and pilferage.

Figure 43-1 shows the main types of security breaches and the levels at which they occur.

Some factors that promote theft are—

- Shortages of essential medicines
- High demand for medicines in the private sector
- Poor physical security in stores
- Weak inventory records
- Unlimited access to stores by unauthorized people
- Paying staff members salaries that are significantly lower than necessary for self-support
- Access by underpaid staff members to high-value products
- Inadequate legal systems for dealing with thieves

Politically motivated thefts can be a form of sabotage that creates generalized shortages and discredits the government, or they can be a means of financing political operations through the sale of stolen pharmaceuticals.

Stolen medicines find their way to four major types of outlets. They may be exported to adjacent countries through legitimate or illegitimate trade routes; sold to local private warehouses, pharmacists, or physicians for subsequent retail sale; sold directly to the public through street vendors; or distributed to family and friends.

### 43.3 Searching for security breaches

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Identifying major security breaches and the places where they usually occur is the first step in controlling them. Several methods exist for uncovering theft, bribery, and fraud—

- Taking unannounced physical inventory counts
- Checking consumption using inventory records
- Monitoring and reviewing patient records
- Surveying suspected sales outlets
- Gathering anonymous, informal information

Informal channels (such as informants, spot checks, and ad hoc staff meetings) may be one way of determining whether a problem exists. Pharmacists, physicians, politicians, and other officials often know of, or at least suspect, diversion. Large stocks of unissued and unusable medicines at medical stores, the overnight disappearance of large quantities of medicines, systematic failure of deliveries to reach their final destinations, and frequent shortages at well-supplied facilities indicate a security problem. Responding vigorously to informal reports of diversion can be quite effective.

Unannounced physical inventory counts can uncover security breaches at all levels. The results of a surprise stock count should be compared with medicine receipts and

issues. Sampling only a selection of facilities at various levels may be sufficient to determine the extent of the problem; certainly, any facilities where problems are suspected should be included in the sample.

Consumption comparisons using inventory records can sometimes be revealing. For example, in one Central American country, theft of significant quantities of medical supplies, equipment, and food was uncovered by comparing the stock issued to each facility with the past consumption patterns at that facility. This comparison suggested that certain hospitals were ordering suspiciously large quantities of supplies. The hospitals and departments involved were then carefully examined, and security breaches were identified. A similar approach has been helpful in other countries. This system depends on the presence of an up-to-date record-keeping system. An organized group involved in stealing will intentionally make the record-keeping system non-functional, so that the control system will not be effective.

Surveys of suspected private outlets for black market sales are often effective. When government-purchased pharmaceuticals can be distinguished by capsule type, batch number, packaging, or some other identifier, a survey of street vendors, pharmacies, and physicians' supplies can identify pharmaceuticals from government sources. Tanzania is one country that has labeled packaging for artemisinin-based combination therapy differently for the public and private sectors, to track leakage.

### 43.4 Controlling theft

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Three common forms of theft are—

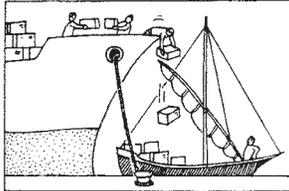
1. Slow, sustained, small-scale leakage that may go unnoticed for a long time. Staff members with access to the medicines storage area are usually responsible for such losses.
2. Large-scale robbery that may involve people both inside and outside the pharmaceutical supply system. For example, groups that conduct clandestine actions, such as political groups involved in guerilla warfare, may raid warehouses to meet their pharmaceutical supply needs.
3. Diverting a shipment before it reaches its destination, which may involve people in responsible positions with access to information on the movement of goods.

When the major sources of losses have been identified, methods to control theft, bribery, and fraud should be implemented. Theft can be tackled by prevention and control measures that include installing physical barriers (closing outlets for stolen goods; reinforcing doors and windows); using human and electronic security guard systems; providing adequate storage and shelving; enforcing

Figure 43-1 Summary of common security breaches

**Suppliers** (manufacturers, foreign suppliers, importers)

- Intentional short packing
- Intentional omission of expensive active ingredients
- Shipping of products near their expiration date
- Dilution and repacking of liquid medications
- Delivery of incomplete orders and billing for full amounts

**Wharf/Airport**

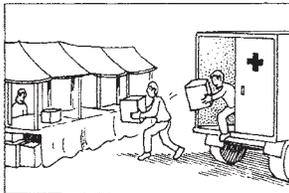
- Off-loading of government shipments directly onto vessels bound for nearby countries
- Petty theft by port workers
- Major theft from wharves, customs warehouses, airport fields, and elsewhere

**Purchasing Office**

- Acceptance of bribes in return for purchase of unnecessary types of medicines, purchase of excessively large quantities of medicines, or purchase from specific suppliers
- Intentional overpurchasing to obtain quantities sufficient for systematic diversion into the black market while maintaining legitimate government distribution

**Medical Stores** (central, regional, and hospital)

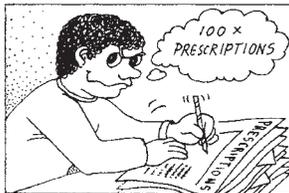
- Major theft through breaking and entering
- Major systematic theft by employees
- Acceptance of bribes from suppliers for intentional overordering of specific items
- Intentional underordering by government pharmacists or storekeepers, so that shortages will arise, followed by compensatory purchasing from local pharmacists who offer illegal "commissions"

**Transportation**

- Selling of medicines by drivers and at markets along the delivery route
- Consumption of preparations containing alcohol by delivery staff, who then refill bottles with water
- Systematic diversion of large quantities for black-market sale
- Theft of large quantities by nursing staff for use in their own unofficial private practices

**In Hospitals**

- Petty theft by delivery staff, nurses, and doctors for personal and family use
- Drinking of spirited preparations by hospital staff, who refill bottles with water
- Systematic diversion of large quantities for black-market sale
- Theft of large quantities by nursing staff for use in their own unofficial private practices

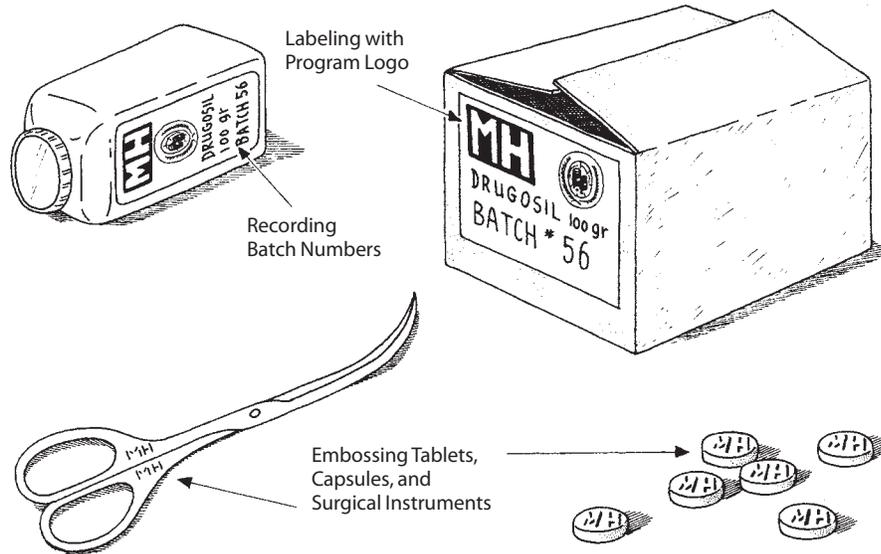
**Outpatient Departments**

- Patients faking illness to obtain medicines for resale
- Visits by patients to several clinics to obtain multiple prescriptions for antibiotics, analgesics, and other popular resale items
- Writing of multiple prescriptions by physicians—to the same person or to false names—in return for a share of resulting black-market sales

**Health Centers/Village Health Workers**

- Pilfering of health center supplies by government physicians and health workers for use in their private practices
- Popular black-market items overordered from medical stores and diverted by physicians, nurses, dispensers, or laborers

Figure 43-2 Unique identifiers



correct and regular record keeping and inventory audits, and maintaining an active procurement and shipment tracking system; improving working conditions of personnel, including salary increases; educating staff and increasing their moral awareness and responsibility; involving other stakeholders and the community as watchdogs; and taking disciplinary or legal measures against the thieves and their collaborators.

A hotel in Harare, Zimbabwe, had problems with guests' missing property and came up with the idea of writing "thou shalt not tempt" on visible places, such as ashtrays, toilets, mirrors, and doors. The message to the guest is to keep valuables in a safe place and not to leave them in the open. Keeping high-value and high-demand products out of public view and limiting access to authorized personnel will minimize theft.

The private sector can be more successful at preventing theft and pilferage because it uses the enumerated measures systematically and consistently.

### Inventory control

Good inventory management and stock control systems are essential for detecting and controlling theft (see Chapter 23). At each level in the supply system, records should indicate how much of each type of medicine was received and issued, who received or issued the medicines and verified the amounts, the source of medicines received, and the destination of every issue. Such information provides an audit trail for the purchase, distribution, and consumption of medicines. The records also provide a basis for comparing medicine consumption with use of services and a starting

point for tracing security breaches. Such recorded transactions will have great value if they are documented and reported monthly and if feedback is provided to the reporting facility.

A good information system alone is often not enough, and additional deterrent measures are needed.

### Unique identifiers

An individual or group caught with medicines believed to be stolen may claim that the medicines were purchased. Theft is difficult to prove unless medicines have unique identifiers, as shown in Figure 43-2. A country can require suppliers to identify medicines in one or more of the following ways—

- Imprint all containers (bottles, boxes, foil packages) and external packing (cartons, crates) with a unique client seal or monogram.
- Register batch numbers on all immediate containers and external packing and (if purchase quantities are large) agree not to sell products from the same batch to any other buyer in the country or in adjacent countries.
- Emboss tablets and print capsules with a unique client monogram.
- Color code tablets and capsules.
- Use electronic tagging devices. The latest technologies involve electronic identifiers detectable through GPS (global positioning systems), which can trace the location of a tagged product. This option, however, is expensive and may not be feasible in resource-limited environments.

Unique identifiers have been introduced in many pharmaceutical programs. They can, however, increase medicine prices significantly, and this economic disincentive has led to the discontinuation of the program in some countries. Whether identifiers should be used depends on the following factors: the types and quantities of medicines purchased, the capacity and willingness of suppliers to provide identifiers, the incremental expense of doing so, the speed with which deliveries are needed, and the source and extent of pharmaceutical theft.

**Imprinting containers and packaging.** Container imprinting is the most common type of identifier. The immediate container and the external packing are imprinted with the name or initials of the government program, the seal of the government, or some other symbol. In one South American country, individual foil packets as well as external boxes contain the program title “Medicamentos Básicos,” and all are printed with the same color code. In Sri Lanka, all container labels are required to bear the national seal. In Malaysia, containers are labeled as ministry of health property.

Imprinted containers can be used to identify stolen pharmaceutical products only when thieves keep the products in their original containers. If large numbers of pills are packaged in plastic-lined containers, culprits can easily remove the inner lining and destroy the identifying imprint. They will have to take much more time and effort to remove pills from individual foil packets or blister packages. In some countries, the business is so lucrative that thieves produce their own packing materials or containers to elude such preventive measures.

Container imprinting adds extra time and cost to the packing process. A requirement to imprint all immediate and external containers may delay shipments, increase the price, or dissuade some suppliers from bidding. One solu-

tion is to require imprinting only for orders that exceed a set minimum quantity or order value.

**Batch number registration.** The use of batch numbers as unique identifiers is less obvious to thieves than imprinted containers. By forbidding contract suppliers to sell products with the same batch numbers anywhere else in West Africa, one country was able to identify stolen goods and close several major black market wholesale and retail outlets, recovering thousands of dollars’ worth of stolen government medicines.

Because the unique batch number requirement does not add time to the manufacturing process, it is less likely to add to the cost or delivery time. However, suppliers may not be willing to restrict sales of a batch unless the requesting supply system purchases all or most of the batch. Thieves who are aware of the system can still remove the label or discard the container. Furthermore, the use of batch numbers as unique identifiers is effective only if the contractual requirement is monitored and enforced.

**Tablet embossing and capsule imprinting.** Imprinting individual tablets and capsules with the pharmaceutical program’s initials or seal provides the most effective protection against diversion for resale in the private sector. However, it is also the option most likely to increase medicine prices. Country Study 43-2 gives an example of this practice in Southeast Asia. The embossing and imprinting process is easiest to implement in state-owned factories. With commercial suppliers, lead times may increase and prices may greatly increase because of the embossing requirement. The pricing gap may decrease if imprinting is required only for large-quantity orders.

See Chapter 19 for additional information on using product identification technology to ensure the integrity of the pharmaceutical product and to deter theft and counterfeiting.

### Country Study 43-2 Tablet and capsule embossing in Southeast Asia

In one successful government pharmaceutical supply program, contracts with suppliers specified that tablets and capsules in quantities greater than 500,000 units had to be embossed with the Ministry of Health initials. All tablets produced by the government pharmaceutical plant also had to be embossed.

Theft of attractive items such as diazepam, paracetamol, antibiotics (used extensively for sexually transmitted infections), and other medicines was a steady, if small-scale, drain on supplies in major hospitals. Individual ampicillin and tetracycline tablets, which cost the government less than USD 0.04, were sold for USD 0.50 to USD 1.00 each on the black market.

The embossing of tablets did not stop these thefts, but it substantially reduced large-volume theft and subsequent sale to commercial pharmacies and physicians. In one year, losses caused by theft during the wharf-clearing and delivery process amounted to 5 to 10 percent. A thorough investigation of pharmacies and doctors’ offices in the capital city uncovered several places that dealt in stolen pharmaceuticals. This investigation led to a rapid reduction in thefts. Without the embossing on the tablets and capsules, proving that the medicines had come from government stores would have been difficult, if not impossible.

### Good management

One principle of theft control is to provide secure storage places with limited access at all points in the distribution system. A weak physical infrastructure predisposes itself to easy break-ins. Cheap locks, glass windows without metal bars, poor lighting inside and outside the stores, weak walls and doors, and congested and disorganized storage that makes taking inventory difficult all provide a weak link in the security system. If security guards exist, they are often not supervised well, nor are they well trained or equipped to protect the property. In urban locations where private security companies have strong monitoring and support systems, outsourcing external security is cost-effective. Country Study 43-3 describes a pilot project for improving inventory control in Sierra Leone.

A second principle is active use of the information system to detect theft and trace the point where it occurred. The best inventory system is useless unless periodic physical stock counts are compared with recorded stock levels, and unfortunately, many record-keeping systems are not well monitored,

and information is not updated regularly. The transaction between stores and dispensaries in many places is recorded only in bulk quantities and not by individual pharmaceutical products. Claiming a product as issued when, in fact, most of it is diverted, is very easy. Detailed record keeping and a patient treatment register with specifics on prescribed quantities can ensure that every product is accounted for. Record tampering and excuses of lack of staff for handling record keeping can be cover-ups for potential corruption.

Although designing a system that prevents theft at every point in the flow of medicines from port to patient is probably not possible, measures can be implemented to attack the problem at its major sources—

- Strengthen physical storage facilities with solid doors and windows, and reinforce with bars.
- Introduce systematic and orderly shelving.
- Use unique product and container identifiers.
- Strengthen inventory-control systems at all levels.
- Maintain a perpetual inventory system with regular physical counts.

#### Country Study 43-3 Experience in improved inventory control in Sierra Leone

The Sierra Leone Ministry of Health introduced improved security measures as a pilot project. At the time, the supply system lacked proper storage and inventory control, and essential medicines were in short supply. More than USD 1 million in medicines had been stolen the previous year. The project's main aims were to enforce accountability, strengthen security, and provide training in store and pharmaceutical management at central medical stores and selected district, hospital, and peripheral health unit levels.

Improvements were made at the hospital level. First, the hospital store was renovated. Wooden doors were replaced with reinforced double-lock steel doors, windows were fitted with steel bars, and the ceiling was reinforced to prevent access from adjacent rooms. A large lockable shelf was provided for expensive, fast-moving items. All other items were kept in sealed boxes on pallets. A storekeeper was appointed. The hospital pharmacy was cleaned, obsolete items were removed, and shelves and medicine cabinets were constructed. The pharmacy was divided into two parts: a mini-store and a dispensing room equipped with a small lockable cabinet. The mini-store supplied the dispensing room. Replenishment was made with a special requisition form only after previous receipts had been accounted for. The dispenser or pharmacist issued

medicines by official prescription to patients through a dispensing window. Access to the store was limited to the storekeeper in charge. At the end of the day, the storekeeper, the dispenser, and the cashier audited the day's transactions and tallied the money received against the supplies issued. The money was then deposited in a special revolving drug fund that was used to replenish medicines. The strict physical and inventory record control and the weekly perpetual inventory of selected fast-moving medicines improved security.

Worries existed, however, about the system's integrity. Several creative methods of pilfering were discovered. In one of the stores, the containers all appeared to be in place when viewed from floor level; when viewed from a height (the supervisor climbed a ladder), empty spaces could be seen where medicines had been removed. It was also discovered that medicines had been removed from their containers and the empty containers replaced on the shelves. After these thefts were discovered, the storekeepers were held responsible. Subsequently, such pilfering techniques were abandoned.

The security system was effective for a few years, but ultimately, the system broke down as major economic and social problems engulfed the country.

Source: G. Daniel, unpublished data, Africare, 1994.

- Insist on perpetual record checking with discrepancy reporting.
- Concentrate security measures on fast-moving, popular, and expensive items.
- Assign responsibility for security to one person.
- Limit store access to accountable staff members only.
- Disallow individual prescription filling from the store.
- Improve staff salaries and working conditions.

When corruption and theft are prevalent in a supply system, extremely low staff salaries are often a contributing factor. Increasing salaries to a level comparable to local private-sector salaries for similar positions is expensive but may be cost-effective if losses can be controlled.

Many of those responsible for handling valuable and expensive ARVs are government employees. Constraints relating to the civil service that might hinder good security management include—

- Compulsory rotation (may apply to trained staff)
- Exposure to recruitment embargoes/vagaries
- No hiring/firing responsibility
- No control over remuneration
- Lack of resources
- Government security personnel (only) on duty at key sites; they may be military staff, for example, untrained for the job required

Some physical security measures that can be used at all levels in the supply chain include—

- Improved external and internal lighting
- Alarm systems
- Watchdogs
- Private security agents
- Secure fencing
- Double locks
- Strong, lockable delivery boxes and containers
- Closed delivery vans

Narcotics and controlled medicines require special security management practices. Special procedures may include restricting who can access information regarding purchases and shipments and planning for increases in usual product volume that might occur when, say, a country is introducing or scaling up methadone maintenance programs as a way to decrease the spread of HIV. Methadone products are generally low cost; however, their street value may be much higher, making them valuable targets for thieves. Managers need to consider ways to mitigate risk; for example, in Vietnam, providers add a low-temperature caramelizing agent to the liquid methadone preparation, which makes it impossible to concentrate—adding heat will quickly give the product a tarry consistency that makes it impossible to inject.

The United Nations (2007) has developed guidelines on procuring controlled substances for dependency treatment.

Box 43-1 provides a sample of techniques used in various parts of the world. Unfortunately, the comparative effectiveness of the various methods has not been tested and is likely to vary from country to country, depending on the commitment of individuals and on political, cultural, and economic circumstances.

### Law enforcement and closing of outlets

When the major outlet for stolen goods is black market sale within the country, the incentive to steal is reduced greatly by closing black market outlets. This step is more easily taken if the outlets can be readily identified and if pharmaceutical products carry unique identifiers.

Governments that condone the presence of open-market drug peddlers are often victims themselves, because the medicines sold in these illegal outlets are often products stolen from government programs. Eliminating unauthorized outlets is a first step in controlling theft and irrational medicine use.

Unfortunately, police may be unwilling or unable to spend time on such activities. To solve this problem, the pharmaceutical section of one Southeast Asian ministry of health managed to obtain authority from the police department for its own staff to investigate and prosecute violations, which improved enforcement efforts. Such a solution would not work, however, if theft were coordinated or condoned at the upper levels of the supply system.

When stolen pharmaceuticals are sold through a multitude of street vendors, closing the outlets may not be feasible because they are difficult to identify and locate. In those instances, control can be exerted more effectively at the sources of theft rather than at the outlets.

### 43.5 Bribery

Illegal payments from suppliers to purchasing officials can occur at all levels and in any country. The supplier may try to use bribery to influence which medicines are bought, how much is purchased, or which suppliers are selected. A determined supplier can influence decisions in most supply systems. Bribery is made more difficult if separate mechanisms are established for making each of those three decisions and if all decisions are made by a committee rather than by an individual.

Measures that can discourage bribery include making sure the system is transparent; identifying the parties involved; bringing the culprits to justice through an anticorruption or similar mechanism; and instituting court action. If bribery is considered a major issue in an organization, using covert techniques can help identify the individuals or the network.

### Box 43-1 Techniques for theft control

#### Monitor selected items

Monitoring should be targeted at those products that are most likely to disappear—those that are fast moving, chronically in short supply, in high demand by consumers, expensive, lifesaving, and easy to hide or disguise.

A simple way to monitor targeted medicines is to—

1. Select a drug product that is particularly likely to be pilfered or that may be misused (prescribed inappropriately), for example, tetracycline tablets.
2. Check pharmacy or storeroom inventory records to determine consumption during a specified period (example: 8,000 tablets were issued during a three-month period).
3. Check medical charts or prescription ledgers and count the number of treatment courses over the same period (example: 101 adults were dispensed fifty-six tetracycline tablets each).
4. Convert treatment courses to dose units (example: 5,656 tablets).
5. Compare this figure with the stock issued from the storage area. If the difference is significant, further investigation and possibly punitive action are warranted.

A system of supervision that incorporates scheduled and unscheduled visits to facilities will deter theft and fraud. A monthly audit system and report on stock status coupled with on-the-spot physical counts of selected items will indicate foul play. Such preventive measures will help minimize losses and ensure that the problem is identified and addressed before large losses occur.

#### At the port

*Containerization.* If the port is equipped to handle containers, containerization reduces both major and petty theft because containers are physically secure (although entire containers can be stolen).

*Rapid port clearance.* Inadequate and inefficient port-clearing procedures can lead to long delays, providing opportunities for theft if security is weak. Increased efficiency in port clearing reduces theft. Ensure that all necessary documents for clearance (airway bill, invoice, certificate of analysis, certificate of free sales) are ready.

#### At the medical stores

*Limited access.* Access to medicine storage areas should be limited to the store's staff members only. Hospital pharmacies should not be accessible on evenings or

weekends or when the pharmacist or dispenser is not present. Limited extra supplies for emergency rooms and wards should be entrusted to medical officers or nurses when the pharmacy is closed. Their distribution should be accounted for and monitored by pharmacy staff.

*Secure locks and doors.* These physical barriers are essential to good security. Country Study 43-3 describes improvements that can be made.

*Unannounced searches of medical stores and hospital staff and security staff.* In some countries, the pharmacist or medical director personally supervises periodic, unannounced searches.

*Independent stock count.* Staff members from the central pharmaceutical supply office should visit all major medical stores periodically to perform either a complete or a sampling stock count and an audit of receipt and issue records.

#### During transport

*Document verification.* A selected staff member should be responsible for checking receipts against the packing slip. A separate invoice should be sent from the issuing store, and the receiving form should be verified against this invoice. This control measure shows where shipments have partially or completely disappeared in transit. A waybill used during any delivery (that records the date of travel, destinations, driver, particulars of the vehicle, products transported, date of arrival, and signature by the dispatcher and the person in-charge at the destination) is an important tracking measure.

*Packing seals.* Shrink-wrapped pallets and tape, wax seals, and wire seals used to close cardboard boxes or other transport containers make tampering obvious to see.

*Strongboxes.* When large shipments are made to small numbers of facilities, portable strongboxes or built-in compartments with padlocks or tamper-proof strings should be used. One key should remain at the issuing store and the other at the receiving store.

#### In hospitals

*Pharmaceutical accounting.* Ward and outpatient staff should record all pharmaceuticals received and dispensed. These records should be checked periodically (monthly or bimonthly) against pharmacy issue records. A daily treatment register that keeps a record of all patients treated, by age, gender, diagnosis, and prescribed

quantities, can give a running total of medicines that can be linked with stock status.

*Issue-consumption verification.* For dangerous and controlled medicines, and for medicines that are frequently stolen, a consumption report showing the time, date, patient, patient's number, dose, and remaining stock levels should be submitted to the pharmacist with each order for additional stocks.

*Presentation of prescriptions for ward issue.* For selected expensive or frequently abused medicines, the hospital pharmacy should be provided with a copy of the signed prescription to be filed with the pharmacy before medicines are issued to the ward.

*Rotating stock containers.* Wards can keep a limited number of labeled containers for each medicine they stock. When the containers are empty, they must be returned to the pharmacy for replenishment, along with the dispensary record for the medicine. The containers allocated for each medicine should hold enough stock for several days. Excessive replenishment of stock is cause for suspicion.

*Locked transport boxes.* The pharmacy can issue medicines in wooden or metal boxes with padlocks. Each ward should have its own box. The pharmacist should have a key for all ward boxes, and the head nurse should have the second key for that ward's box.

*Upgrading of transport staff.* In several countries, security has improved when nursing students, dispensers, or nurses, rather than laborers, collect medicines from the pharmacy. When the pharmacy establishes and adheres to an appropriate issuing schedule for wards, nursing staff are able to allocate time to collect medicines.

*Upgrading of pharmacy staff.* Gradual replacement of untrained dispensary staff with trained pharmacists and dispensers has been credited with reducing theft in some countries. A combination of more careful screening of individuals, professional socialization, and higher pay may explain this observation.

### In outpatient departments and health centers

*Maximum dispensing quantities.* Setting a maximum quantity prevents patients from altering prescriptions to obtain large amounts of medicines and prevents collaborating physicians from writing excessively large prescriptions.

*Recording of individual prescriptions.* This measure is recommended to increase the dispenser's accountability. A patient treatment register serves as a prescription record of all medicines issued, corresponding to the disease. The register makes any discrepancy in prescription amount, overprescription, incompatibilities, or evidence of irrational medicine use easy to see.

### Influencing choice of medicines

In Chapter 16, it was noted that the participation of a panel of respected physicians, pharmacists, and public officials often improves the appropriateness of medicine selection and makes the process more credible and therefore more acceptable. Another advantage of involving multiple participants is that it lends greater visibility to the selection process. A supplier will find it more difficult to persuade a whole group to buy an unnecessary type or brand of medicine than to influence one or two individuals.

### Influencing order quantities

When inventory control is poor, purchasing officers usually have to estimate rather than calculate the amounts to purchase. If no consumption data are available to compare with these estimates, order quantities can be inflated by bribe-seeking purchasing officers without great risk of detection. In contrast, when inventory control and forecasting are effective, when a systematic method of calculation is used to determine order quantities, or both (see Chapters 20 and 23), the supplier or a purchasing officer will have much more difficulty influencing the amounts ordered.

### Influencing supplier selection

Suppliers in many countries attempt to influence the selection of the supplier for a particular order. As discussed in Chapter 21, a transparent tender process and tender awards made by a broad-based committee are the best ways of combating this problem.

## 43.6 Fraud

Manufacturers and importers may dilute liquid preparations, omit or reduce the quantity of expensive active ingredients, or short-pack their shipments. Some suppliers may even provide counterfeit or spurious products. This type of fraud can be uncovered by proper quality assurance practices (Chapter 19) and thorough checking of receipts by the receiving clerk at the medical store or pharmacy (Chapters 44 and 46).

Specialists from the Ethiopian Ministry of Health paid visits to selected winners of tenders and found that although many suppliers claimed to meet the criteria for bidding on tenders, they failed to meet even the basic requirements. Their visit to India showed that over 80 percent of forty-

### Country Study 43-4 Cost-benefit scenario from Ethiopia

Investing in strengthening security in the pharmaceutical sector can result in major cost savings and overall health benefits to the population. Theft of medicines and other medical products directly disrupts health system services by denying health providers and patients the means of addressing illnesses. Effective medical practice demands that pharmaceuticals are available in the quantity prescribed and when needed, and averted thefts mean more medicines are reliably available for initiating or continuing treatment. Strengthening security will ensure that not only high-value products such as ARVs are protected from theft, but also all other essential medicines in the facility.

The following table demonstrates the cost-benefit scenario from Ethiopia's HIV/AIDS treatment program in 2004. The scenario is based on—

- Strengthening physical security measures at the health facility level (drug store and dispensing pharmacy)
- Using local materials and labor
- Employing two security guards for one year
- Treating patients with first-line combination ARVs for one year

Expense	Cost
Cost of one-time physical security reinforcement:	USD 1,800
• Metal doors and locks (3)	
• Metal windows (5)	
• Steel bars for windows (5)	
• Flood lighting	
• Lockable storage cabinets (6)	
Cost of security guards for one year (2)	USD 1,440
<b>Total estimated cost of security</b>	<b>USD 3,240</b>
Estimated Cost of ARVs	
Cost of first-line ARVs for five patients for one year	USD 3,000

The table illustrates that a small one-time capital investment for physical reinforcement of USD 1,800 and a recurrent annual cost of security guards for one year of USD 1,440 are equivalent to the cost of treating five patients with ARVs for one year. If the facility has a patient load of 500, the theft of one year's worth of ARVs will cost the system USD 300,000. This figure does not take into account the inestimable loss of life or interruption of treatment.

Physical security measures need to be complemented by other management and inventory control actions, but this case in Ethiopia illustrates that a small investment in security can have high returns.

five pharmaceutical suppliers to the Ethiopian government medical store failed to meet several basic quality assurance standards.

Falsifying transaction records, such as invoices and receipt and issue vouchers, is a major type of fraud that does not involve the physical product. Many phony suppliers forge official documents—such as WHO or national government certifications, quality control data, or free trade papers—and pass off the counterfeit or stolen pharmaceutical products as genuine to countries with weak regulatory systems. These transnational and international practices can be curbed with close collaboration between countries, WHO, the World Trade Organization, and consumer interest groups.

The supplier should be held accountable both for intentional errors, such as fraud, and for mistakes in formulation or packing. Fraudulent product ingredients have caused deaths, and suppliers have been prosecuted accordingly. Precise specification of product requirements and rigid enforcement of contracts are essential, as described in Chapter 39.

Temptations and pressures always exist that may lead personnel in responsible positions to commit fraud, so constant monitoring is required.

### 43.7 The cost of security

In some cases, no additional costs are specifically attributable to security control. Several methods for preventing security breaches serve a dual purpose, because they are also necessary for the effective procurement and distribution of pharmaceuticals: establishment of a pharmaceutical selection committee, quality assurance, inventory control and forecasting, and checking of receipts.

Other security measures may be quite costly but are worth the investment. Imprinting containers, embossing tablets and capsules, hiring special security staff, constructing secure warehouses and storerooms, and regularly monitoring and auditing stock records all can be expensive. Those expenses must be weighed against the potential savings in resources and in health from reduced theft, bribery, and fraud (see Country Study 43-4).

Breaches in security can have substantial medical as well as financial costs. Fraud may have serious and even life-threatening medical consequences if the supplier uses insufficient amounts of active ingredients. Theft raises costs by increasing the volume of pharmaceuticals that have to be purchased; it also has medical costs resulting from shortages

## ASSESSMENT GUIDE

### Prevalence of leaks

- Is pharmaceutical leakage a problem?
- What are the annual losses as (1) absolute value and (2) percentage of total annual pharmaceutical purchases?
- Where do leaks occur: at ports, at primary and intermediate stores, at health facilities, during transport?
- What types of leaks are experienced in each setting: petty pilferage, major thefts, diversion of shipments, bribery and corruption, supplier fraud? Which are the most significant?
- What are the products targeted?
- Are high-value and disposable items, such as ARVs, always receiving priority attention?

### Security systems

- Does an effective inventory control system exist?
- Are special procedures in place for narcotics and other controlled medicines?
- What systems are used to control theft? Have thefts been detected in the past year? What measures were taken after detection?
- What systems are used to control bribery and corruption? Is a committee system used? Has bribery or corruption been detected in the past year? What measures were taken after detection?
- Are physical security systems in buildings and vehicles adequate or inadequate?
- Are doors and windows secure?

- Are stock/bin cards used and completed regularly? Is there regular internal auditing?

### Theft detection

- How is theft detected: informers, physical inventory count, consumption comparisons, surveys of selected outlets?
- Are the police cooperative?
- Are junior staff members cooperative?
- Are senior managers cooperative?

### Fraud detection

- What systems are used to control supplier fraud? Has fraud been identified in the past year? What measures were taken after detection?
- Are product and packaging specifications adequate?
- Do supplier contracts specify penalties in the event of fraud?
- How is fraud detected: visits to suppliers, receiving inspections, or assays?
- Are any laws or regulations in place for controlling fraud?

### Bribery

- Where and at what level and in what form is bribery taking place?
- Is the procurement system transparent enough to prevent bribery in all its forms?
- Has the organization experienced bribery in the past? What measures have been taken?

and the use of inappropriate medicines. Bribery and corrupt procurement can be particularly costly. Traditionally, in one South American country, 7 to 10 percent of the procurement value is paid to procurement officials. This corruption “tax” adds up to several hundred thousand U.S. dollars each year because these bribes are added to the medicine’s price. ■

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