

Part I: Policy and economic issues	Part II: Pharmaceutical management	Part III: Management support systems
	Selection	
	Procurement	
	Distribution	
	Use	
	27 Managing for rational medicine use	
	28 Investigating medicine use	
	29 Promoting rational prescribing	
	30 Ensuring good dispensing practices	
	31 Community-based participation and initiatives	
	32 Drug seller initiatives	
	33 Encouraging appropriate medicine use by consumers	
	34 Medicine and therapeutics information	
	35 Pharmacovigilance	

## CHAPTER 33

# Encouraging appropriate medicine use by consumers

Summary 33.2

33.1 The need to encourage appropriate medicine use 33.2

*Problems • Benefits*

33.2 Promoting treatment adherence and appropriate medicine use by patients 33.4

*Communication between providers and patients • Inadequate counseling • Lack of resources for medicines and treatment • Complexity and duration of treatment • Availability of information*

33.3 Monitoring adherence in health care facilities 33.9

33.4 Addressing determinants of adherence 33.9

33.5 Communicating with consumers about appropriate medicine use 33.10

*Principles of public communication • Developing public communication strategies*

33.6 Facilitating and constraining factors in public communication 33.18

*Facilitating factors • Constraining factors*

33.7 Understanding the importance of communication about appropriate medicine use 33.21

References and further readings 33.21

Assessment guide 33.23

### ILLUSTRATIONS

Figure 33-1 Improving adherence to treatment 33.7

Figure 33-2 Consumer education poster used in accredited drug-dispensing outlets in Tanzania 33.9

Figure 33-3 Steps in an effective public communication intervention 33.13

Figure 33-4 Hints for selecting communication methods for public communication campaigns 33.22

### BOXES

Box 33-1 Pharmaceutical issues to consider in treating children 33.5

Box 33-2 DOTS strategy for TB treatment 33.8

Box 33-3 Improving the efficacy of the DOTS strategy through the use of enablers and incentives 33.11

Box 33-4 Selected areas of intervention to improve medication adherence 33.12

Box 33-5 Questions to ask when you get a new prescription medicine 33.15

Box 33-6 Key components of a communication plan 33.18

### COUNTRY STUDIES

CS 33-1 Medication counseling training for ART dispensers in Kenya 33.6

CS 33-2 Using prepackaging to improve rational use of medicines 33.10

CS 33-3 Using social marketing to promote the rational use of medicines and health commodities 33.14

CS 33-4 Neighbor-to-neighbor education on antimalarials in Kenya 33.16

CS 33-5 The INN—A medicine's true name: promoting the use of International Nonproprietary Names 33.17

CS 33-6 Innovative public education campaigns to improve medicine use 33.19

### ANNEX

Annex 33-1 Pictograms for use on medicine labels 33.25

## SUMMARY

Although prescribers play an essential role in the choice of medicines, the role of the consumer is equally important. Public knowledge, attitudes, and perceptions regarding the use of medicines influence the decision whether to seek health care, from whom, and whether to follow the proposed treatment. In some countries, most medicines can be bought directly over the counter, often from unauthorized sources, often in response to aggressive commercial marketing, and often through illegal sales of prescription-only medicine.

For consumers to use medicines appropriately, they need to know how to take them, what to avoid, and what negative effects to watch for. Communication is needed at a general level to give people a better understanding of what medicines are, how they act in the body, what their risks and benefits are, and what their role is in health care. At a more specific level, interventions are needed to tackle particularly serious problems of misuse. Relevant strategies, based on known facilitating factors and possible constraints, must be developed and implemented.

An increased focus on treating chronic diseases in developing countries, including HIV/AIDS, has resulted in research designed to promote treatment adherence. A major concern regarding poor adherence to treatment for infectious disease is the development of antimicrobial resistance; poor adherence is also costly in terms of the patient's quality of life, the subsequent increase in health care expenditure, and reduced productivity. Components to address in promoting adherence include—

- Communication between providers and patients
- Inadequate counseling
- Lack of resources for medicines and treatment
- Complexity and duration of treatment
- Availability of information

Strategies to encourage appropriate medicine use by the consumer can be public or patient centered, but they should always be culturally specific. A public-centered approach provides the community, or target populations within the community, with information on the role of medicines and on how to make appropriate health-seeking decisions at times of illness.

Seven steps toward more effective communication strategies are—

1. Describe medicine use and identify problems
2. Prioritize problems
3. Analyze problems and identify solutions
4. Select and develop intervention
5. Pretest intervention
6. Implement intervention
7. Monitor and evaluate intervention

Developing interventions in collaboration with the people whose medicine-use patterns have been targeted for change helps ensure that the cultural and social context in which beliefs and practices have developed is taken into account. A variety of approaches and resources improves the chance of the intervention's success and expands its capacity and reach.

### 33.1 The need to encourage appropriate medicine use

Although the prescriber's role in promoting rational medicine use is important, the patient, community, and cultural context cannot be ignored. The knowledge, attitudes, and education of the public in relation to disease etiology and treatment are critical determinants in the decision to seek health care, the choice of provider, the use of medicines, and the success of treatment—the patient or caregiver, therefore, is the final determinant of appropriate medicine use. Patients should be actively involved in the therapeutic encounter and treatment.

Often, the patient or caregiver decides whether to go ahead with a treatment, a choice frequently influenced by the views of family, close friends, and the community. People make a series of decisions before choosing a treatment.

*First:* People who are ill have to believe that their health status has changed and that something is wrong with them or that they need to take action to prevent illness. To some extent, a person's culture defines this perception. In the case of children, the knowledge and experience of the caregiver are critical determinants. This decision can be complicated by the lack of observable symptoms for some conditions.

*Second:* People or caregivers have to decide whether this change of health status is significant enough for them to seek help or whether the symptoms or potential health threat will go away without taking any action.

*Third:* After they decide to get help, people choose where to seek help: a hospital, a primary health care center, a private physician, a pharmacist, a market vendor or retail drug seller, a traditional healer, a relative, or

some other community member. They may decide, rightly or not, that the symptoms are minor or that they have sufficient familiarity with the required treatment to take care of themselves with either a modern pharmaceutical or a traditional remedy.

*Fourth:* When they have a prescription or have received a recommendation for products from a pharmacy or drug shop, patients decide whether to buy the medicines, whether they are going to buy all or some of the items recommended, and which medicines to buy. Cost considerations may require a choice of which items to buy and which to ignore, and knowledge can help patients make rational choices within the context of medicine promotion and advertising, some of which may be unethical.

*Fifth:* Patients decide whether and when to take the medicines, how to take the medicines, whether to continue if side effects occur or symptoms disappear, and what to do with medicines that they do not use.

Consumers also need education on medicines and treatment because pharmaceuticals play such an important role in health care and because public education provides individuals and communities with information that enables them to use medicines in an appropriate, safe, and judicious way. Inappropriate medicine use has serious health and economic consequences for both individuals and the community. For example, development of antimicrobial resistance from the inappropriate use of antibiotics not only can harm an individual patient but also can harm the community when certain antibiotics become ineffective. Appropriate medicine use by consumers is an integral part of successful national pharmaceutical policies.

The 1978 Declaration of Alma-Ata, which focused on the need for primary health care, states that “people have the right and duty to participate individually and collectively in the planning and implementation of their health care,” a principle that should be a cornerstone of national public health and hence of pharmaceutical policy. The World Health Organization (WHO) considers public information and communication on medicine as key elements in national pharmaceutical policy and as a prerequisite for consumers to be able to make sound decisions about health care. Despite the progress by some countries, however, governments seldom allocate the necessary human and financial resources for public education on medicine. Moreover, many training programs for health care providers do not adequately cover patient counseling, communication, and appropriate use of medicines. These topics are frequently given little priority—to be tackled only when the other elements of pharmaceutical policy are in place or when the training curriculum has an open slot.

## Problems

Irrational medicine use includes overuse, underuse, and inappropriate use (see Chapter 27). Various factors contribute to these problems: lack of adequate regulatory systems, shortages of essential medicines, lack of objective medicine information for prescribers and consumers, poor communication between prescribers and patients, exclusion of patients from the information needed to become partners in therapy, and considerable influence of medicine promotion on both prescribers and consumers.

Most developing countries have public health problems of medicine misuse, including the following—

- Widespread availability of prescription medicines from informal sellers, market stalls, or unlicensed drugstores—WHO data indicate that two-thirds of antibiotics are dispensed without a prescription through the informal private sector (WHO 2011a).
- A culture of self-medication and lack of knowledge about the importance of following treatment guidelines (such as taking a full dose or course of therapy), which is integral to controlling antimicrobial resistance.
- Globalization and expansion of the private sector as a source of medicines, with a corresponding commercialization of pharmaceutical supply and promotion.

## Benefits

Improving public understanding about medicines will not resolve all these issues, but—together with other activities to promote rational use—it will contribute to the development of better medicine use.

At an individual level, the benefits of improved public understanding include—

- Better knowledge of how to take medicines when needed
- Better appreciation of the limits of medicines and a lessening of the belief that “there is a pill for every ill”
- More balanced partnership between consumer-patients and health care providers
- More critical attitude toward advertising and other commercial information, which often fail to give objective information about medicines

At the community level, the benefits include—

- More understanding and support for pharmaceutical policy and measures to improve medicine use
- More efficient use of medicines and less waste of resources

- Improved confidence in health services and health care providers
- Increased success of measures to deal with public health problems
- Development of expectations about receiving quality medicines and pharmacy-related services
- Protection of the effectiveness of essential antibiotics by decreasing development of antimicrobial resistance

Communication is needed at a general level to give people a better understanding of what medicines are, how they act in the body, what their risks and benefits may be, and what role they play in health care. At a more specific level, interventions are needed to tackle particularly serious problems of misuse. Campaigns for the wiser use of specific medicines (for example, in malaria control programs) have proved effective in reducing morbidity and mortality and in reducing needless expenditures. Other campaigns have tackled particular medicine-related problems. For example, WHO launched Make Medicines Child Size to advocate for and address treatment issues specific to children. Box 33-1 provides more information on medicines and children.

### 33.2 Promoting treatment adherence and appropriate medicine use by patients

WHO defines adherence as “the extent to which a person’s behavior—taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider” (WHO 2003, 3). The concept of adherence requires a trusting relationship between the patient and the health professional in which the patient agrees with the provider’s recommendations.

A major concern regarding poor adherence to treatment for infectious disease is the development of antimicrobial resistance to the first-line medication, resulting in reliance on second- or third-line medicines that are expensive and may have higher levels of adverse drug reactions (see Chapter 35). Poor adherence is also costly in terms of the patient’s quality of life, the subsequent increase in health care expenditure, and lost productivity (WHO 2003).

The scale-up of antiretroviral therapy (ART) in developing countries has brought greater attention to adherence among patients who must take antiretroviral medicines (ARVs) for the rest of their lives. Other conditions requiring long-term treatment adherence include noncommunicable, chronic diseases, such as diabetes, high blood pressure, and mental disorders. This point is important because WHO estimates that, globally, deaths from noncommunicable diseases will increase by 15 percent between 2010 and 2020—and over 20 percent in Africa, the eastern Mediterranean, and Southeast Asia (Holloway and van Dijk 2011). Many studies have shown that in developed countries, adherence

to medicine regimens among patients with chronic diseases is mediocre, and the situation in developing countries is assumed to be worse because of the greater constraints to accessing affordable medicines and weaker health systems overall (WHO 2003). Poor adherence is a problem with any treatment regimen, but achieving a high rate of adherence and sustaining it over the long run is extremely difficult (Gill et al. 2005).

Reasons that patients do not follow prescribed short-term or chronic disease treatment include—

- Lack of ready access to care (for example, distance to clinic) or patient-unfriendly schedules (for example, limited hours of operation)
- Lack of appointments
- Poor communication between providers and patients
- Inadequate counseling
- Lack of resources for medicines and related treatment visits (for example, cost of travel)
- Complexity and duration of treatment, particularly in cases of chronic disease
- Lack of access to information

#### Communication between providers and patients

Patients are better able to adhere to their medication regimens when they have a strong relationship and enhanced communication with their health care provider (Osterberg and Blaschke 2005, WHO 2003). Lacking a trusting relationship, patients may hesitate to ask providers to clarify either their basic health condition or the treatment proposed. This hesitancy can be linked to fears of appearing foolish, to differences in social status and language, or to lack of encouragement by providers. Patients who have developed a trusting relationship with their health care provider, whether at a clinic or a drug shop, may be more likely to listen, to ask questions, and to follow advice.

Prescribers’ and dispensers’ communication skills can be weak: they tend to use complex terminology that patients cannot easily understand; they frequently lack knowledge of behavioral theory and practice; and they may have limited awareness of the scale, problems, and causes of patient nonadherence to treatment. The low priority given to communication skills in medical, paramedical, and pharmacy schools undoubtedly contributes to this situation. Fortunately, some medical and pharmacy schools—notably in Australia, Canada, Europe, and the United States—include communication techniques in their basic curricula, teaching behavioral theory and using role playing and video as learning tools. Audiovisual feedback to students markedly enhances their acquisition of such skills, and basic communication training should be an integral part of any prescriber’s or dispenser’s education and refresher training. These types of courses are gradually being incorporated into

### Box 33-1 Pharmaceutical issues to consider in treating children

#### Product-related issues

*Ability or willingness of children to swallow tablets and capsules and tolerate liquids:* Generally, as children age, their ability and willingness to swallow tablets and capsules increases; however, age cannot be assumed to be a direct correlation. Liquid preparations are often preferred for younger children, but some treatment programs have reported that small children have difficulty swallowing large volumes of liquids (for example, zidovudine) and that the syrups taste bitter.

*Limited product stability:* Some products (for example, stavudine liquid) have a fixed expiry after reconstitution, thus making losses caused by expiration more of a problem and quantification of needs concomitantly more complex.

*Fixed-dose combinations (FDCs):* FDCs formulated for adults may not be suitable for use in children because the doses of one or more of the medicines combined into the product may not be appropriate for the child's age, weight, or body surface area. Using FDCs or portions of an FDC in children can therefore result in (a) underdosing, leading to treatment failure, resistance, or both, or (b) overdosing, which increases the potential for side effects. Some FDC products are not recommended or licensed to be cut or split by the manufacturer, for example, because the active constituents may not be evenly distributed throughout the preparation.

*Losses through spillage or use:* Losses from spillage or from sugary liquids and suspensions sticking to the bottle or oral syringe need to be considered when dispensing and monitoring adherence to liquid-based therapy.

*Product availability of low-dose tablets or capsules and FDCs:* Pediatric formulations for HIV/AIDS and tuberculosis (TB) are not readily available. The lack of pediatric dosage forms of most anti-TB and antiretroviral medicines necessitates using adult pills that must be broken into halves or quarters or crushing pills and

creating suspensions, which can result in wasted product and inaccurate measurement. The development of half-sized, scored pills would help provide practical treatment alternatives for children.

#### Treatment-related issues

*Less detailed standard treatment guidelines (STGs) for children (mainly for HIV/AIDS treatment):* Many countries have now developed STGs for ART; however, the focus is mainly on adults. The recommendations for children are generally less detailed, especially with regard to addressing product-related issues.

*Complex quantification because a treatment regimen is not automatically translatable to specific products or dispensing quantities:* For children, the product prescribed depends on dosage needed (such as a portion of the adult dose), the ability or willingness of the patient to swallow the product, and tolerance to a formulation. The selection will also depend on the range of products available for prescribing. The dose, and therefore the quantity to be dispensed, depends on the child's age, weight, or body surface area.

*Adjustments needed for continuing growth and weight gain in children receiving long-term treatment:* Once a child has started on long-term treatment, the dose will increase as the child gains weight or grows in height. Programs have reported that some uninformed providers have not changed the doses for children on ARVs to take their growth into account, which can result in resistance to treatment.

*Access and adherence to treatment reliant on caregiver:* Programs may need to use different approaches to promote adherence to and completion of a full course of treatment to a caregiver, especially when the caregiver is elderly or if the child is accompanied by different caregivers on each visit. The time that it takes to dispense medicines to children and their caregivers is typically much longer.

training programs in developing countries; for example, as part of a countrywide antimicrobial resistance containment initiative, the University of Zambia revised its medical curriculum to include antimicrobial resistance and rational medicines use (Joshi 2010).

Adherence to treatment is linked to the clarity of the prescriber's explanation: patients often feel that instructions are unclear or nonexistent. The timing and clarity of a message

powerfully affect how the consumer receives, understands, and retains it. Patients remember the first instructions presented the best; they recall instructions that are emphasized; and the fewer instructions given, the greater the proportion they remember. Thus, a message must not only be clear; it must also be succinct and then organized and delivered in a way that allows the patient to understand and process the information completely.

Although adherence to treatment depends on a patient's acceptance of information about the health threat itself, the practitioner must also be able to persuade the patient that the treatment is worthwhile. Adherence to treatment is linked to the patient's perception of the practitioner's friendliness, empathy, interest, and concern. Finally, in most circumstances, it is essential not only to specify the patient's precise actions (for example, taking two pills twice a day) but also to suggest how the patient can insert that action into the daily routine (for example, taking them at breakfast and dinner). To accomplish this, the health care provider must understand the patient's circumstances; for example, some patients may not be able to afford more than one meal a day or may have an atypical schedule, such as working at night and sleeping during the day.

A more fruitful patient-provider interaction can be encouraged if providers increase their sensitivity, patient and consumer organizations actively promote such interaction, and relevant campaigns are carried out to empower patients.

### Inadequate counseling

WHO estimates that the average amount of time that a dispenser spends with a patient is less than one minute and that only about half of patients receive instructions on how to take the medicines they receive (Holloway and van Dijk 2011). Providers sometimes attribute lack of interaction with patients to the pressures of work and a lack of adequate staff. To help correct this problem, two things need to happen. First, health care facilities need to examine their patient care routines to increase efficiency and add time for more patient interaction. For example, many health centers and outpatient departments see all their patients during a few morning hours. One possibility to consider is extending this

period so that each individual can receive more time with the prescriber and dispenser. Another possibility is to train staff to make better use of the time available and to ensure that patients do not fall into an "information gap": if the provider does not have the time to explain the treatment to the patient and ensure that the patient fully understands the instructions, the dispenser or nurse should receive training to do this. Second, health care providers must prioritize and effectively communicate critical information to patients under less-than-ideal circumstances. Staff must be encouraged to understand that effective communication with patients is not an unrealistic ideal but a core aspect of clinical practice.

Another common problem is a lack of space for confidential counseling. Pharmacy staff often must use a dispensing window that is crowded with customers to give information to one patient. The Rational Pharmaceutical Management Plus Program helped facilities in several countries, including Kenya and Ethiopia, to construct private dispensing booths where dispensers can counsel patients privately. Although the booths were constructed primarily to provide confidentiality to patients on ART, all patients, no matter what their condition, benefit from the dispensing booths.

Country Study 33-1 shows how an emphasis on counseling for ART in Kenya improved medication counseling for all patients at the facility.

### Lack of resources for medicines and treatment

Patients in developing countries are more likely to pay out of pocket for the medicines they need—over 70 percent of medicine expenditures in low-income countries consist of consumer payments (Holloway and van Dijk 2011). When the patient bears part or all of the cost, he or she may not buy the medicine at all if it is too expensive. When more

#### Country Study 33-1

##### Medication counseling training for ART dispensers in Kenya

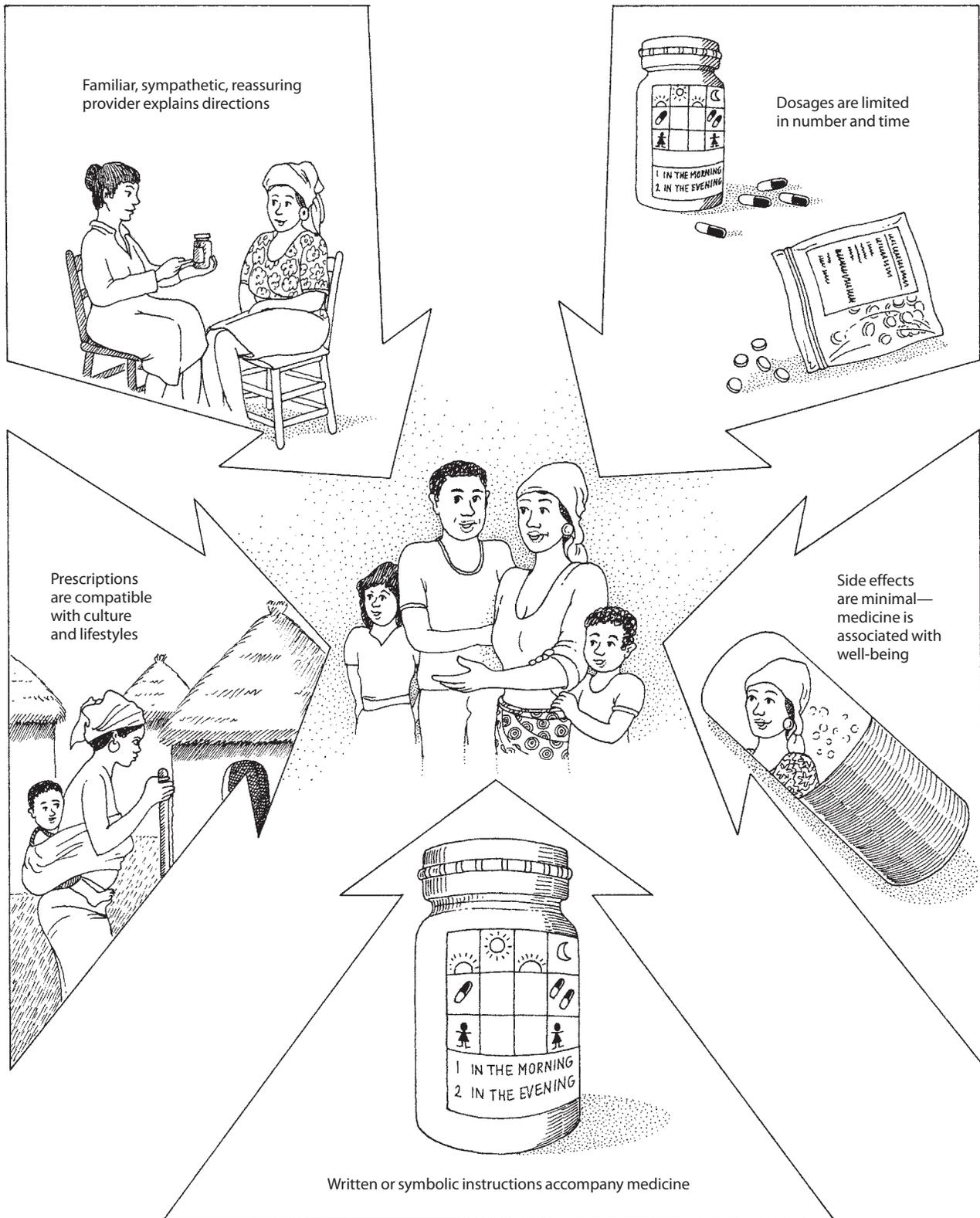
Beginning in 2003, the government of Kenya initiated ART for HIV-infected patients at four health facilities serving the Coast province. When the program began, pharmacy staff received training on rational medicine use specifically for ART and on how best to offer medication counseling to ART recipients. One sensitive issue for an ART program is ensuring patients a confidential location within the pharmacy to receive their medicines and counseling. Therefore, new booths at pharmacy windows were constructed to create private counseling areas that provide a welcoming and secure atmosphere. The staff members saw the confidential nature of the booths as a valuable addition: "Before, when I was

dispensing pessaries to a patient there would be four heads listening."

When the pharmacy team later evaluated the ART program's first six months of operation, they felt that one of their main successes was using their training and the enabling environment of the booths to improve the quality of medication counseling, not only for ART, but also for their other patients. Several of the dispensing staff reported that they were applying their training on ART medication counseling to those patients taking diabetic or hypertensive medicine.

Source: RPM Plus Program 2004.

Figure 33-1 Improving adherence to treatment



than one medicine is prescribed (in some countries, the average number of medicines per prescription is five to six), the patient may be able to afford only one or two of the products listed and may choose the less important, relatively cheaper ones, such as vitamins, or buy only a partial treatment.

Providers need to know the approximate prices of medicines they prescribe, select the cheapest available generic medicines that are compatible with quality and therapeutic needs, and keep the number of products prescribed to a minimum. If the provider prescribes more than one medicine, he or she should indicate the most important ones to the patient.

Other economic factors may influence a patient's ability to access medicines. The patient may have enough money to buy the medicine but not enough to pay for the clinic visit. If the health care facility is too far away, the patient may not have enough money to pay for transportation. A lack of food can also affect treatment adherence; for example, in Tanzania, patients reported taking their ARVs only once a day instead of twice, because that was the only time they had food (Hardon et al. 2006). In some DOTS programs, food baskets provide incentives for clients to come in and take their medications.

### Box 33-2 DOTS strategy for TB treatment

TB was the first disease for which an adherence strategy was developed and implemented on a large scale—DOTS, which originally stood for directly observed treatment, short-course. DOTS is considered one of the most cost-effective of all health interventions. The aspects directly related to patient adherence include using the most effective standardized, short-course regimens and FDCs to facilitate adherence; supervising treatment in a context-specific and patient-sensitive manner; and identifying and addressing physical, financial, social, cultural, and health system barriers to accessing TB treatment services.

Effective DOTS programs can help minimize the emergence of antimicrobial resistance to medicines; however, TB strains that are resistant to conventional therapy have been documented in almost every country. Countries that have the highest proportion of multidrug-resistant (MDR)-TB cases are in Eastern Europe, including Azerbaijan and Belarus (WHO 2011b). DOTS-Plus, designed to respond to MDR-TB, is a supplementary treatment strategy that builds on DOTS but focuses on the rational use of second-line TB medicines to treat MDR-TB cases.

## Complexity and duration of treatment

The longer and more complex the treatment, the greater the likelihood that the patient will not follow it. Adherence to short-term treatments (less than two weeks) can be improved by clear instructions, special “reminder” pill containers and calendars, and simplified medicine regimens (see Figure 33-1). Adherence to long-term treatments is more difficult to achieve; the DOTS program was designed to increase adherence to onerous TB treatment (Box 33-2). Fixed-dose combinations of multiple medicines in one tablet or capsule simplify a treatment regimen as does prepackaging treatments, such as blister packs of artemisinin-based combination therapy. Although no single intervention is useful on its own, combinations of clear instructions, follow-up of patients missing appointments, patient self-monitoring, social support, cues for when to take the medicines, rewards, and group discussions are useful.

## Availability of information

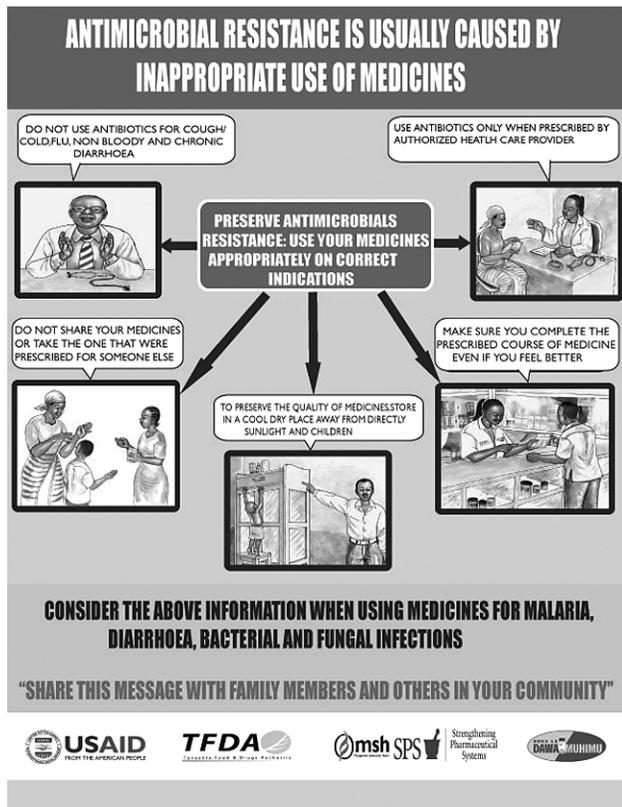
The availability of printed information in simple language to supplement a medicine's label may increase treatment adherence. (Labeling is covered in Chapters 30 and 34.) Such patient information leaflets need well-written text in the local language, effective graphic design, large print size, and clear layout to enhance legibility; a question-and-answer format may stimulate consumer involvement.

In many parts of the world, producing leaflets for individual patients is not feasible. High rates of nonliteracy in some countries also limit the value of such information. Yet simple instructions for the most commonly used and misused medicines could be printed on inexpensive paper. Simple booklets or posters for display in retail outlets and health centers can provide consumer information on the most common medicines. Even nonliterate patients can obtain information from such publications with help from family or community members. Figure 33-2 shows a poster used in Tanzania, translated from Swahili, to inform accredited drug-dispensing outlet customers about antimicrobial resistance.

Pictograms can provide reinforcing information about medicines. A setting and rising sun or moon to represent different times of the day for taking medicine have been used in a number of countries, although an evaluation in Bangladesh found that dispensers had to be trained in their use. The U.S. Pharmacopeia developed a series of pictograms for use on medicine labels (see Annex 33-1). The International Pharmaceutical Federation also has a pictogram project ([http://www.fip.org/www/index.php?page=pp\\_sect\\_maepsm\\_pictogram](http://www.fip.org/www/index.php?page=pp_sect_maepsm_pictogram)).

A study in South Africa showed that images that had been developed locally were interpreted correctly more often than the U.S. Pharmacopeia images (Dowse and Ehlers 2004); therefore, each country needs to develop its own

**Figure 33-2 Consumer education poster used in accredited drug-dispensing outlets in Tanzania**



symbols using culturally recognizable objects. Pretesting is important, because patients need to understand the symbols without explanation. Research has shown that culturally appropriate icons can improve how well patients understand medicine labels and adhere to treatment but that inappropriate icons can be more confusing than words (Shrank et al. 2007).

### 33.3 Monitoring adherence in health care facilities

One particular challenge is how to measure and quantify adherence rates. No consensus exists for measuring adherence, and research reflects the variety of methods in practice (WHO 2003). A study of twenty-four health care systems serving more than 86,000 AIDS patients in East Africa showed that facilities used a wide range of methods to calculate treatment adherence. Fourteen different operational definitions of treatment defaulting existed, ranging from one day to six months following a missed appointment (Chalker et al. 2010).

Methods to measure adherence rates are subjective or objective: subjective measures include reporting by

patients and health care providers, who tend to overestimate adherence. Objective measures include counting doses of medicine at clinic or home visits, but this method tends to overestimate adherence and does not reflect other adherence information, such as timing of doses and missed doses. Special medicine-bottle caps that record when a dose is removed are expensive and generally are used only for clinical trials. Relying on pharmacy records to see when prescriptions are filled and refilled is another method that is objective, but it does not indicate medicine use once the prescription has been filled. Directly observed treatment by a health care worker is the cornerstone of adherence for TB, but this approach is not practical for many long-term treatment regimens. Other objective methods use clinical monitoring, such as testing for blood sugar for diabetes or CD4 counts or viral load for HIV/AIDS.

The International Network for the Rational Use of Drugs Initiative on Adherence to Antiretrovirals has developed and validated a set of indicators that can be used to monitor adherence to ART either at the facility or HIV/AIDS program level. The indicators measure treatment adherence and defaulting by using routine pharmacy records and patient interviews to look at appointment keeping and days covered by dispensed medicine over a period of time. The indicators correlate with increases in patients' CD4 counts and weight (Ross-Degnan et al. 2010). The initiative published a manual and tools to measure adherence that offers a step-by-step guide on how to design and carry out a national or facility survey or a program adherence survey. The manual and tools can be downloaded for adaptation and use (<http://www.inrud.org/ARV-Adherence-Project/Adherence-Survey-Tools-and-Manual.cfm>).

### 33.4 Addressing determinants of adherence

Causes of poor adherence vary and are not well understood. WHO has defined five “dimensions” of adherence illustrating that adherence is not the responsibility of the patient alone (WHO 2003). They are (a) social and economic factors, (b) patient-related factors, (c) health care team and system factors, (d) therapy-related factors, and (e) condition-related factors. For example, patients may not have the money or transportation to access treatment, or they may have to wait for hours to pick up their medicines. Some patients, especially those with HIV/AIDS or mental illness, may feel stigmatized. Prescribers may not explain treatment clearly, or the treatment regimen may be difficult to follow or cause adverse reactions. A study in Ethiopia and Uganda showed that a positive and confidential partnership between patients and health care providers enhanced patients' satisfaction and feelings of trust in the treatment and helped overcome adherence barriers (Gusdal et al. 2009).

Strategies to increase patient adherence include the use of FDCs and prepackaged patient packs to simplify treatment (Country Study 33-2). WHO and the International Union against Tuberculosis and Lung Disease recommend FDCs to ensure proper treatment of TB (Blomberg et al. 2001). Another intervention often incorporated as part of DOTS is the use of incentives or enablers to positively influence the behavior of both providers and patients. An enabler might be a transportation voucher that helps the patient get to the treatment facility; an incentive could be a monetary bonus for a private provider who refers suspected TB patients to an accredited testing facility (Box 33-3). ART programs are instituting interventions to increase adherence, such as reducing waiting time, tracking appointment keeping and following up with patients, and using peer counselors as support (Gusdal et al. 2011). A TB program in Cape Town uses text messaging on cell phones to remind patients to take their medicines (Green 2003).

Interventions to promote adherence should address barriers at all levels of the health care system and not just focus on the patient alone. Like interventions to improve rational medicine use, a single-factor intervention probably has limited effectiveness compared with an approach that takes multiple factors into account. Box 33-4 shows some proven interventions related to the five dimensions of adherence.

The HIV/AIDS pandemic has focused attention on expanding the role of pharmacy staff in providing a full range of pharmaceutical care services to the patient, includ-

ing medication counseling and adherence monitoring. However, as discussed in Chapter 51, the lack of trained health professionals in many countries makes adequately monitoring rational medicine use difficult, especially for chronic disease medications. This gap in human resources makes using other personnel, such as drug sellers, that much more crucial (see Chapter 32). In addition, educating patients as well as the entire community about the importance of adherence and medicine use and exploring the effectiveness of community-based interventions (see Chapter 31) become much more important.

### 33.5 Communicating with consumers about appropriate medicine use

Strategies to encourage appropriate medicine use by the consumer can be public or patient centered, but they should always be culturally specific. A public-centered approach provides the community, or target populations within the community, with information on the role of medicines and on how to make appropriate health-seeking decisions at times of illness.

#### Principles of public communication

The following principles should guide public education in appropriate medicine use—

#### Country Study 33-2 Using prepackaging to improve rational use of medicines

According to WHO, about half of patients who receive medicines fail to take them correctly, including taking less or more medication than necessary, taking antimicrobials for nonbacterial infections, and inappropriately self-medicating, often with prescription medications (WHO 2004b).

Several studies have shown that prepackaging medicines (particularly antimalarials) in daily doses can improve adherence, safety, and cost-effectiveness.

- One Ghanaian study showed that prepacking antimalarials into daily doses decreased costs by reducing the number of medicines prescribed, the amount of syrup consumed, and the number of injections given (WHO/TDR 1998). Prepackaging also improved adherence and reduced waiting times for treatment; moreover, patients found the packaging to be acceptable.
- A systematic review of fifteen studies of the effectiveness of FDC pills and unit-of-use packaging,

such as blister packs, found that although more rigorous research was needed, both approaches are likely to improve adherence in a range of settings in both developed and developing countries (Connor, Rafter, and Rodgers 2004).

- A third study, conducted in the Brong Ahafo region of Ghana, examined the extent to which district health teams could reduce the burden of malaria in areas with severe resource constraints (Yeboah-Antwi et al. 2001). By prepackaging antimalarial medicines into unit doses, the teams were able to improve adherence by about 20 percent in both adults and children. In addition, the prepackaging intervention reduced costs to patients by 50 percent and decreased waiting time at dispensaries and medicine waste at facilities.

Sources: Connor, Rafter, and Rodgers 2004, WHO 2004b, Yeboah-Antwi et al. 2001, WHO/TDR 1998.

**Box 33-3****Improving the efficacy of the DOTS strategy through the use of enablers and incentives**

Treatment success in the 2009 worldwide DOTS cohort of 5.8 million patients was 86 percent on average, edging closer to the 90 percent target for 2015. However, treatment success was below average in the European region (67 percent) (WHO 2011b). WHO estimates that between 1995 and 2010, 6.8 million lives were saved because of the DOTS strategy.

To help improve the effectiveness of the DOTS strategy, many TB control projects and programs worldwide have adopted measures called *enablers* and *incentives* to motivate health care providers and patients. An enabler is something given to the patient or treatment provider that makes participation possible, practical, or easy. For example, providing bus tokens makes it easier for people to get to their appointments. An incentive is a stimulus designed to encourage stakeholders to behave in a certain way, such as providing food baskets to patients who show up to their appointments.

Unfortunately, the weak evidence base about enablers and incentives makes assessment of their effectiveness difficult. However, their potential role has been described in literature reviews, surveys of experiences, and mapping workshops.

Some examples of successful motivators include the following—

- In rural Bangladesh, patients sign a contract and pay a deposit of about 3.50 U.S. dollars upon initiation of TB treatment. At completion of therapy, patients receive back 37.5 percent of their original deposit, and the community-based supervisor receives the remainder. The “deposit” scheme was associated with significantly better TB treatment adherence and case detection compared to the national average.
- Targeting homeless and other vulnerable populations, the Czech Republic offers vouchers worth 4 to 5 euros for purchasing goods after TB diagnosis. As a result, case detection is five times higher among the homeless population receiving the incentive.
- Patients received travel support to attend a TB clinic in Romania for one year. During the pilot program, adherence to treatment increased to 95 percent, then fell back to 80 percent when the program ended.

Source: RPM Plus Program 2005.

- Medicine use should be viewed within the context of the society, community, family, and individual. Public communication on medicines should recognize cultural diversity in concepts of health and illness or notions about how medicines work. The different expectations surrounding conventional and traditional medicines need to be considered, as do preferences for injections or for tablets of a particular color because they are considered more potent. Social factors such as poverty, disadvantage, and power relations can also influence medicine use.
- School curricula should include education in the appropriate use of medicines, with different messages and educational approaches used for students of different ages (see, for example, Cebotarenco and Bush 2008).
- Public communication should encourage informed decision making by individuals, families, and communities on the use of medicines and on nonmedicine solutions.
- Public communication should be based on the best available scientific information about medicines, including their efficacy and side effects.

- To facilitate informed choices on medicine use, public communication should be accompanied by supportive legislation, such as regulating pharmaceutical advertising and promotion and controls on medicine availability. In addition, governments should ensure that over-the-counter medicines have adequate labels and include accurate and easily understood instructions.
- Nongovernmental organizations (NGOs), community groups, and consumer and professional organizations have important roles to play in public communication programs and should be involved, when possible, in the planning and implementation of communication activities.
- Effective public information about medicines requires a commitment to, and an understanding of the need for, improved communication between health care providers and patients. Educational and training curricula for providers should reflect this commitment.

### Developing public communication strategies

Effective communication involves a process that is modified as new information on its effectiveness and need for

improvements become evident and new communication methods and technologies become available (see Figure 33-3).

Public communication can aim to influence people's thinking in many ways, including—

- Organizing campaigns to promote the values and benefits of essential medicines
- Empowering the consumer to understand what a correct prescription should look like and to know what questions to ask a health care provider
- Providing young people with a general knowledge base about the actions and use of medicines on which they can draw as adult consumers
- Targeting a particular problem related to medicine use, such as home injections and the reuse of needles
- Working through pharmacies to offer information on specific medicines and treatment categories, as in the comprehensive information programs developed by the national corporation of Swedish pharmacists and the pharmaceutical society of Australia

Providing information is much easier than changing behavior. Many studies show that knowledge does not necessarily influence action. Changing people's behavior generally requires a long-term strategy undertaken after a careful analysis of the situation and identification of priority problems, with knowledge of the societal context in which the strategy will be carried out. Identification of target groups and pretested, culturally specific materials are necessary. These materials should always be evaluated for their effect not only on knowledge acquired but also on actual behavioral change. Repeat messaging is useful.

The steps shown in Figure 33-3 are discussed in the following sections.

#### **Step 1: Describe medicine use and identify problems.**

Investigating how medicines are prescribed, dispensed, and used is the foundation for the communication process. Such an investigation should address the following issues—

*Information already available:* Reports of studies or from annual reports of organizations working in related fields can provide information about the problem.

### **Box 33-4**

#### **Selected areas of intervention to improve medication adherence**

##### **Social and economic**

- Ensuring affordable prices for treatment and medicines
- Preparing family members to be supportive
- Providing other forms of social support
- Combating illiteracy
- Providing food and/or transportation vouchers
- Organizing peer and community support groups
- Creating patient organizations

##### **Health care team and system**

- Ensuring reliable pharmaceutical supply systems
- Improving communication between patients and health professionals
- Creating awareness and knowledge about the value of adherence
- Making convenient appointments for the patient
- Giving simple instructions about the treatment regimen
- Tracking patient appointment keeping and following up on no-shows
- Prescribing the simplest regimen possible

##### **Condition**

- Screening and treating patient depression or substance abuse

- Addressing condition-related stigma; for example, providing confidential pharmacy dispensing booths
- Educating the patient about the disease or condition and its treatment

##### **Therapy**

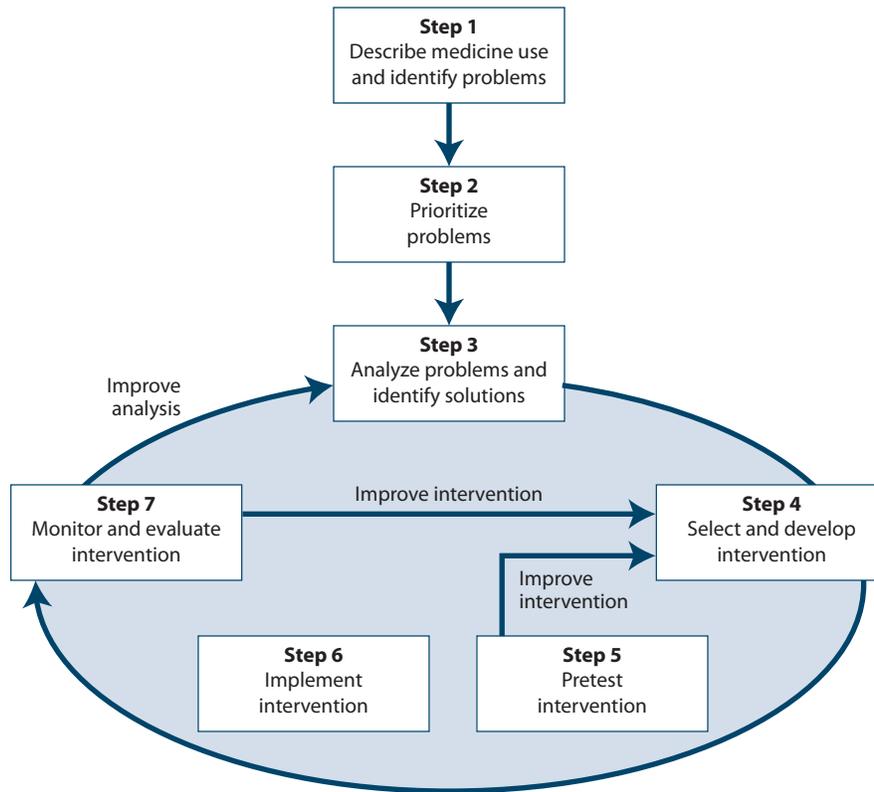
- Developing and prescribing FDC medicines
- Using prepackaging or course-of-therapy packaging
- Providing alternative medicines that are extended release or have a long half-life
- Minimizing adverse drug reactions

##### **Patient**

- Providing more information and skills related to self-management of treatment
- Addressing poor motivation and self-efficacy
- Providing adherence counseling
- Supporting behavioral changes
- Providing memory aids, such as special pill boxes or telephone reminders
- Providing treatment incentives and reinforcements

Sources: WHO 2003, Osterberg and Blaschke 2005.

Figure 33-3 Steps in an effective public communication intervention



Source: Chetley et al. 2007.

**New information needed:** If it is not already available, information is needed on sources of medicines and on how health services and medicines are used in the community. The more data obtained on audience characteristics, the better: demographics, socioeconomic and literacy status, language patterns, community decision making and leadership processes, characteristics of prescribers and users, and local beliefs and practices relating to disease etiology and the use of medicines are all useful.

**Communication networks:** What sources of information about medicines, including nonmedical sources, are most credible to the target audience? What channels of information reach users most effectively? Do mass media channels play a role? What role can new technologies (for example, mobile phones) play?

**Communication development:** What resources exist in research, education and training, production and distribution of information, and social mobilization?

Researchers can combine quantitative and qualitative research methods to obtain the necessary data. Quantitative methods, such as household surveys, provide useful information on levels of knowledge and on the practices and beliefs prevalent in a population: they measure what is hap-

pening. Qualitative methods, such as focus group discussions and in-depth individual interviews, yield substantial information about specific behaviors, as well as the reasons and motivations underlying them: they explore how and why things are happening. These methods, described in Chapter 28, generate many ideas and provide language for communication materials. A handbook is also available on how to investigate consumers' use of medicines (Hardon, Hodgkin, and Fresle 2004).

**Step 2: Prioritize problems.** Policy makers or health professionals can prioritize medicine-use problems, but involving stakeholders through focus group discussions, for example, can increase community support for the process (Hardon, Hodgkin, and Fresle 2004). Questions to ask when prioritizing problems include the following: How many people are affected? Is the problem common or rare? How serious is the resulting adverse effect? Does the problem cost a lot of money? Does the community recognize the problem as serious? Will a community-based intervention solve the problem or does it require a different type of intervention, such as regulation? (Hardon, Hodgkin, and Fresle 2004). Once these questions are answered about the identified problems, the problems can be rated based on preselected criteria.

**Step 3: Analyze problems and identify solutions.**

Initial research and prioritization of problems explore the causes of the problems, define the behaviors to be adopted or changed or knowledge to be acquired, and describe constraints and facilitating factors that will affect the planning process and the feasibility of possible objectives. Objectives for the analysis include identifying how stakeholders view the problems and possible solutions and identifying factors that can facilitate interventions (Hardon, Hodgkin, and Fresle 2004). All stakeholders, including community members, should have the opportunity to consider potential solutions to the problems. The target audience for the solution may be the entire population in the case of a broad-based national program; more often, however it will be a subsection of the community, such as schoolchildren, mothers of young children, the elderly, community leaders, or women's organizations. Problem analysis should also provide insight into the cultural context of behavior and beliefs and indications of useful language and expressions.

**Step 4: Select and develop intervention.** A critical part of the planning process is to clarify what the intervention

should achieve. The intervention plan defines objectives and outlines how to reach them. The plan should include the elements discussed below.

*Realistic and well-defined communication objectives:*

Clear objectives make it easier to formulate activities that are likely to achieve the objectives and measure achievements. These objectives should focus on specific problems and target the people exhibiting the problem behavior. General campaigns may raise awareness, but they are unlikely to result in significant behavioral changes.

*Approaches to change:* Approaches can include either a campaign approach of short, high-intensity programs that focus on single issues (for example, injection misuse) or longer-term, sustained efforts integrated with other primary health care and educational activities (such as a literacy reader on medicine use, lesson outlines for the primary or secondary school curriculum, or routine health center education sessions).

The communication strategy may use a persuasive or social marketing approach to influence the target

**Country Study 33-3****Using social marketing to promote the rational use of medicines and health commodities**

Social marketing takes the concepts of commercial marketing and applies them to social issues. In a social marketing campaign, the needed product is made widely available and affordable to the target populations, and product availability is accompanied by a campaign to create demand by raising awareness of the product, often by using brand identification, and by promoting the use of the product to encourage some healthy behavior. Social marketing approaches use research to gain an understanding of the target audience and base marketing strategies on the population's perceptions, wants, and needs.

Social marketing is commonly used to promote the use of condoms and other reproductive health commodities, oral rehydration solution, nutritional supplements for children, water purification, insecticide-treated bed nets (ITNs), and voluntary counseling and testing services for HIV/AIDS.

PSI has long been involved with social marketing programs that promote ITNs in malaria-endemic areas, and since 2003, the organization has introduced social marketing of prepackaged treatment for malaria in Cambodia, Madagascar, Nigeria, and Myanmar. Because people most often treat malaria at home with products purchased in the private sector, where the quality of medicine is not assured and the level of knowledge and

training in the vendor is low or nonexistent, focusing on these outlets to improve people's access to and proper use of antimalarials is important, especially in rural settings.

A special challenge with antimalarials comes with the shift to artemisinin-based combination therapy (ACT) as the recommended first-line treatment. PSI's social marketing campaign is designed to disseminate information on the new treatment regimen and emphasize the importance of adherence. Its PSI prepackaged medicines use blister packs that include country-specific, easy-to-follow instructions that are appropriate for people with low literacy. Packaging distinguishes between different age groups and the packs are color coded to facilitate adherence. In addition, retail outlets receive the products at a highly subsidized price, which is especially important in making the expensive ACTs affordable. Product branding focuses on the target population; for example, the children's product in Nigeria is called KidCare®, and the promotional materials include the tag line "Correct Malaria Medicine for Your Child." Initiatives are now ongoing to provide subsidized ACTs through private- and public-sector outlets in the additional countries of Democratic Republic of Congo, Kenya, Rwanda, Sudan, and Tanzania.

Sources: PSI 2005, n.d.

### Box 33-5 Questions to ask when you get a new prescription medicine

- What is the name of the medicine, and what is it supposed to do?
- Is this the brand or generic name? (Is a generic version available?)
- When do I take the medicine—and for how long?
- Should I take this medicine on an empty stomach or with food?
- What should I do if I forget a dose?
- What foods, drinks, medicines, dietary supplements, or activities should I avoid while taking this medicine?
- What precautions should be taken?
  - By children
  - During pregnancy
  - When breast-feeding
  - While driving or operating machinery
  - If taking other medicines
- What are the possible side effects, and what do I do if they occur?
- When should I expect the medicine to begin to work, and how will I know if it is working?
- Will this new prescription work safely with the other prescription and nonprescription medicines I am taking?
- How should I store this medicine at home?

Source: National Council on Patient Information and Education, “Talk about Prescriptions” Planning Kit for October 2005. <[http://www.talkaboutrx.org/questions\\_new\\_prescrip2005.jsp](http://www.talkaboutrx.org/questions_new_prescrip2005.jsp)>

audience. Social marketing, often criticized as a top-down approach, can be an effective communication strategy, particularly in specifically targeted campaigns that take into account community needs, perceptions, and values (see Country Study 33-3). Alternatively, giving people the information and the problem-solving skills necessary to make their own decisions is ideal in the long run but much more difficult to implement and evaluate. With disadvantaged groups, it can also involve consciousness-raising and promoting awareness that they are empowered to make decisions and control their own lives. For example, consumers can be encouraged to act with authority and ask questions of the health care provider (see Box 33-5).

*Communication channels to deliver messages:* Ideally, a communication program should combine different channels, including interpersonal channels, to maximize exchange. Each channel has its own strength: what matters is that it be cost-effective and appropriate to the audience and the message. Possibilities include—

- Printed materials—posters, leaflets, textbooks, comics
- Mass media and electronic media—radio, television, newspapers, CD-ROMs, DVDs, the Internet, mobile technology, short-message service (SMS)
- Folk media—community theater, puppets, singing groups, and other such media (important traditional channels in many countries)
- Interpersonal (or face-to-face) encounters—health workers, schoolteachers, community leaders, shopkeepers, community organizations

Country Study 33-4 discusses a neighbor-to-neighbor communication strategy to improve the use of anti-malarials in a district in Kenya.

*Collaborating institutions:* Collaborating with a wide range of institutions—NGOs; consumer organizations; religious, women’s, youth, or social solidarity organizations; schools; development agencies such as WHO and the United Nations Children’s Fund (UNICEF); and professional associations—enhances visibility, potentially increases impact, and can be used to promote rational use concepts and the national pharmaceutical policy. Religious groups provide a substantial proportion of health care and are potential partners in many countries. Country Study 33-5 illustrates a public education campaign launched through a collaboration of several French consumer and professional organizations.

*Monitoring and evaluation* (see Step 7 below): Milestones (for example, number of manuals produced or number of workshops completed) can help chart progress toward the objectives of the communication plan.

*Timetable, budget, and source of financing:* For each activity, the plan should define when it is to occur, who is responsible for it, and the funding source. A common method of displaying such information is a Gantt chart (see Chapter 38).

**Step 5: Pretest intervention.** Although frequently overlooked, pretesting materials is essential and saves time and money. Pretesting also often produces surprising results; for example, a patient may completely misunderstand a picture, particularly if it uses a stylized design in a society that is relatively inexperienced in interpreting graphic images.

Pretesting can help answer the following questions—

### Country Study 33-4 Neighbor-to-neighbor education on antimalarials in Kenya

The Bungoma District Health Management Team in Kenya implemented a “neighbor-to-neighbor” (*jirani kwa jirani*) education program focused on caretaker purchase and consumption of antimalarial medicines. Forty government health workers received a one-day orientation on the approach and copies of two illustrated brochures explaining proper malaria treatment and recommended medicines, which they distributed in 112 villages. The health workers also organized thirty contests where village residents presented songs, dramas, or poems they had created to promote the use of effective antimalarial medicines.

About six weeks after launch, the neighbor-to-neighbor intervention had reached 53 percent of households in the intervention area through a brochure, song contest, or both. In addition, respondents in the intervention area, especially those with low education levels, were more likely than those in the comparison area to know the appropriate government-recommended antimalarial medicines and to report intention to use them, and people living in the intervention area were also twice as likely to have bought and taken the correct dose of the first-line antimalarial medicine, sulfadoxine-pyrimethamine.

Source: Tavrow and Rennie 2004.

- Does the target audience understand the materials?
- Do they feel that the materials apply to them?
- Do they find the materials attractive?
- Is anything offensive or culturally inappropriate?
- Is the message convincing? If not, why not?
- Do changes need to be made in the message or its format?

The WHO guide to improving consumers’ medicine use (Chetley et al. 2007) points out that pretesting is also a way to open dialogue with the target audience on key issues, confirm research about the medicine use problem, and gather opinions on the planned intervention.

**Step 6: Implement intervention.** Unless other interventions have already been implemented and evaluated, the intervention usually serves as a pilot study, which makes evaluating the success of the intervention important, as well as gathering information on how it worked, so changes can be made later (Chetley et al. 2007).

Before beginning, ensure that all materials and people are ready, channels of distribution are organized, and everyone involved is fully informed about program goals and strategies. In addition, the monitoring and evaluation plan should be in place. Delays in program implementation will have implications for future planned activities.

**Step 7: Monitor and evaluate intervention.** Monitoring relates to how well the activities are being implemented as the intervention progresses, and evaluation assesses how well the objectives are being achieved (see Chapter 48). Monitoring and evaluation processes need to be planned at the beginning of a project, not addressed at the end of the intervention.

Once the program starts, a clear system of monitoring should be used to assess whether—

- Training has been sufficient and effective

- Target audiences are receiving program materials and messages
- Target audiences are using the materials and understanding the messages (in the case of radio programs, such an assessment might include a program log with transmission times, and tapes and listener interviews to determine whether the messages were understood)
- The program is on schedule (if not, why not?)

Monitoring produces feedback on how well the communication is working. It allows assessment and definition of what changes can or should be made as the intervention progresses. In face-to-face communication, for example, good communicators automatically monitor whether they are having the desired effect and then vary their style and content accordingly if necessary (Chetley et al. 2007).

Evaluating communication interventions is more challenging. An evaluation to determine whether the activities met program objectives should distinguish between attitude change, knowledge acquisition, and behavior change. One may occur without the other, but most educational interventions target more than one.

All study designs must measure change using key outcome measures that relate to the communication objectives (Chetley et al. 2007). One should—

- Review the intervention’s communication objectives
- Identify in advance what behaviors are likely to be influenced because of the intervention and what changes in knowledge and attitudes are expected
- Limit the number of outcome measures: do not measure all possible changes
- Measure more than one dimension: decide whether the design will measure changes in attitudes, changes

in knowledge, or changes in medicine-use behavior, or any combination of these dimensions

- Choose outcome measures that can be clearly defined and reliably measured

Pre- and postintervention quantitative research are needed to measure effect on behavior. Defining some clear quantitative indicators, such as the percentage of respondents who self-treat a specific condition correctly or who never reuse disposable syringes, is also useful. Measures that can determine impact include—

- Exposure to project messages and materials
- Proportion of knowledge change
- Change in consumer satisfaction
- Change in medicine sales patterns
- Proportion of reported behavior change

- Use or adaptation of the program by other groups as a model in developing their own projects

When possible, compare results with those from a control group not exposed to the intervention.

Reassessment of procedures requires feedback on the following questions—

- What problems occurred in developing and implementing the program?
- Was the intervention acceptable to stakeholders?
- What factors outside the project (for example, change of legislation, increase or decrease in available medicines, support from the ministry of health) may have contributed to its success or lack of success?
- What factors within the project may have contributed to its success or lack of success?

### Country Study 33-5

#### The INN—A medicine's true name: Promoting the use of International Nonproprietary Names

Concerned about the effect of what they viewed as advertising of prescription medicines disguised as “information” in Europe, several French organizations—Association Mieux Prescrire, Fédération Nationale de la Mutualité Française, and Union Fédérale des Consommateurs Que Choisir—collaborated on a public education campaign to encourage patients to recognize the International Nonproprietary Names (INNs) of medicines and use them in their dealings with health care professionals. The INN system allows health care professionals and patients to identify a medicine by its active ingredient and avoid potentially serious adverse

effects caused by overdose when different brand names of the same generic medicine do not convey the product's active ingredient.

Launched by the Medicines in Europe Forum in France in 2005, the campaign targets consumers, patients, and health care professionals. The campaign has created a series of leaflets that it encourages pharmacies, surgeries, clinics, and hospitals to display. The information sheets were reprinted in each issue of *La revue Prescrire* and multiple press releases were sent to the media.

The text of two of the eleven leaflets follows.

#### The INN on drug packaging: practical and safe!

Anthony hands his prescription to the pharmacist.

“My doctor uses the INN—the international nonproprietary name—on prescriptions,” says Anthony. “Could you give me a product where I can clearly see the INN on the box?”

“There you are. On this product the INN is clearly visible on the box, and it is also printed on each blister—the small plastic wells holding the tablets, under the aluminum film . . . That way, if you leave home with only part of the blister pack, you'll still know what drug it contains.”

Anthony is happy: with the INN clearly visible at all times, he is sure of taking the right medicine at the right time.

**Placing the INN on drug packaging reduces the risk of error.**

Ask your doctor and pharmacist to explain the INN system.

#### A holiday trip ends in hospital

Marcelle and René are on a package tour to Thailand. But they have forgotten to bring their medicines with them, including their “blood pressure” drugs. It's not a problem for Marcelle. She knows the international nonproprietary name (INN) of the beta-blocker she has to take every day: metoprolol. The doctor in Bangkok has no trouble prescribing the right treatment for her. René remembers only the trade name of his medication, Avlocardyl®, and the Bangkok doctor has never heard of it. The same drug is marketed in Thailand, but under a dozen different trade names, none of which resembles Avlocardyl. The doctor prescribes another antihypertensive drug, but René reacts badly to it and has to be hospitalized. If only he'd known the INN. . .

**The INN: one drug, one name, everywhere in the world**

**Box 33-6****Key components of a communication plan**

- Communication objectives (awareness; increased knowledge; behaviors to be influenced, adopted, or changed); keep in mind that these may be phased or cumulative and may each involve different channels of communication.
- Intended audience(s) (include extent to which you will involve audience in program planning).
- Likely constraints (for each audience).
- Likely facilitating factors (for each audience).
- Approaches to change: power/sanctions, logic/facts, appeal/emotion, incentive/reward, facilitate/remove obstacles, fear or danger/emotion or combinations of these.
- Communication channels: a communications program should use a combination of channels, known as media mix, to maximize exchange; possibilities include visual aids: posters, flyers, pamphlets, brochures, video; mass media: radio, television, newspapers; folk media; mobile technology and SMS; interpersonal or face-to-face.
- Method for pretesting of materials or intervention.
- Collaborating institutions: collaborating with a wide range of institutions in communication activities enhances visibility, potentially increases impact, and acts as general advocacy for rational-use concepts and the national pharmaceutical policy.
- Monitoring and evaluation: this should include reporting and publications.
- Timeline (plan of activities).
- Budget, with identification of secure source of funding or potential funders to be approached.

Source: Chetley et al. 2007.

- What improvements could be made?
- What are the most important lessons for the future?

Fully documented communication activities are easier to monitor and evaluate, and help future program planners learn from the experience. Even when communication activities are carried out on a large scale, obtaining reports on them is often very difficult, particularly in developing countries. This difficulty leads to unnecessary duplication, loss of experience gained, and waste of resources. For example, a WHO study of twenty-eight developing and thirteen developed countries showed that public education interventions on rational medicine use were poorly documented (Fresle and Wolfheim 1997). In addition, most of the planning of the interventions was unstructured, with poorly defined objectives and broadly defined target groups, such as “general public.” Also, the interventions generally suffered from a lack of consistent funding and little government or donor commitment, making it difficult for them to gain momentum and show success.

In summary, the preceding steps can be used for small educational interventions or large national programs. No single approach is the solution to all health communication problems; selecting from a tool kit of possibilities, based on an analysis of the situational context and the most appropriate approach to apply, is increasingly recognized as the best way to develop effective communication interventions (Chetley et al. 2007). Box 33-6 lists the key components of a communication plan.

Even if resources are sufficient only for a small-scale educational intervention, knowing why people act as they do is

still important: no human behavior takes place in a vacuum; it is always “rational” within a given personal framework. Many beliefs about health care do not match a biomedical model, and recognition of both strengths and weaknesses of local traditions is needed. The credible channels of communication in a community should always be used to provide information. Materials must be pretested, because the perception of professionals will not be the same as those of a layperson whose formal education may be limited or non-existent. Above all—and particularly when resources are limited—it is necessary to prioritize interventions in terms of the risk the problems pose to public health and then focus on the major problem behavior and target the main risk groups.

Country Study 33-6 illustrates innovative public education campaigns that focus on rational medicine use in three countries.

### 33.6 Facilitating and constraining factors in public communication

Many factors, which vary according to a country’s level of development and health care infrastructure, affect public communication activities both positively and negatively. Factors that can facilitate public communication include the political will to increase medicine education and information, an understanding of people’s health-seeking behavior, and expanded coverage by mass media. On the other hand, public education can be constrained by a lack of coherent policies on both medicine use and public education; com-

mercial interests; professional interests; weak infrastructure; lack of resources; and economic, social, and cultural influences.

### Facilitating factors

Facilitating factors stimulate, provide, or promote a fertile environment for public education. Identifying these factors can improve public communication campaigns.

**Increased awareness of the need for public education on medicines.** The democratic process, the growth of orga-

nized consumer and public interest groups, especially in developing countries, access to information through the Internet, and the movement for individuals to take more responsibility for their own health care stimulate public interest in and demand for medicine and health information. Awareness of the level of patient nonadherence to treatment regimens has also grown along with the increasing emphasis on chronic conditions, including AIDS, in developing countries.

Increased networking allows government health services, NGOs, and community-based groups to share their public

## Country Study 33-6

### Innovative public education campaigns to improve medicine use

#### Ghana

The Pharmaceutical Society of Ghana introduced a television serial broadcast nationwide called “Let’s Talk about Drugs,” which focused on different medicine-use issues. Instead of a doctor or pharmacist answering questions or giving a presentation, the show dramatized issues brought up at the pharmacy and interspersed those dramatizations with local facts. Episodes focused on issues such as patient rights, irrational use of antibiotics, and generic medicines. A panel of pharmacists responded to questions called in by viewers—and the response was overwhelming. The pharmaceutical society had requests to translate the program into different local languages and to adapt it for radio broadcast.

#### Indonesia

A survey in Indonesia indicated that mothers who bought medicines for use at home were not knowledgeable enough to ensure safe and effective use. Generally, mothers knew only the brand-name products marketed for particular symptoms, and as a result, household medicine consumption patterns showed that multiple brand names with the same active ingredient were being used concurrently, which wasted money. In addition, the population knew little about contraindications or side effects from the medicines they had in their homes. The Department of Clinical Pharmacology at Gadjah Mada University designed an educational strategy called Cara Belajar Ibu Aktif (CBIA) (Mothers’ Active Learning Method). The CBIA model used interactive discussions with small groups of six to eight people held in the context of regular meetings of women’s grassroots organizations or other gatherings. Although mothers were the target population, teenagers and fathers also participated. Participants brought in all the medicines they had at home and worked with a tutor with a set of

thirty to forty medicines to learn important facts about the active ingredients, the differences between products for adults and children, and how to interpret the package information. For example, the participants learned that brand names in different forms, such as syrups or tablets, have the same active ingredient, but syrups often cost ten times more. Also, brand names with “forte” or “plus” on the package are often more expensive, but the amount of active ingredient may be only slightly higher. In field tests, participants with CBIA experience were significantly more knowledgeable, and the number of brand-name medicines used in their households dropped dramatically. After journalists attended some of the sessions, stories about CBIA appeared in national newspapers and a popular women’s magazine.

#### Nepal

A survey showed that mothers in Nepal were giving either inappropriate or inadequate antimicrobial home-based treatment to children for acute respiratory infection, as well as giving children antimicrobials to treat common colds; retail drug sellers had the same level of knowledge about appropriate medicine use as the mothers. A community-based education campaign used a child-to-child education program administered by teachers, using street theater performances in front of mothers’ groups, followed by interactive group discussions with the mothers run by community health volunteers. In addition, community leaders and drug retailers were trained by paramedics on appropriate medicine use for acute respiratory infection. The main messages of the community education campaign were that young children with signs of severe infection must be taken to a health facility immediately and that medicines should be taken only on the advice of a health worker.

Sources: Boateng, Amporful, and Appiah 2005, Suryawati 2005, Karkee et al. 2004.

education experiences, so groups can learn from the experience of others.

As a response to both regulatory requirements and consumer pressures, some pharmaceutical companies are moving toward providing improved and user-friendly written patient information. In addition, some professional bodies (notably pharmacists) in Europe, the United States, and Australia have developed training programs for their members to promote communication skills and interaction with consumers. Many universities have also added such courses to their medical and pharmacy curricula.

**Knowledge of social and behavioral theory.** Research in the last decade has greatly expanded the knowledge base underlying health- and medicine-seeking behavior, particularly its cultural dimensions. Anthropologists have studied how medicine consumption is culturally mediated (van der Geest, Hardon, and Whyte 1990).

**Expanded coverage by mass media and information technology.** Communication technology has created powerful mechanisms to convey educational messages. Many people have access to radio and television, which open up new opportunities to reach large audiences, including non-literate populations, with health-related messages. SMS and mobile technology have further expanded coverage. With new information technology such as the Internet, some health professionals and patients have greater access to information from online databases, websites, and e-mail (see Chapter 50). These resources have many potential benefits, including rapid access to objective information and low-cost sharing, pooling, and comparative evaluation of different communication methodologies.

### Constraining factors

Implementers of public communication strategies need to recognize and evaluate inhibiting factors, because solutions vary according to the particular situation of each country. The successes and failures of others can help in developing a framework for effective action (see References and Further Readings).

**Lack of coherent policies for both medicine use and public education.** Many countries need to strengthen their national policies on medicine use and to incorporate public education in them. Without a clear policy, public communication cannot take place in a cohesive manner and receive adequate support. A fragmented approach can confuse the public with conflicting and competing messages.

The weak state of public education on medicines in many countries is partly the result of a lack of political commitment to public education in general. Within health services, public education is often a low priority and is consequently poorly financed and staffed. Sometimes NGOs fill this void; however, they usually depend on donor agencies for funding that can be withdrawn or reallocated. In some instances,

public education on medicines is a sensitive issue, because it may lead to community challenges of commercial and other vested interests. To improve the situation, a multisectoral approach involving key stakeholders both inside and outside the health sector is crucial.

**Commercial interests.** Commercial interests do not always match public interest. Particularly in developing countries, where control of pharmaceutical promotion may be nonexistent, weak, or unenforceable, industry may contribute to inappropriate medicine use by conducting promotional activities based on inaccurate information.

In retail drug outlets, where many people seek health care and buy pharmaceuticals for self-medication, the shop owner may or may not have any health care training or experience, and the counter attendants are typically untrained. Because the objective of these businesses is to make a profit, the drug sellers generally sell the medications that the customer requests, without providing any information. However, increased recognition that informal drug sellers play an important role in the public's rational use of medicines has led to the decision that they should also be a target of education campaigns. Chapter 32 covers drug seller initiatives to improve dispensing services.

**Professional interests.** Resistance to change within professional groups can constrain public education. Prescribers tend to hold influential and powerful positions, and they may not perceive the need for, or the importance of, public education. In turn, they often do not fulfill their professional role of providing advice on the appropriate use of medicines on either a personal or an organizational basis.

Public education can appear to conflict with existing values and power relationships, for example, by leading the public to challenge the traditional prescriber-patient relationship. Professional groups may oppose public education if they perceive it as a threat rather than a challenging opportunity arising from a new relationship with the community.

**Weak infrastructure.** Lack of infrastructure within the health system for implementation of pharmaceutical policies, including access to medicines and public education, can be a major constraint. Any effort to educate the public on appropriate medicine use can be undermined if necessary medicines are inconsistently available in the public or private sectors. Consumers then face the dilemma of reconciling public educational messages that motivate appropriate behavior with the reality of product availability in the public sector and the private-sector marketplace.

**Lack of resources.** Effective public education requires sufficient funding and the allocation of trained staff to enable targeting of population groups through appropriate strategies. Public education on medicines requires an extensive program to train health workers and other field staff in communication skills and appropriate medicine use.

**Social, economic, and cultural factors.** Lack of involvement and participation of the target groups often leads to problems. Support for public education programs may be withdrawn prematurely because of a failure to recognize that bringing about behavioral change is a slow and long-term process.

### 33.7 Understanding the importance of communication about appropriate medicine use

A need exists for consumer education in appropriate medicine use. Such programs—whether run by government, development organizations, NGOs, community groups, or professional bodies—merit support and encouragement. Public education should form an integral part of both national pharmaceutical policy and prescriber training. Policy makers, professional bodies, prescribers, dispensers, and educators have important advocacy and technical roles.

The reasons people decide to change (or not to change) their behaviors are almost always emotional; therefore, merely informing or educating about the change is necessary although not sufficient to prompt behavior change.

According to WHO (Chetley et al. 2007), research has shown the following—

- Combining strategies—such as education and communication with regulation—produces better results (see Chapter 29).
- Combining communication methods—face-to-face communication with mass media—produces better results.
- Using any single communication approach—print or radio or face-to-face communication—is rarely effective.
- Researching, planning, pretesting, and monitoring and evaluation are required.
- Involving the target audience is essential and leads to more practical and effective interventions.
- One-off communication interventions are not very effective, and their effect is not sustainable.

In addition, a coalition of resources improves the chance of the intervention's success and expands its capacity and reach. Smaller-scale programs can provide valuable experiences, and they may later serve as development models for more comprehensive strategies. Finally, and perhaps most critically, health care practitioners must be convinced of their core educational role. They must learn how to perform that role effectively and work to alter the all-too-common perception of patients as passive recipients of treatment.

Whether planning a campaign for promoting generic use of medicines (Chapter 29) or a national pharmaceutical

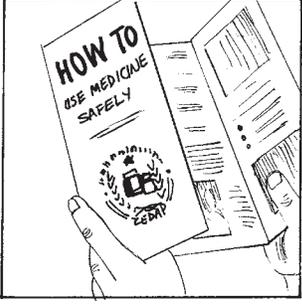
policy (Chapter 4), or when starting a health insurance plan (Chapter 12), standard communication elements should be considered. These may involve a good logo, radio spots, a flyer or visual aid, a poster, and possibly folk media (Figure 33-4). Although every campaign does not need all of these elements, using several of these components helps vary the message's delivery. The communications elements described in Figure 33-4 can be used in such campaigns. ■

## References and further readings

### General

- Blomberg, B., S. Spinaci, B. Fourie, and R. Laing. 2001. The Rationale for Recommending Fixed-Dose Combination Tablets for Treatment of Tuberculosis. *Bulletin of the World Health Organization* 79(1):61–8. <[http://www.who.int/bulletin/archives/79\(1\)61.pdf](http://www.who.int/bulletin/archives/79(1)61.pdf)>
- Boateng, F., E. Amporful, and B. Appiah. 2005. "Let's Talk about Drugs"—the Pharmaceutical Society of Ghana Takes to the Screen. *Essential Drugs Monitor* 34:13.
- Brieger, W. R. 2003. *The Role of Patent Medicine Vendors in the Management of Sick Children in the African Region*. Arlington, Va.: BASICS II.
- Cebotarenco, N., and P. J. Bush. 2008. Reducing Antibiotics for Colds and Flu: A Student-Taught Program. *Health Education Research* 23(1):146–57.
- Chalker, J. C., T. Andualem, L. N. Gitau, J. Ntaganira, C. Obua, H. Tadege, P. Waako, D. Ross-Degnan, and INRUD-IAA. 2010. Measuring Adherence to Antiretroviral Treatment in Resource-Poor Settings: The Feasibility of Collecting Routine Data for Key Indicators. *BMC Health Services Research* 10:43. <<http://www.biomedcentral.com/1472-6963/10/43>>
- Chalker, J., T. Andualem, O. Minzi, J. Ntaganira, A. Ojoo, P. Waako, and D. Ross-Degnan. 2008. Monitoring Adherence and Defaulting for Antiretroviral Therapy in Five East African Countries: An Urgent Need for Standards. *Journal of the International Association of Physicians in AIDS Care* 7(4):193–9.
- Connor, J., N. Rafter, and A. Rodgers. 2004. Do Fixed-Dose Combination Pills or Unit-of-Use Packaging Improve Adherence? *Bulletin of the World Health Organization* 82(12):935–9.
- Dowse, R., and M. Ehlers. 2004. Pictograms for Conveying Medicine Instructions: Comprehension in Various South African Language Groups. *South African Journal of Science* 100:687–93.
- Gill, C. J., D. H. Hamer, J. L. Simon, D. M. Thea, and L. L. Sabin. 2005. No Room for Complacency about Adherence to Antiretroviral Therapy in Sub-Saharan Africa. *AIDS* 19(12):1243–9.
- Green, D. 2003. South Africa: A Novel Approach to Improving Adherence to TB Treatment. *Essential Drugs Monitor* 33:8.
- Gusdal, A. K., C. Obua, T. Andualem, R. Wahlström, J. Chalker, and G. Fochsen on behalf of the INRUD-IAA project. 2011. Peer Counselors' Role in Supporting Patients' Adherence to ART in Ethiopia and Uganda. *AIDS Care* 23(6):657–62.
- Gusdal, A. K., C. Obua, T. Andualem, R. Wahlström, G. Tomson, S. Peterson, A. M. Ekström, A. Thorson, J. Chalker, and G. Fochsen on behalf of the INRUD-IAA project. 2009. Voices on Adherence to ART in Ethiopia and Uganda: A Matter of Choice or Simply Not an Option? *AIDS Care* 21(11):1381–7.
- Hardon, A., S. Davey, T. Gerrits, C. Hodgkin, H. Irunde, J. Kgatlwane, J. Kinsman, A. Nakiyemba, and R. Laing. 2006. *From Access to Adherence: The Challenges of Antiretroviral Treatment*. Geneva: World

Figure 33-4 Hints for selecting communication methods for public communication campaigns

	<p><b>A Good Logo</b></p> <ul style="list-style-type: none"> <li>• is simple, not cluttered</li> <li>• is immediately understandable and explicit, not abstract</li> <li>• is related to the key program benefits and is a symbol of key data</li> <li>• is easily reproducible</li> <li>• works in different sizes and settings</li> <li>• dramatizes the overall tone of the change approach</li> <li>• is positive and uplifting</li> </ul>
	<p><b>An Effective Radio Spot</b></p> <ul style="list-style-type: none"> <li>• presents one idea</li> <li>• begins with an attention getter</li> <li>• is direct and explicit</li> <li>• repeats the key idea at least two or three times</li> <li>• asks listeners to take action</li> <li>• makes the audience feel part of the situation</li> <li>• maintains the same tone as the overall approach</li> </ul>
	<p><b>A Useful Flyer or Visual Aid</b></p> <ul style="list-style-type: none"> <li>• carries the information most likely to be forgotten</li> <li>• uses visuals, not only words, to tell the story</li> <li>• shows people doing key behaviors</li> <li>• uses attractive images</li> <li>• is concise</li> <li>• maintains same tone as overall change approach</li> <li>• is organized so that it favors a logical action sequence</li> <li>• is designed for easy use as a visual aid</li> <li>• matches graphic and language skills of a specific audience</li> </ul>
	<p><b>An Effective Public Poster</b></p> <ul style="list-style-type: none"> <li>• dramatizes a single idea</li> <li>• attracts attention from at least 10 meters away</li> <li>• uses visuals to carry the message</li> <li>• is memorable</li> <li>• models the behavior whenever possible</li> <li>• shows the product's benefit to the audience</li> <li>• is consistent with the tone of the overall change approach</li> </ul>
	<p><b>Folk Media</b></p> <ul style="list-style-type: none"> <li>• use local drama groups and musicians, who are often powerful vehicles for sharing health-related messages</li> <li>• include traveling health fairs with puppet shows, musical acts, distribution of printed materials, and appearances by local celebrities</li> <li>• stimulate interest in national and local programs, for example, through fairs that travel from village to village</li> </ul>

Source: Adapted from Rasmuson et al. 1988.

## ASSESSMENT GUIDE

- What are the problems related to current medicine prescribing, dispensing, and use, and what are the critical factors underlying these problems?
- What medicine prescribing, dispensing, and use practices are priorities for an intervention?
- What solutions are feasible to address the medicine prescribing, dispensing, and use problems that stakeholders support?
- Do public communication campaigns on medicine use already exist?
- What is the purpose of the campaign? What is it trying to achieve?
- Is medicine education included in the primary and secondary school curricula?
- What media are being used (for example, print, face-to-face, radio, theater)?
- What materials exist for public communication activities? How were these materials pretested? What evaluations of public education campaigns have occurred?
- Who is the audience for the campaign or the materials? What does this group know about the targeted medicine-use problem?
- What percentage of the public health or pharmaceutical budget is allocated to public communication on rational medicine use?
- What amount is spent on public communication campaigns on medicine use, and what percentage does this represent of the total amount spent on public health education campaigns?

- Health Organization. <[http://whqlibdoc.who.int/publications/2006/9241563281\\_eng.pdf](http://whqlibdoc.who.int/publications/2006/9241563281_eng.pdf)>
- Holloway, K., and L. van Dijk. 2011. *The World Medicines Situation 2011: Rational Use of Medicines*. 3rd ed. Geneva: WHO. <[http://www.who.int/medicines/areas/policy/world\\_medicines\\_situation/WMS\\_ch14\\_wRational.pdf](http://www.who.int/medicines/areas/policy/world_medicines_situation/WMS_ch14_wRational.pdf)>
- Joshi, M. 2010. *Reforming Pre-Service Curriculum as a Sustainable Low-Cost Intervention to Address Antimicrobial Resistance*. Paper presented at the American Public Health Association Annual Meeting, Denver, Colorado, November 6–10.
- Karkee, S. B., A. L. Tamang, Y. B. Gurung, K. A. Holloway, K. K. Kafle, C. Rai, and R. Pradhan. 2004. *Community Intervention to Promote Rational Treatment of Acute Respiratory Infection in Rural Nepal*. Paper presented at the Second International Conference on Improving the Use of Medicines, Chiang Mai, Thailand, March 30–April 2.
- Osterberg, L., and T. Blaschke. 2005. Adherence to Medication. *New England Journal of Medicine* 353(5):487–97.
- PSI (Population Services International). No date. “About PSI Malaria Control.” Washington, D.C. <<http://www.psi.org/our-work/healthy-lives/malaria/about>>
- Rasmuson, M. R., R. E. Seidel, W. A. Smith, and E. M. Booth. 1988. *Communication for Child Survival*. Washington, D.C.: Academy for Educational Development for the U.S. Agency for International Development.
- La revue Prescrire. 2007. “The INN—a Drug’s True Name.” <<http://www.prescrire.org/cahiers/dossierDciAccueilEn.php>>
- Ross-Degnan, D., M. Pierre-Jacques, F. Zhang, H. Tadeg, L. Gitau, J. Ntaganira, R. Balikuddembe, J. Chalker, A. K. Wagner, and INRUD-IAA. 2010. Measuring Adherence to Antiretroviral Treatment in Resource-Poor Settings: The Clinical Validity of Key Indicators. 2010. *BMC Health Services Research* 10:42. <<http://www.biomedcentral.com/1472-6963/10/42>>
- RPM Plus Program (Rational Pharmaceutical Management Plus Program). 2005. *Summary of Key I&E Experiences and Evidence*. Arlington, Va.: Management Sciences for Health/RPM Plus. <[http://www.msh.org/projects/rpmpplus/Documents/upload/TB\\_IE\\_Experiences\\_Evidence.pdf](http://www.msh.org/projects/rpmpplus/Documents/upload/TB_IE_Experiences_Evidence.pdf)>
- . 2004. *Mombasa Antiretroviral Therapy Program: Report on the Six-Month Program Review of the Pharmaceutical Management System and Laboratory Services Conducted in November 2003*. Arlington, Va.: Management Sciences for Health/RPM Plus.
- Shrank, W., J. Avorn, C. Rolon, and P. Shekelle. 2007. Effect of Content and Format of Prescription Drug Labels on Readability, Understanding, and Medication Use: A Systematic Review. *Annals of Pharmacotherapy* 41:783–801.
- Suryawati, S. 2005. CBIA: Improving the Quality of Self-Medication through Mothers’ Active Learning. *Essential Drugs Monitor* 32:22–3.
- Tavrow, P., and W. Rennie. 2004. *Neighbor-to-Neighbor Education to Improve Malaria Treatment in Households in Bungoma District, Kenya: Operations Research Results*. Bethesda, Md.: Published for the U.S. Agency for International Development by the Quality Assurance Project. <[http://pdf.usaid.gov/pdf\\_docs/PNADA546.pdf](http://pdf.usaid.gov/pdf_docs/PNADA546.pdf)>
- Van der Geest, S., A. Hardon, and S. R. Whyte. 1990. Planning for Essential Drugs: Are We Missing the Cultural Dimension? *Health Policy and Planning* 5:182–5.
- WHO (World Health Organization). 2011a. *Global Status Report on Noncommunicable Diseases 2010: Description of the Global Burden of NCDs, Their Risk Factors and Determinants*. Geneva: WHO. <[http://www.who.int/nmh/publications/ncd\\_report2010/en/](http://www.who.int/nmh/publications/ncd_report2010/en/)>
- . 2011b. *Global Tuberculosis Control: WHO Report 2011*. Geneva: WHO. <[http://www.who.int/tb/publications/global\\_report/2011/gtbr11\\_full.pdf](http://www.who.int/tb/publications/global_report/2011/gtbr11_full.pdf)>
- . 2004a. *Guidelines on Developing Consumer Information on Proper Use of Traditional, Complementary and Alternative Medicine*. Geneva: WHO. <<http://apps.who.int/medicinedocs/pdf/s5525e/s5525e.pdf>>
- . 2004b. *Rational Use of Medicines by Prescribers and Patients: Report by the Secretariat*. Geneva: WHO.
- . 2003. *Adherence to Long-Term Therapies: Evidence for Action*. Geneva: WHO. <<http://apps.who.int/medicinedocs/en/d/Js4883e/7.2.html>>
- WHO/TDR (World Health Organization/Special Programme for Research and Training in Tropical Diseases). 1998. Advantages of Pre-Packaged Antimalarials. *Essential Drugs Monitor* 25–26:20.
- Yeboah-Antwi, K., J. O. Gyapong, I. K. Asare, G. Barnish, D. B. Evans, and S. Adjei. 2001. Impact of Prepackaging Antimalarial Drugs on Cost to Patients and Compliance with Treatment. *Bulletin of the World Health Organization* 79(5):394–9.

## Resources for planning public education programs

Most of the materials listed below are available free of charge to people in developing countries.

- Chetley A., A. Hardon, C. Hodgkin, A. Haaland, and D. Fresle. 2007. *How to Improve the Use of Medicines by Consumers*. Geneva: WHO. <[http://whqlibdoc.who.int/hq/2007/WHO\\_PSM\\_PAR\\_2007.2\\_eng.pdf](http://whqlibdoc.who.int/hq/2007/WHO_PSM_PAR_2007.2_eng.pdf)>
- Clift, E. 2001. *Information, Education and Communication: Lessons from the Past, Perspectives for the Future*. Geneva: WHO. <[http://whqlibdoc.who.int/hq/2001/WHO\\_RHR\\_01.22.pdf](http://whqlibdoc.who.int/hq/2001/WHO_RHR_01.22.pdf)>
- EuroPharmForum. 2005. *Questions to Ask about Your Medicines (QaM): Campaign Proposal—March 1993 Including Guidelines—August 2004*. Copenhagen: World Health Organization Regional Office for Europe. <<https://files.pbworks.com/download/KPFRDhaYAF/europharm/19341796/qam.pdf>>
- Fresle, D., and C. Wolfheim. 1997. *Public Education in Rational Drug Use: A Global Survey*. Geneva: World Health Organization/Action Programme on Essential Drugs. <[http://whqlibdoc.who.int/hq/1997/WHO\\_DAP\\_97.5.pdf](http://whqlibdoc.who.int/hq/1997/WHO_DAP_97.5.pdf)>
- Hardon, A., C. Hodgkin, and D. Fresle. 2004. *How to Investigate the Use of Medicines by Consumers*. Geneva: WHO and University of Amsterdam. <<http://apps.who.int/medicinedocs/pdf/s6169e/s6169e.pdf>>
- Hubley, J. 2004. *Communicating Health: An Action Guide to Health Education and Health Promotion*. 2nd ed. Oxford, U.K.: Macmillan. Available from Teaching-aids at Low Cost <<http://www.talcuk.org>> Explores the role of communication in improving people's health and discusses strategies for health education, health promotion, and empowerment of families and communities. Good chapter on pharmaceuticals.
- Media/Materials Clearinghouse. <<http://www.m-mc.org>> The clearinghouse has international health communication materials: pamphlets, posters, audiotapes, videos, training materials, job aids, electronic media, and other media and materials designed to promote public health.
- The Health Communication Materials Database offers access to a worldwide collection of health communication materials.
  - The Health Communication Materials Network provides a forum for health communication specialists to share ideas, information, and samples of health communication materials with their colleagues, and to seek advice and suggestions from others working in this field.
- National Cancer Institute at the National Institutes of Health. 2008. *Making Health Communication Programs Work*. <<http://www.cancer.gov/cancertopics/cancerlibrary/pinkbook>> A developed-country perspective, but still useful from a structured planning viewpoint.
- O'Sullivan, G. A., J. A. Yonkler, W. Morgan, and A. P. Merritt. 2003. *A Field Guide to Designing a Health Communication Strategy*. Baltimore, Md.: Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs. <<http://www.jhuccp.org/sites/all/files/A%20Field%20Guide%20to%20Designing%20Health%20Comm%20Strategy.pdf>>
- Potter, L., and C. Martin. 2005. Tools to Evaluate Patient Education Materials. Health Literacy Fact Sheet. Hamilton, N.J.: Center for Health Care Strategies. <[http://www.chcs.org/publications3960/publications\\_show.htm?doc\\_id=291711](http://www.chcs.org/publications3960/publications_show.htm?doc_id=291711)>
- PSI (Population Services International). 2005. *Improving Home Based Management of Malaria Using the Private Sector*. Nairobi: PSI Malaria Control.
- UNAIDS (Joint United Nations Programme on HIV/AIDS) and PSI. 2000. *Social Marketing: Expanding Access to Essential Products and Services to Prevent HIV/AIDS and to Limit the Impact of the*

Epidemic. Brochure. <[http://www.unaids.org/en/media/unaids/contentassets/dataimport/publications/irc-pub04/social\\_marketing\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/dataimport/publications/irc-pub04/social_marketing_en.pdf)>

- WHO/CDD (World Health Organization/Diarrhoeal Diseases Control Programme). 1987. *Communication: A Guide for Managers of National Diarrhoeal Disease Control Programmes*. Geneva: WHO/CDD. <[http://whqlibdoc.who.int/hq/1987/15475\\_%28part1%29.pdf](http://whqlibdoc.who.int/hq/1987/15475_%28part1%29.pdf)> A good manual that is also valid for planning communication programs on controlling noncommunicable diseases.
- WHO/DAP (World Health Organization/Action Programme on Essential Drugs). 1994. *Public Education in Rational Drug Use: Report of an Informal Consultation*. Geneva: WHO/DAP. <[http://whqlibdoc.who.int/hq/1994/WHO\\_DAP\\_94.1.pdf](http://whqlibdoc.who.int/hq/1994/WHO_DAP_94.1.pdf)> Outlines the rationale and principles of public education in drug use and identifies strategies for the development of DAP's activities in this area.
- World Health Organization and Harvard Medical School and Harvard Pilgrim Health. 2009. *Medicines Use in Primary Care in Developing and Transitional Countries: Fact Book Summarizing Results from Studies Reported between 1990 and 2006*. Geneva: WHO. <<http://apps.who.int/medicinedocs/documents/s16073e/s16073e.pdf>>
- WHO/SEARO (World Health Organization/Regional Office for South-East Asia). 2006. *The Role of Education in the Rational Use of Medicines*. New Delhi: WHO/SEARO. <[http://www.searo.who.int/en/Section1243/Section1377/Section1740\\_12698.htm](http://www.searo.who.int/en/Section1243/Section1377/Section1740_12698.htm)>
- Younger, E., S. Wittet, C. Hooks, and H. Lasher. 2001. *Immunization and Child Health Materials Development Guide*. Seattle, Wash.: Bill & Melinda Gates Children's Vaccine Program at PATH (Program for Appropriate Technology in Health). <[http://www.who.int/immunization\\_training/resources/en/CVP-Materials-Development-Guide.pdf](http://www.who.int/immunization_training/resources/en/CVP-Materials-Development-Guide.pdf)> An excellent introduction to the development and testing of print radio, video, and computer-based materials for immunization and child health. Besides a focus on low-literate audiences, content also includes writing for policy makers, providers, field workers, and others targeted for training or advocacy efforts.

## Organizations related to medicine use and safety for consumers

### Ask about Medicines

<<http://www.askaboutmedicines.org>>

Ask about Medicines was an independent campaign to increase people's involvement in decisions about their use of medicines. Posters, action packs, leaflets, public relations tool kits, and fold-out medicine charts are available for free download at the website.

### International Medication Safety Network (IMSN)

<<http://www.intmedsafe.net/Contents/Home.aspx>>

IMSN is a network of safe medication practice centers that aims to improve patient safety by minimizing preventable harm from medicine use. Its website includes contact information for members, position papers, and links to tools and resources from its member centers.

### International Network for the Rational Use of Drugs (INRUD)

<<http://www.inrud.org/index.cfm>>

Established in 1989 and consisting of twenty-four groups from around the world, INRUD's goal is to "design, test, and disseminate effective strategies to improve the way drugs are prescribed, dispensed, and used, with a particular emphasis on resource poor countries." Its website provides details of its activities, bibliographies on the rational use of medicines, and a variety of resources available without cost.

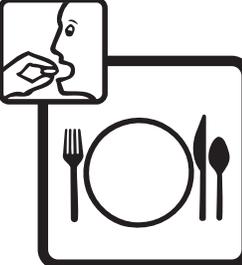
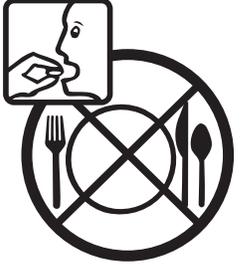
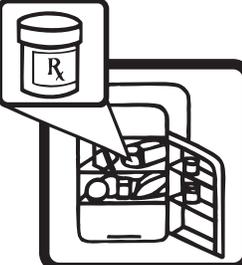
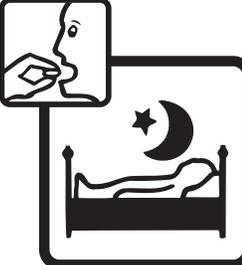
- INRUD Bibliography on medicine use. <<http://www.inrud.org/Bibliographies/INRUD-Bibliography.cfm>>

*National Council on Patient Information and Education*  
 <<http://www.talkaboutrx.org>> Multiple campaigns on medicine, including “Educate before You Medicate,” “Be MedWise,” and “Your Medicine Information: Read It and Heed It.” Posters, leaflets, radio spots, information folders, activity sheets.

*U.S. Food and Drug Administration (FDA)*  
 <<http://www.fda.gov/Drugs/ResourcesForYou/Consumers/default.htm>> The FDA has a website that provides information and resources on medicines specifically for consumers.

*WHO’s website on Rational Use of Medicines*  
 <[http://www.who.int/medicines/areas/rational\\_use/en](http://www.who.int/medicines/areas/rational_use/en)> WHO’s work on the rational use of medicines advocates twelve key interventions to aid in avoiding the health hazards and waste of resources resulting from the misuse of medicines. Its website explains these interventions and provides information resources, training courses, and publications.

**Annex 33-1 Pictograms for use on medicine labels**

<p>© 1997 USPC</p>  <p>Do not store medicine where children can get it</p>	<p>© 1997 USPC</p>  <p>Take with meals</p>
<p>© 1997 USPC</p>  <p>Do not take with meals</p>	<p>© 1997 USPC</p>  <p>Store in refrigerator</p>
<p>© 1997 USPC</p>  <p>Are you taking any other medicines?</p>	<p>© 1997 USPC</p>  <p>Take at bedtime</p>

Source: United States Pharmacopeia. ©1997, the USP Convention, Inc. Reprinted with permission.