Sources and prices of selected drugs and diagnostics for people living with HIV/AIDS

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Joint UNICEF – UNAIDS Secretariat - WHO/HTP - MSF Project

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Introduction

Of the more than 36 million people living with HIV/AIDS today, over 95% live in developing countries. Many of them do not have access to even the basic drugs needed to treat HIV-related infections and other conditions. In many of the poorest countries, essential drugs including painkillers, antibiotics, and antituberculosis drugs are in desperately short supply.

Access to antiretroviral drugs is even more limited. In developing countries, less than 10% of people with HIV/AIDS have access to antiretroviral therapy. In Africa — where 25 million people are living with HIV/AIDS — it is estimated that only 10,000 to 25,000 people are currently receiving antiretroviral therapy.

The high price of many AIDS drugs — especially antiretroviral drugs — is one of the main barriers to their availability in developing countries[*]. Factors related to affordability may include: patents; limited volume; limited competition; import duties and tariffs; local taxes; and mark-ups for wholesaling, distribution, and dispensing.

However, even where less expensive alternatives exist, many decision-makers do not have the information they need to identify those manufacturers which can supply these drugs. They require easier access to comparative prices.

This report sets out to provide that data — providing market information that can be used to help procurement agencies make informed decisions on the source of drugs and serve as the basis for negotiating affordable prices. The aim is to help increase access to drugs for people in developing countries living with HIV/AIDS.

The report is based on surveys of over 200 pharmaceutical manufacturers in 40 countries world wide. It is the latest in a series of reports launched in 2000 and issued twice each year by UNICEF, the UNAIDS Secretariat, WHO, and Médecins Sans Frontières. In addition, the report includes data on prices supplied by manufacturers interested in supplying HIV-related drugs and diagnostics at reduced prices through the Accelerating Access initiative. This initiative was launched by UNICEF, UNFPA, WHO, the World Bank, and the UNAIDS Secretariat in May 2000 in response to an offer from five pharmaceutical manufacturers to supply antiretroviral drugs at reduced prices for use in developing countries. In October 2000, expressions of interest were sought from both research-based and generic pharmaceutical manufacturers interested in becoming potential suppliers of a range of defined products, including antriretroviral drugs, treatment for opportunistic infections, and diagnostics.

Since October 2000, the report has included information on the availability and price range of antiretroviral drugs for use in combination therapy. Of these, two — zidovudine and nevirapine, which are used to prevent mother-to-child transmission of HIV — have so far been included in the WHO Model List of Essential Drugs (MEDL 1999). The report also includes information on essential drugs used to treat a wide range of opportunistic

[*] UN agencies and partners are working together to help expand access to the full range of HIV-related drugs, within the context of local health care systems and national HIV/AIDS plans and priorities. A four-part strategy has been adopted to guide and coordinate action on access to HIV-related drugs: (1) rational selection and use of HIV-related drugs (2) affordable prices (3) sustainable financing and (4) reliable health and supply systems.

infections, pain-relieving drugs for use in palliative care, and drugs for the treatment of HIV/AIDS-related cancers. And for the first time, it provides information on the range of test kits available for diagnosis of HIV.

Because HIV is a relatively new infection, many of the drugs developed specifically to treat HIV/AIDS are still under patent protection in some countries and marketed at very high prices. However, the report reveals that most of these drugs — including antiretroviral drugs — are also available on the international market as less expensive generic drugs. In addition, some of the major pharmaceutical manufacturers have offered donations of individual drugs — for example, antiretroviral drugs to prevent mother-to-child transmission of HIV — as well as significant reductions on the price of some expensive patented drugs for use exclusively in developing countries. These offers are summarized in the report.

The data provided by manufacturers serve to highlight the multiplicity of suppliers and the very wide variation in the price of some essential HIV/AIDS drugs on the international market. Without this information, there is a risk that low-income countries may be paying more than they need to obtain essential drugs. The biggest price variations highlighted in the report are among the antibacterial drugs used to treat opportunistic infections. For example, ciprofloxacin — used to treat salmonellosis and shigellosis — could be bought for one fiftieth of the maximum price. And among the antiviral drugs, the price of aciclovir varied seventy-fold.

Although the report provides data on the different sources and price range of HIV/AIDS drugs, the information provided is far from complete. Of the over 200 companies contacted during the survey in mid-2000, less than 20% replied with the full information requested. And of the 36 who responded to the request for expressions of interest only 10 replied with sufficient information to be included in this report. Those companies which did not reply or which provided incomplete information have not been included in the listings. The database will be updated as more information is made available.

A major problem in obtaining market information is the complexity of pricing strategies adopted by international pharmaceutical companies. Some drug companies negotiate price reductions on a product-by-product and country-by-country basis. As a result, comparative price information is not easy to obtain.

The report points out that lower-cost copies of drugs[*] patented in some countries are produced in and exported by countries where the drugs have not been patented. They can be imported for use in other countries provided those drugs are not patented in those countries.

Countries that are not WTO Members and which do not provide patent protection for pharmaceuticals or where such protection has not been sought, and WTO Members that are not obligated to provide pharmaceutical patent protection till 2005 or 2006 or where such protection has not been sought will be able to continue to produce or import generic drugs of assured quality despite the protection that has to be afforded pursuant to the international trade agreement known as the TRIPS Agreement (an acronym for the Agreement on Trade-Related Aspects of Intellectual Property Rights).
The TRIPS Agreement provides transitional periods during which countries are required to bring their national legislation and practices into conformity with its provisions. The latest

[*] *Globalization, TRIPS and Access to Pharmaceuticals.* WHO Policy Perspectives on Medicines, No. 3. March 2001 revised. http://www.who.int/medicines/

dates for WTO members were/are: 1996 for developed countries; 2000 for developing countries (as a general rule) and countries in transition; 2005 for the introduction of product patent protection by developing countries in areas of technology (including pharmaceuticals) not already so protected; and 2006 for least-developed countries (with the possibility of an extension).

TRIPS specifically recognizes the economic, financial, administrative, and technical contraints of the least developed countries. It therefore provides the possibility for further extension of the transitional period.

From the public health sector's perspective, intellectual property standards, including those specified in TRIPS, should take protection of public health into account. However, the full application of current standards — historically derived from those of developed countries — is not necessarily appropriate for countries struggling to meet health and development needs. Developing countries can therefore use the flexibility of TRIPS provisions and its safeguards to protect public health.

This means that, under certain conditions, the TRIPS Agreement enables governments to authorize the use — manufacture, sale, and import — of patented drugs against the will of the patent owner. In certain circumstances – in the event of a national emergency, non-commercial public use, or remedying anti-competitive practices – some conditions are relaxed. Many enacted such provisions in their national legislation.

Background

In an effort to improve access to drugs used in HIV-related conditions, the WHO Expert Committee on the Use of Essential Drugs included in the tenth (1997) and eleventh (1999) Model List of Essential Drugs a number of drugs used to treat opportunistic infections of special importance in HIV/AIDS. However, most of them were not included in the range of products distributed by international low-cost wholesalers, and access to them remained limited in developing countries. In addition, comparative price information for these drugs was difficult to obtain.

In response, the UNAIDS Secretariat, UNICEF, and WHO initiated a joint project designed to identify suppliers and supply-related information. MSF joined the project in 2000. Two surveys were carried out in 1999 and 2000, involving over 200 companies from 40 countries. Only companies that forwarded the requested documentation were included, as this was the basis for screening the suppliers and products. The information requested included:

- registration status of the product in the country of origin
- information on production capacity and lead times
- indicative prices in the country of origin
- whether the manufacturer is in possession of a manufacturing licence and a certificate of good manufacturing practices (GMP)[*] issued by the National Drug Regulatory Authority.

[*] In accordance with WHO Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce, 1996.

The subsequent sections of this document contains information relevant to procurement of HIV/AIDS drugs and diagnostics, for use by countries and donors. Although some of the suppliers involved have been screened by UNICEF, procurement agencies should follow their own procedures for pre-qualification of manufacturers and assessment of individual products. Licensing authorities in the respective countries of manufacture are expected to be responsible for the review and approval of the detailed composition and formulation when authorizing a pharmaceutical product to be marketed, including the specifications of its ingredients, as submitted by the manufacturer of the dosage form, and to oversee compliance with GMP requirements as recommended by WHO. It should also be noted that some of the drugs listed may be subject to patents in individual countries, precluding the introduction of generic alternatives in those countries. This matter is country specific and must be addressed at national level.

While all attempts were made to contact as many manufacturers as possible, the list remains incomplete and is open to further additions. The information will be regularly updated and further reports made available when appropriate.

Supply and prices

The issue of how drug prices are determined is complex. Identical items produced by the same company may not only be marketed at different prices on the international market but within individual countries as well. While there is no generally accepted method for performing international price comparisons, this survey has been carried out in a way that takes into account: quality of product; sales volume; terms and conditions for payment; and issues relating to exchange rates.

The data collected during the surveys show that the majority of drugs are available as generics on the international market. Although prices vary widely, realistic “indicative” prices for bulk procurement can be estimated for many products. The limitations of these indicative prices are:

- The prices listed apply generally in the context of bulk procurement i.e. the working unit is one batch. Although batch sizes vary greatly among formulations and manufacturers, the following sizes are typical: capsules and tablets in batches of 100,000 to 500,000 (batches of over 1 million are not uncommon, but these are not minimum purchases); vials and bottles in batches of 5,000 to 20,000.

- Prices are ex-works (EXW) or free-on-board (FOB). They do not include the added cost of items such as freight, insurance, import duties or taxes. For this reason, the prices quoted in this report cannot be compared with consumer prices which are often much higher due to these add-on costs. Many countries continue to impose considerable import duties and taxes on the price of essential drugs. In addition, wholesale and retail mark-ups vary from one country to the other. As a result, the ex-works price is often less than half of the end-price to the consumer.

- The prices quoted do not reflect any contractual agreements or differential pricing which manufacturers may have negotiated with individual countries.

- Since exchange rates fluctuate over time, the survey can only reflect the situation at a given date. Both the price quoted and currency conversion rate used were established on the date at which the offer was made.

- The report does not include data on sources and prices of drugs for the treatment of tuberculosis. However, this information is available on the website of the International Price Indicator Guide 2000 (a joint publication of Management Sciences for Health and WHO) at www.msh.org.

The following information is provided for each drug:

- General comments on availability, cost, and shelf-life.

- Inclusion in the WHO Model List of Essential Drugs (11th revision, 1999).

- The prices indicated in this report are based on the price data of mid-2000 unless indicated otherwise. The price of drugs (with their range, median, and 25th percentile of the price distribution) was supplied by the manufacturers, with examples of established and publicly available tender prices, where available. The minimum price listed represents the lowest price among products, with no differentiation among original or generic products. In these price comparisons, the 25th percentile is the value point representing the first quartile of quoted prices in ascending order. It is used to give some indication of the dispersion of prices for a given product. The calculation is also used to indicate how many manufacturers can produce the drug *below* this price.

- The number of manufacturers that gave indicative prices.

- Comparative price lists from the UK and Spain. The UK list price represents the public sector consumer price. This is the price set by the National Health Service (NHS) for reimbursement (British National Formulary 41). It cannot be used for direct comparison and is included for information only. The Spanish list price is ex-works and has been calculated by applying the new margins (as stated in the Royal Decree 5/2000) to the consumer price as published by Consejo General de Colegios Oficiales de Farmacéuticos in Spain (www.cof.es). In most cases, the indicative prices listed in the report are a fraction of the comparative prices in the Spanish list. It should be noted that Spanish list prices are generally considered the lowest in Europe. The difference in drug costs, associated with treatment of a specific condition, between the Spanish and the 25th percentile price taken from the survey is added for examples for treatment of HIV-related conditions. This illustrates the potential of using the information gathered in this survey.

In addition, the information includes a table summarizing the offers of donation and price reduction of antiretroviral drugs publicly announced by a number of pharmaceutical manufacturers (Annex I). A new section on HIV test kits is included in the report and information on bulk procurement of HIV test kits is included as Annex II. Contact information of manufacturers included in the price survey is attached as Annex III.

Information on sources and prices of selected drugs and diagnostics

1. Antiretroviral drugs

- **abacavir, amprenavir, delavirdine, didanosine, efavirenz, indinavir, lamivudine, nelfinavir, nevirapine, ritonavir, saquinavir, stavudine, zalcitabine, zidovudine, and some combinations**

Two of the above antiretroviral drugs, zidovudine and nevirapine, are included in the MEDL (1999). Both drugs are included solely for use in the prevention of mother-to-child transmission (MTCT) of HIV.

Currently available antiretroviral drugs belong to two major classes of drugs: reverse transcriptase inhibitors and protease inhibitors. The first group is further divided into nucleoside reverse transcriptase inhibitors and non-nucleoside reverse transcriptase inhibitors. These drugs act by blocking the action of enzymes that are important for replication and functioning of HIV.

Many of the antiretroviral drugs are not covered by patent in all countries. As a result, a number of generic manufacturers in countries such as Argentina, India, Mexico, Republic of Korea, Spain, and Thailand are producing these drugs and exporting to other countries. However, some generic manufacturers, including many of the private Brazilian manufacturers, only supply their national market and do not yet have the capacity to export these products.

1.1 Antiretroviral drugs used in prevention of MTCT and included in MEDL (1999)

Zidovudine (ZDV, also known as AZT)

Zidovudine is a nucleoside reverse transcriptase inhibitor. It was added to the tenth MEDL solely for use in the prevention of mother-to-child transmission of HIV. However, zidovudine is also used in combination therapy to suppress the replication of HIV. Generic versions are widely available, as 100 mg and 250 mg capsules. The dosage used in prevention of MTCT is usually 300 mg. Indicative prices vary widely depending on the country of origin.

Use in HIV/AIDS: Prevention of MTCT (MEDL). Combination therapy to suppress replication of HIV.

Notes in 11th Model list: Limited indications or narrow spectrum of activity.

- **capsule, 100 mg.** MEDL. Reported shelf-life: 24 to 60 months
- **capsule, 250 mg.** MEDL. Reported shelf-life: 48 to 60 months
- **injection, 10 mg/ml in 20-ml vial.** MEDL. Reported shelf-life: 12 months
- **oral solution, 50 mg/5 ml.** MEDL. Reported shelf-life: 18 to 24 months
- **oral syrup, 10 mg/5 ml.** Strength not in MEDL
- **tablet, 300 mg.** Not in MEDL. Used in pilot projects for prevention of MTCT. Provided as a donation by Glaxo Wellcome to a restricted number of countries.

Nevirapine (NVP)

Nevirapine is a non-nucleoside reverse transcriptase inhibitor. This drug, used in combination therapy to suppress the replication of HIV, was included in the 1991 MEDL for the same indication as zidovudine (prevention of MTCT). For this indication, a combination of tablet for the mother and syrup formulation for the newborn child is required. The indicative cost per treatment is US$ 4 from the patent holder. However, the patent holder, Boehringer Ingelheim, has recently stated that the company will make the product available for MTCT free of charge to the least developed and low-income developing countries with specific programmes for the prevention of MTCT. Countries should approach the company directly for inclusion in this donation. The donation is exclusively for use in the prevention of MTCT[*] and may not be used in combination therapy to suppress the replication of HIV.

Use in HIV/AIDS: Prevention of MTCT (MEDL). Combination therapy to suppress replication of HIV.

Notes in 11th Model list: Limited indications or narrow spectrum of activity.

- **tablet 200 mg.** MEDL.
- **oral solution 50 mg/ml (240 ml).** MEDL.

1.2 Antiretroviral drugs not included in MEDL (1999)

Combination antiretroviral therapies reduce plasma viral load levels and have a beneficial clinical effect. HIV-related symptoms may disappear, the incidence of opportunistic infections is reduced, and quality of life improves. However, these treatments are not a cure for AIDS and must be given for life, unless treatment fails or they are superseded by new drug combinations. For optimal efficacy, antiretroviral drugs, usually from different classes, must be used in combination. Several combination regimens with demonstrated effectiveness in achieving durable suppression of HIV replication are available. However, the current antiretroviral therapy is far from ideal. In addition to the high cost of the drugs, some regimens are complicated, all may cause severe side effects, and the treatment requires monitoring.

Like most other drugs, antiretroviral drugs are not covered by patents in all countries. They can therefore be legally produced and exported by generic manufacturers in countries where

[*] *Use of Nevirapine for the Prevention of Mother-to-Child Transmission of HIV*. Technical Notes. WHO HIV/AIDS-RHR-EDM, Geneva, 2001 (WHO/HIV-AIDS/2001.3; WHO/RHR/01.21).

the products have not been patented, and can be legally imported and used in other countries where they have not been patented.

The mid-2000 survey of sources and prices was not very successful in obtaining data on the source and price of antiretroviral drugs. Only a few companies responded and of those several supplied incomplete information. The report only includes information from manufacturers that supplied all the information requested. Therefore, the information in Table 1. gives an incomplete picture of the present status of the international market in generic antiretrovirals. As this is a rapidly evolving field, contact information for manufacturers that supplied incomplete information will be made available to procurement officers, with a caveat that information is limited on both the quality of their products and their ability to ensure a constant supply of their products.

Abacavir

Abacavir is a nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **tablet, 300 mg.** Not in MEDL.
- **syrup, 20 mg/ml.** Not in MEDL.

Amprenavir

Amprenavir is a protease inhibitor used in combination therapy to suppress replication of HIV.

- **capsule 50 mg.** Not in MEDL. This drug was not included in the two surveys but will be included in future surveys.

Delavirdine

Delavirdine mesylate is a non-nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **tablets, 100 and 200 mg.** Not in MEDL. This drug was not included in the two surveys but will be included in future surveys.

Didanosine (ddI)

Didanosine is a nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **tablet, 25 mg.** Not in MEDL.
- **tablet, 100 mg.** Not in MEDL.
- **syrup, 2 g.** Not in MEDL.

Efavirenz

Efavirenz is a non-nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **capsule, 200 mg.** Not in MEDL.

Indinavir

Indinavir is a protease inhibitor used in combination therapy to suppress replication of HIV.

- **capsule, 400 mg.** Not in MEDL.

Lamivudine (3TC)

Lamivudine is a nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **tablet, 150 mg.** Not in MEDL.
- **syrup, 5 mg/ml.** Not in MEDL.

Nelfinavir

Nelfinavir is a protease inhibitor used in combination therapy to suppress replication of HIV.

- **capsule, 250 mg.** Not in MEDL.

Ritonavir

Ritonavir is a protease inhibitor used in combination therapy to suppress replication of HIV.

- c**apsule, 100 mg.** Not in MEDL. This drug was not included in the two surveys but will be included in future surveys.

Saquinavir

Saquinavir is a protease inhibitor used in combination therapy to suppress replication of HIV.

- **capsule, 200 mg.** Not in MEDL.

Stavudine (d4T)

Stavudine is a nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **capsule, 40 mg.** Not in MEDL.
- **syrup, 1 mg/ml.** Not in MEDL.

Zalcitabine (ddC)

Zalcitabine is a nucleoside reverse transcriptase inhibitor used in combination therapy to suppress replication of HIV.

- **tablet, 0.75 mg.** Not in MEDL.

Abacavir, lamivudine plus zidovudine.

Fixed dose combination product containing two different nucleoside reverse transcriptase inhibitor and a HIV-protease inhibitor.

- **tablet, abacavir (as sulphate) 300 mg, lamivudine 150 mg, and zidovudine 300 mg.** Not in MEDL. This drug was not included in the two surveys but will be included in future surveys.

Lopinavir plus ritonavir

This is a fixed dose combination of two HIV-protease inhibitors. The combination results in increased plasma levels of lopinavir.

- **capsules, lopinavir 133.3 mg, ritonavir 33.3 mg.** Not in MEDL. This drug was not included in the two surveys but will be included in future surveys.

Zidovudine plus lamivudine (ZDV/3TC)

Fixed dose combination product containing two different nucleoside reverse transcriptase inhibitors that are often used in combination with a non-nucleoside reverse transcriptase inhibitors or HIV-protease inhibitors.

- **tablet, 300/150 mg.** Not in MEDL.

Table 1. Sources and prices of antiretroviral drugs

ANTIVIRALS	Manuf.		Indicative prices (US$ 2000)						List Prices	
Antiretrovirals	No./countries		Unit	MAX	MIN	MEDIAN	25th Perc./No.<		UK	Spain
Lamivudine (3TC)										
tab, 150 mg	3	2	tab	0.43	0.14	0.29	0.21	1	3.93	2.26
syrup, 5 mg/ml	1	1	100 ml	2.99	2.99	2.99	2.99	1	-	-
Abacavir										
tab, 300 mg	2	2	tab	5.32	3.61	4.47	4.04	1	5.73	3.61
syrup, 20 mg/ml	-	-	240 ml	-	-	-	-	-	91.58	57.78
Zidovudine (ZDV)										
cap, 100 mg	7	7	cap	0.30	0.18	0.28	0.24	2	1.71	0.66
cap, 250 mg	4	3	cap	0.75	0.50	0.66	0.55	1	4.29	1.65
cap, 300 mg	4	4	cap	0.60	0.28	0.44	0.36	1	-	1.98
syrup, 10 mg/5 ml	-	-		-	-	-	-	-	-	-
inj, 10 mg/ml, 20 ml	-	-	vial	-	-	-	-	-		-
oral sol, 50 mg/5 ml	1	1	100 ml	2.35	2.35	2.35	2.35	1	34.37	-
Stavudine (d4T)										
syrup, 1 mg/ml	-	-	200 ml	-	-	-	-	-	35.06	17.94
cap, 40 mg	4	4	cap	0.42	0.30	0.36	0.33	2	4.42	2.12
Zalcitabine										
tab, 0.75 mg	-	-	tab	-	-	-	-	-	-	1.27
Didanosine (ddI)										
tab,25 mg	1	1	tab	0.19	0.19	0.19	0.19	1	0.69	0.30
tab, 100 mg	2	2	tab	0.87	0.61	0.74	0.68	1	2.12	1.19
syrup, 2 g	-	-	118 ml	-	-	-	-	-	-	23.84
ZDV/3TC comb										
tab, 300/150 mg	1	1	tab	No price					-	4.65
Efavirenz										
cap, 200 mg	-	-	cap	-	-	-	-	-	3.59	2.76
Nevirapine										
tab, 200 mg	1	1	tab	1.47	1.47	1.47	1.47	1	4.03	3.20
syrup, 50 mg/5 ml	-	-	240 ml	-	-	-	-	-	72.58	-
Indinavir										
cap, 400 mg	-	-	-	-	-	-	-	-	1.64	1.40
Nelfinavir										
cap, 250 mg	-	-	cap	-	-	-	-	-	1.54	1.05
Saquinavir										
cap, 200 mg	-	-	cap	-	-	-	-	-	0.84	0.67

1.3 Donations and price reductions for antiretroviral drugs

In May 2000, a new initiative – Accelerating Access – was launched by the UNAIDS Co-sponsors and the Secretariat to help improve access to care and support for people living with HIV/AIDS. The initiative was established in response to an offer from five research-based pharmaceutical manufacturers to lower the price of antiretroviral drugs for use in low-income countries.

In October 2000, expressions of interest were sought from both research-based and generic pharmaceutical manufacturers who were interested in becoming potential suppliers of pharmaceutical products through the Accelerating Access initiative. The offers received include antiretrovirals, selected treatments for opportunistic infections, and diagnostics. The manufacturers involved will be subject to a pre-qualification process undertaken over the coming months.

In addition, in recent months a number of pharmaceutical manufacturers have made public announcements of their willingness to reduce the price of certain antiretroviral drugs to low-income countries in Africa, Latin America, and Asia. Annex I is a summary of both the publicly announced offers and the offers from manufacturers which responded to the call for expressions of interest. In some cases, recipients may be required to meet certain conditions in order to take up individual offers of reduced-price drugs.

2. Drugs used for the treatment of opportunistic infections

2.1 Antibacterial drugs

- **ceftriaxone, ciprofloxacin, clindamycin, sulfadiazine**

Ceftriaxone

Ceftriaxone was added to the WHO Model List of Essential Drugs (MEDL) in 1995 as a reserve antibacterial. It is an important drug used in the treatment of sexually transmitted infections and bacterial meningitis. However, its high price is an obstacle to accessing this drug (this applies also to other third generation cephalosporins).

Use in HIV/AIDS: Sexually transmitted infections (STI).

Notes in 11th Model list: Example of a therapeutic group. Reserve antimicrobial. To be used only when there is significant resistance to other drugs on the list.

- **powder for injection, 250 mg (as sodium salt) in vial.** MEDL. Reported shelf-life: 36 months.

Ciprofloxacin

This broad-spectrum antimicrobial is included in the MEDL as an example of a therapeutic group (quinolones). It was added to the seventh list (1991) as a complementary antimicrobial to be used only in patients with infections resistant to other drugs in the list. In 1995, it was transferred to the main list. While it is accepted that wide use of fluoroquinolones is not advisable due to the development of resistance, the high price of ciprofloxacin is an obstacle to its use when needed. Patented by Bayer in 1981 (Germany), ciprofloxacin has been available from other manufacturers in markets where it has not been patent protected. Most of the manufacturers that replied had carried out bioequivalence studies.

Use in HIV/AIDS: Treatment of bacterial infections, including salmonellosis and shigellosis. In line with STI protocols.

Notes in 11th Model list: Example of a therapeutic group.

- **tablet, 250 mg.** MEDL. Reported shelf-life: 24 to 36 months.

Clindamycin

Clindamycin injection was added to the MEDL in 1991 as a complementary drug for use in patients allergic to penicillin and for the treatment of infections resistant to other drugs in the main list. The capsules were added in 1997. The generic market for clindamycin is not very extensive.

Use in HIV/AIDS: Treatment of *Pneumocystis carinii* pneumonia (PCP), treatment of toxoplasmosis.

Notes in 11th Model list: Complementary drug (when drugs in the main list are known to be ineffective or inappropriate for a given individual). Limited indications or spectrum of activity.

- **capsule, 150 mg.** MEDL. Reported shelf-life: 36 months.
- **injection, 150 mg (as phosphate)/ml.** Available in 2, 4 and 6-ml ampoules. MEDL. Reported shelf-life: 24 months.

Sulfadiazine

Sulfadiazine, developed in 1940, was added to the MEDL in 1997. Its inclusion, replacing sulfadimidine, was on the basis of its efficacy in the treatment of toxoplasmosis in combination with pyrimethamine. It is included in the list representing short-acting systemically-acting sulfonamides. The combination sulfadiazine-pyrimethamine-calcium folinate is considered as a first line treatment for cerebral toxoplasmosis. Treatment costs associated with this combination can vary widely depending on the price of any of the drugs (especially sulfadiazine and calcium folinate). An example of costs is presented in the description of antipneumocystosis and antitoxoplasmosis drugs (Table 8).

Use in HIV/AIDS: Treatment of toxoplasmic encephalitis and other manifestations of active toxoplasmosis.

Notes in 11th Model list: Example of a therapeutic group. In renal insufficiency, contraindicated or dosage adjustments necessary.

- **tablet, 500 mg.** MEDL. Reported shelf-life: 48 to 60 months.
- **injection, 250 mg. (sodium salt) in 4-ml amp.** MEDL.

Table 2. Sources and prices of antibacterial drugs

ANTIBACTERIALS	**Manuf.**		**Indicative prices (US$, 2000)**						**List Prices**	
	No./countries		**Unit**	**MAX**	**MIN**	**MEDIAN**	**25th Perc./No.<**		**UK**	**Spain**
Ceftriaxone										
Inj, 250 mg in vial	7	3	vial	2.8	0.48	1.40	0.61	2	3.94	1.91
Ciprofloxacin										
Tab, 250 mg	15	8	tab	0.95	0.02	0.10	0.04	5	1.08	0.30
Clindamycin										
Cap, 150 mg	3	2	cap	0.94	0.08	0.27	0.17	1	0.66	2.35
Inj, 150 mg/ml in amp	1	1	2-ml	1.40	1.40	1.40	1.40	1	7.11	-
Sulfadiazine										
Inj, 250 mg in 4-ml amp.	-	-	amp	-	-	-	-	-	-	-
Tab, 500 mg	5	5	tab	0.33	0.02	0.05	0.02	2	0.46	0.07

2.2 Antifungal drugs

- **amphotericin B, fluconazole, itraconazole, ketoconazole**

Amphotericin B

Amphotericin B is marketed world wide by Bristol-Myers Squibb. It is an essential drug for the treatment of cryptoccocal meningitis and other life-threatening infections that affect people living with HIV. Although amphotericin B is an old drug, its manufacture is difficult and there is little generic competition.

Use in HIV/AIDS: Cryptococcal meningitis, histoplasmosis and coccidiodomycosis, aspergillosis.

Notes in 11th Model list: In renal insufficiency, contraindicated or dosage adjustment necessary.

- **powder for injection, 50 mg in vial.** MEDL. Reported shelf-life: 24 months. REFRIGERATION REQUIRED.

Fluconazole

Introduced in the 1999 MEDL, fluconazole represents the group of triazole antifungal drugs. It replaced ketoconazole. Pfizer holds the patents for this important fungicide, and the company's price policy has attracted a great deal of attention. In the United States, the patent expires in January 2004 (the original patent was due to expire in 2001 but the protection period was extended). The British and European patents were granted in late 1981 and January 1982 respectively. Fluconazole has also been at the centre of the market exclusivity/compulsory licence debate, especially in Thailand and South Africa.

Fluconazole capsules, tablets, and solution for injection are currently produced by generic manufacturers in numerous countries where no product patent existed at the time the fluconazole patent was filed.

Use in HIV/AIDS: Treatment and prophylaxis of cryptococcal meningitis, treatment of oesophageal and resistant oropharyngeal candidiasis and vaginal candidiasis, treatment and maintenance of coccidiodomycosis.

Notes in 11th Model list: Example of a therapeutic group.

- **capsule/tablet, 200 mg.** Strength not in MEDL. Reported shelf-life: 24 to 36 months.
- **solution for injection, 2 mg/ml in bottle.** MEDL. Reported shelf-life: 24 to 36 months.

Itraconazole

Itraconazole is important in the treatment of certain fungal infections related to HIV/AIDS. Fluconazole, a member of the same family (triazoles), is included in the 1999 MEDL. Itraconazole is marketed in most countries only as a proprietary product and limited sources of generics exist. No generic producers of the oral solution were found. Itraconazole has been patented mainly in industrialized countries. The patent has expired in many countries but an extension of the patent has been granted in France.

Use in HIV/AIDS: Treatment of resistant oral and oesophageal candidiasis, maintenance of cryptococcosis, treatment of histoplasmosis.

- **capsule, 100 mg.** Not in MEDL**.** Therapeutic group represented by fluconazole. Reported shelf-life: 36 months.
- **oral solution, 10 mg/ml.** Not in MEDL.

Ketoconazole

Ketoconazole was included in the 10th MEDL, but it has been replaced in the latest revision by fluconazole, which has a better therapeutic profile and reduced hepatic toxicity. The tablet form is available as a generic in most markets. International distributors offer it and it is also included in the UNICEF product list.

Use in HIV/AIDS: Treatment of oesophageal and resistant oropharyngeal candidiasis.

- **tablet, 200 mg.** Not in MEDL. Reported shelf-life: 36 months.
- **oral suspension, 100 mg/5 ml.** Not in MEDL.

Table 3. Sources and prices of antifungal drugs

ANTIFUNGALS	**Manuf.**		**Indicative prices (US$, 2000)**						**List Prices**	
	No./countries		**Unit**	**MAX**	**MIN**	**MEDIAN**	**25th Perc./No.<**		**UK**	**Spain**
Amphotericin B										
Inj, 50 mg in vial	1	1	vial	5.00	5.00	5.00	5.00	1	5.33	5.49
Fluconazole										
Cap/tab, 200 mg	7	5	cap/tab	7.25	0.20	0.36	0.24	2	13.67	6.05
Inj, 2 mg/ml	1	1	100-ml	1.80	1.80	1.80	1.80	1	42.16	5.31
Itraconazole										
Cap, 100 mg	2	2	cap	0.80	0.50	0.65	0.58	1	2.06	1.12
Oral sol, 10 mg/ml	-	-	150-ml	-	-	-	-	-	75.28	46.05
Ketoconazole										
Oral sol 100 mg/5ml	-	-	100ml	-	-	-	-	-	-	5.00
Tab, 200 mg	3	3	tab	0.35	0.08	0.09	0.08	1	0.75	0.24

Table 4. Drug costs associated with the treatment of cryptococcosis

CRYPTOCOCCOSIS. Treatment and duration						**Project estimates (25th percentile)**		**Spain**	
Drug	**Unit**	**Daily Dose**	**units/ day**	**Days**	**Total units**	**Unit price (US$)**	**Total**	**Unit price (US$)**	**Total**
Treatment									
Amphotericin B	Inj 50 mg	0.8 mg/kg	1	14	14	5.00	70.00	5.49	76.86
Followed by **fluconazole**	Cap 200 mg	400 mg	2	56	112	0.24	26.88	6.05	677.6
							96.88		**754.46**
Secondary prophylaxis									
Fluconazole	Cap 200 mg	200 mg	1	365	365	0.24	**87.6**	6.05	**2208.25**

Antiherpes drugs

- **aciclovir**

Aciclovir

Aciclovir was one of the first antivirals added to the MEDL. This drug was incorporated in the 1997 MEDL, in the therapeutic category of antiherpes agents. It has a very important role in HIV and STI for the treatment of severe primary genital herpes, disseminated herpes zoster, and herpes encephalitis. Patent expiry has opened up the market and the price of this once very expensive drug has decreased considerably. Prices vary among different markets. There are numerous manufacturers of tablets, many with studies of bioequivalence to the original product. Indicated shelf-life varies among products. Dispersible tablets generally have a shorter shelf-life than the tablet form and are more expensive. The majority of products on the market are tablets, and no distinction was made when comparing products. Aciclovir powder for injection, used in hospital settings for treatment of herpes encephalitis, is not as widely available as the tablet form. However, a number of generic products do exist.

Use in HIV/AIDS: Severe primary genital herpes, disseminated herpes zoster, and herpes encephalitis.

Notes in 11th Model list: Limited indications or narrow spectrum of activity.

- **powder for injection, 250 mg (as sodium salt).** MEDL. Reported shelf-life: 24 to 60 months.
- **tablet, 200 mg.** MEDL. Reported shelf-life: 24 to 60 months.
- **tablet, 400 mg.** Strength not in MEDL. Reported shelf-life: 24 to 60 months.
- **tablet, 800 mg.** Strength not in MEDL. Reported shelf-life: 24 to 60 months.

Table 5. Sources and prices of antiherpes drugs

ANTIVIRALS	**Manuf.**		**Indicative prices (US$, 2000)**					**List Prices**	
Antiherpes	**No./countries**		**Unit**	**MAX**	**MIN**	**MEDIAN**	**25th Perc./No.<**	**UK**	**Spain**
Aciclovir									
inj, 250 mg	5	5	vial	13.58	2.58	3.30	2.70 2	-	4.59
tab, 200 mg	15	10	tab	2.81	0.04	0.10	0.06 4	0.32	0.56
tab, 400 mg	8	7	tab	2.51	0.09	0.14	0.12 2	0.37	-
tab, 800 mg	8	5	tab	4.07	0.18	0.48	0.25 2	1.99	2.05

Table 6. Drug costs associated with the treatment of herpes simplex

HERPES SIMPLEX. Treatment and duration						**Project estimates (25th percentile)**		**Spain**	
Drug	**Unit**	**Daily Dose**	**units/ day**	**Days**	**Total units**	**Unit price (US$)**	**Total**	**Unit price (US$)**	**Total**
Treatment									
Aciclovir	Tab 200 mg	1000 mg	5	5	25	0.06	**1.5**	0.56	**14.00**

2.4. Antiprotozoals, antipneumocystosis, and antitoxoplasmosis drugs

- **pentamidine, pyrimethamine, calcium folinate (cytotoxic)**

Pentamidine

In an effort to address the increasing problem of toxoplasmosis and infection with *Pneumocystis carinii* in immunosuppressed patients, the 1997 MEDL incorporated a new section, which included these agents. This section included pentamidine isetionate, pyrimethamine, and sulfamethoxazole plus trimethoprim. Pentamidine isetionate was previously included in the list as an antitrypanosomal drug (at 200 mg strength). The new strength included, 300 mg, is available from several manufacturers. However, no replies were received for this drug in either the mid-2000 survey or the expressions of interest. Two presentations exist, powder for injection and nebulizer. The 200 mg presentation is offered only by Rhône-Poulenc, and is available through WHO for trypanosomiasis programmes.

Use in HIV/AIDS: Prophylaxis of *Pneumocystis carinii* pneumonia (PCP), treatment of PCP in patients unable to tolerate first-line treatment.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 200 mg (isetionate) in vial.** MEDL.
- **powder for injection, 300 mg (isetionate) in vial.** MEDL. Reported shelf-life: 18 to 60 months.

Pyrimethamine

Pyrimethamine is an essential component of treatment regimes against *Toxoplasma gondii*. Pyrimethamine is available both as a generic from international suppliers and as a branded product (Glaxo Wellcome). While generic pyrimethamine tablets are available at low cost, they are used in combination with calcium folinate (to reduce its toxicity) and sulfadiazine or clindamycin, and therefore adequate access to these drugs must also be secured.

Use in HIV/AIDS: Treatment of toxoplasmic encephalitis and other manifestations of active toxoplasmosis, treatment of isosporidosis.

- **tablet, 25 mg.** MEDL.

Calcium folinate (cytotoxic drug)

Calcium folinate is included in the MEDL as a cytotoxic drug. However, it is an essential drug for the treatment and prophylaxis of toxoplasmosis, where it is used to reduce the toxicity of pyrimethamine. It is considered an expensive drug, and its price is a critical factor in the total drug cost of toxoplasmosis management. Originally a product of Wyeth Lederle, calcium folinate in tablet form is available as a generic. While indicative prices varied widely, low cost sources were found.

Use in HIV/AIDS: To decrease the toxicity of pyrimethamine and other inhibitors of folic acid.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use (these precautions apply mainly in the context of chemotherapy with 5-fluorouracil, not for its use in HIV/AIDS).

- **tablet, 15 mg.** MEDL. Reported shelf-life: 24 to 36 months.

Table 7. Sources and prices of antipneumocystosis and antitoxoplasmosis drugs

ANTIPROTOZOALS	**Manuf.**		**Indicative prices (US$, 2000)**						**List Prices**	
(incl. Ca-folinate)	**No./countries**		**Unit**	**MAX**	**MIN**	**MEDIAN**	**25th Perc./No.<**		**UK**	**Spain**
Pentamidine										
Inj, 200 mg (isetionate)	-	-	vial	-	-	-	-	-	-	-
Inj, 300 mg (isetionate)	-	-	vial	-	-	-	-	-	47.15	10.30
Pyrimethamine										
Tab, 25 mg	1	1	tab	0.003	0.003	0.003	0.003	1	1.10	0.06
Calcium folinate										
Tab, 15 mg	2	2	tab	3.03	0.01	1.52	0.77	1	4.43	0.55

Table 8. Drug costs associated with the treatment of toxoplasmosis

TOXOPLASMOSIS. Treatment and duration						**Project estimates (25th percentile)**		**Spain**	
Drug	**Unit**	**Daily Dose**	**units/ day**	**Days**	**Total units**	**Unit price (US$)**	**Total**	**Unit price (US$)**	**Total**
Treatment									
Pyrimethamine	Tab 25 mg	100 mg	4	42	168	0.003	0.50	0.06	10.08
Plus **sulfadiazine**	Tab 500 mg	6 g	12	42	504	0.02	10.08	0.07	35.28
Plus **calcium folinate**	Tab 15 mg	15 mg	1	42	42	0.77	32.34	0.55	23.10
							42.92		**68.46**
Secondary prophylaxis									
Pyrimethamine	Tab 25 mg	25 mg	1	365	365	0.003	1.095	0.06	21.90
Plus **sulfadiazine**	Tab 500 mg	3 g	6	365	2190	0.02	43.8	0.07	153.30
Plus **calcium folinate**	Tab 15 mg	15 mg	1	365	365	0.77	281.05	0.55	200.75
							325.95		**375.95**

3. Drugs used for the treatment of HIV/AIDS-related cancers

Cytotoxic drugs

The mid-2000 survey of sources and prices was not very successful in obtaining data on cytotoxic drugs. Only a few companies responded and of those several supplied incomplete information. The 1999 survey elicited a much better response. Therefore, contact information from the 1999 survey will be made available to procurement officers, on request, with a caveat that this information may be outdated. Several offers were received in response to the call for expressions of interest. However, these are not included in the table as they have not yet been thoroughly evaluated.

- **bleomycin, doxorubicin, methotrexate, vinblastine, vincristine**

Bleomycin

Generic bleomycin injection is available from manufacturers specializing in cytotoxics. In the 1999 survey, seven manufacturers responded and prices from different manufacturers varied widely. However, no manufacturers responded to the mid-2000 survey. The drug is on the list of one international supplier.

Main use in HIV/AIDS: Kaposi's sarcoma[*]. AIDS-related lymphoma.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 15 mg (as sulphate) in vial.** MEDL. Reported shelf-life: 18 to 24 months.

Doxorubicin

Although doxorubicin is offered by the main companies that specialize in oncology drugs, only two of these responded to the mid-2000 survey. While the powder for injection is the more usual form available, in developed countries the drug is also offered as a solution for injection. The lyophilized formulation is easier to store than the solution, which requires refrigeration.

Use in HIV/AIDS: Kaposi's sarcoma. AIDS-related lymphoma.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 10 mg in vial.** MEDL. Reported shelf-life: 18 to 36 months.
- **powder for injection, 50 mg in vial.** MEDL. Reported shelf-life: 18 to 36 months.

[*] The treatment indicated for Kaposi's sarcoma is an example of BV therapy (Gill P *et al*. 1990. *American Journal of Clinical Oncology*, 13(4), 315–9).

Methotrexate

Methotrexate is widely available on the generic market, especially in tablet form. The formulations included in the MEDL are powder for injection 50 mg and tablets 2.5 mg. Generic manufacturers and international suppliers also offer the solution for injection, 2.5 mg/ml in 2-ml vial.

Use in HIV/AIDS: AIDS-related lymphoma.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 50 mg (as sodium salt) in vial.** MEDL. Reported shelf-life: 24 months.
- **injection, 25 mg (as sodium salt)/ml in 2-ml vial.** MEDL (alternative formulation)**.** Reported shelf-life: 24 to 36 months.
- **tablet, 2.5 mg.** MEDL. Reported shelf-life: 24 to 36 months.

Vinblastine

The drug is available as powder for injection or solution for injection from various manufacturers. However, only one of these responded to the mid-2000 survey. Both formulations require refrigeration.

Use in HIV/AIDS: Kaposi's sarcoma.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 10 mg (sulphate) in vial.** MEDL. Indicated shelf-life: 18 to 36 months. REFRIGERATION REQUIRED.
- **injection, 1 mg (sulphate)/ml in 10-ml vial.** MEDL (alternative formulation). Reported shelf-life: 18 to 36 months. REFRIGERATION REQUIRED.

Vincristine

Despite the availability of vincristine from generic manufacturers and international distributors, there was a limited response to the mid-2000 survey. Two presentations are available, powder for injection and solution for injection. The powder for injection is listed in the MEDL. Both must be kept refrigerated.

Use in HIV/AIDS: Kaposi's sarcoma. AIDS-related lymphoma.

Notes in 11th Model list: Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.

- **powder for injection, 1 mg (sulphate) in vial.** MEDL. Reported shelf-life: 24 to 30 months. REFRIGERATION REQUIRED.

Table 9. Sources and prices of cytotoxic drugs

CYTOTOXICS	Manuf.		Indicative prices (US$, 2000)						List Prices	
	No./countries		Unit	MAX	MIN	MEDIAN	25th Perc./No.<		UK	Spain
Bleomycin										
inj, 15 mg in vial	-	-	Vial	-	-	-	-	-	23.46	9.76
Doxorubicin HCl										
pdr inj, 10 mg in vial	2	2	vial	14.65	3.82	9.24	6.53	1	26.96	5.39
pdr inj, 50 mg in vial	2	2	vial	70.43	13.50	41.97	27.73	1	134.78	23.22
Methotrexate										
pdr inj, 50 mg in vial	2	2	vial	5.88	4.25	5.07	4.66	1	-	2.73
tab, 2.5 mg	3	3	tab	0.20	0.04	0.12	0.08	1	0.16	0.04
Vinblastine										
pdr inj, 10 mg	-	-	Vial	-	-	-	-	-	20.38	-
inj, 10 mg in vial	1	1	2 ml	4.00	4.00	4.00	4.00	1	18.41	4.92
Vincristine										
pdr inj, 1 mg (sulphate) in vial	2	2	Vial	3.35	0.65	2.00	1.33	1	-	4.40
pdr inj, 5 mg (sulphate) in vial	-	-	Vial	-	-	-	-	-	-	-
inj, 5 mg	-	-	Vial	-	-	-	-	-	62.11	13.41

Table 10. Drug costs associated with the treatment of Kaposi's sarcoma

KAPOSI'S SARCOMA. Treatment and duration						Project estimates (25th percentile)		Spain	
Drug	unit	Daily Dose	units/ day	Days	Total units	Unit price (US$)	Total	Unit price (US$)	Total
Treatment									
Bleomycin	Inj 15 mg	15 mg/m² (6 cycles)			12	8.00(a)	96	9.76	117.12
Plus **vincristine**	Inj 1mg	2 mg (6 cycles)			12	3.35	40.2	4.40	52.80
							136.2		**169.92**

(a)Manufacturer's list price in Spain (in 1999 for vincristine). No price was supplied by manufacturers

4. Drugs for use in palliative care

Opioid analgesics

- **codeine phosphate, methadone, morphine, pethidine**

While opioid analgesics, including methadone for management of drug addiction, are essential components in palliative care for HIV/AIDS, the availability of drugs and range of formulations is limited in developing countries. This is partly due to regulatory constraints that affect the supply and usage of these drugs, and which especially affect countries where there is no local production.

International supply of opioid analgesics is limited to the more commonly used products (codeine tablets, morphine injection, and pethidine injection). International suppliers and UNICEF include at least one of them in their product lists.

The drugs included in this section are all controlled substances under the Single Convention on Narcotic Drugs, 1961. Manufacturers require special authorization from the importing country before an export license is granted, and due to regulatory constraints, batch samples are not available for evaluation.

Codeine

Use in HIV/AIDS: Treatment of mild to moderate pain, symptomatic relief of diarrhoea.

Notes in 11th Model list: Example of a therapeutic group. Drug subject to international control.

- **tablet, 30 mg.** MEDL. Reported shelf-life: 36 months.

Methadone

Methadone is available in oral formulations (tablets and mixture) and in ampoules for injection. The more common form used in drug dependence are oral liquid formulations.

Use in HIV/AIDS: Management of opioid dependence.

- **tablet, 5 mg.** Not in MEDL.

Morphine

*Use in HIV/AIDS***:** Treatment of severe pain.

Notes in 11th Model list: Example of a therapeutic group. Drug subject to international control.

- **oral solution, 10 mg (hydrochloride or sulphate)/5 ml.** MEDL.
- **tablet, 10 mg (sulphate).** MEDL.

Pethidine

Use in HIV/AIDS: Treatment of severe pain.

Notes in 11th Model list: Example of a therapeutic group. Complementary drug for use when drugs in the main list cannot be made available. Drug subject to international control. In renal insufficiency, contraindicated or dosage adjustments necessary.

- **injection, 50 mg (hydrochloride) in 1-ml ampoule.** MEDL. Reported shelf-life: 18 to 36 months.
- **tablet, 50 mg.** MEDL. Reported shelf-life: 24 months.
- **tablet, 100 mg.** MEDL.

Table 11. Sources and prices of opioid analgesics

ANALGESIC (OPIOID)	Manuf.		Indicative prices (US$, 2000)						List Prices	
	No./countries		Unit	MAX	MIN	MEDIAN	25th Perc./No.<		UK	Spain
Codeine										
Tab, 30 mg	3	3	tab	0.05	0.03	0.04	0.04	2	0.07	0.24
Methadone										
Tab, 5 mg	1	1	0.04	0.04	0.04	0.04	0.04	1	0.09	0.03
Morphine										
Oral sol, HCl 10 mg/5 ml	1	1	200 ml	10.47	10.47	10.47	10.47	1	-	0.30
Oral sol, sulpha 10 mg/5 ml	-	-	500 ml	-	-	-	-	-	11.73	-
Tab, 10 mg sulphate	1	1	tab	0.09	0.09	0.09	0.09	1	0.15	0.12
Pethidine										
Inj, HCl 50 mg/ml	1	1	vial	0.24	0.24	0.24	0.24	1	0.75	0.44
Tab, 100 mg	-	-	amp	-	-	-	-	-	-	-
Tab, 50 mg	-	-	tab	-	-	-	-	-	0.14	-

5. Diagnostics

HIV test kits

There has been a rapid evolution in diagnostic technology since the first HIV antibody test, an enzyme-linked immunoassay (ELISA), became commercially available in 1985 and a wide range of different HIV antibody tests are now available.

There are three broad categories of HIV antibody tests: simple/rapid tests, ELISA tests, and confirmatory tests. Over recent years, there has been an increase in the availability and demand for simple/rapid assays. These are easy-to-use tests that require little or no equipment and training to perform and can provide accurate same-day results. This makes them particularly suitable for use in voluntary counselling and testing (VCT) centres and in antenatal clinics for prevention of mother-to-child transmission of HIV. When initial tests are reactive for HIV, confirmation of the test results is needed to rule out any false positive results. Information on recommended WHO testing strategies is available in *Weekly Epidemiological Record*, 1997, 72, *81-88.*

Since 1988, WHO has provided objective assessments of commercially available test kits. This ongoing evaluation programme is carried out by the WHO Collaborating Centre in the Department of Microbiology, Institute of Tropical Medicine, Antwerp, Belgium and coordinated by the Department of Blood Safety and Clinical Technology, WHO, in collaboration with the UNAIDS Secretariat.

In 1989, WHO established a HIV test kit bulk-procurement scheme, in collaboration with other UN agencies. The aim is to provide national AIDS programmes, blood transfusion services, large hospitals, nongovernmental organizations, reference laboratories, UN agencies, donor-supported AIDS projects, and regulatory authorities in developing countries with high quality tests at the lowest possible cost. All HIV tests available through the scheme have been evaluated by the WHO evaluation programme and meet specific, rigorous criteria. WHO negotiates bulk purchase prices for all assays in the scheme directly with the manufacturers, a process that enables WHO to offer a per test cost approximately half that of tests purchased on the open market. The cost savings for 1999 and 2000 are shown in Table 12 below.

Table 12. Total Cost savings resulting from bulk procurement in 1999 and 2000

	Total Number of Tests Purchased	Market Price (US$)	Bulk Procurement Price (US$)	Savings (US$)
1999	4.0 million	5.9 million	3.2 million	**2.7 million**
2000	2.4 million	4.1 million	2.0 million	**2.1 million**

A list of diagnostic tests (and their operational characteristics) which have been evaluated by WHO and included in the HIV Test Kit Bulk Procurement Scheme is attached as Annex II.

Annex I

Offers of donation/price reductions of antiretroviral drugs up to 15 April 2001

(both offers made in response to the Expression of Interest launched in October 2000 and publicly announced offers)

Individual drug offers announced

Generic Name	Brand name (*)	Class	Unit dose (**)	Daily dose (***)	Manufacturer	Announced discount price/day (in US$)
Abacavir	Ziagen	NNRTI	300 mg	2 x 300 mg	GlaxoSmithKline	N/A
Abacavir		NNRTI	300 mg	2 x 300 mg	Hetero	10.64
Delavirdine	Rescriptor	NNRTI	100 mg	3 x 400 mg	Upjohn-Pharmacia	N/A
Didanosine (ddI)	Videx	NRTI	100 mg	4 x 100 mg	Bristol-Myers Squibb	0.85
Didanosine (ddI)		NRTI	100 mg	4 x 100 mg	Cipla	1.60
Didanosine (ddI)		NRTI	100 mg	4 x 100 mg	Aurobindo	0.52
Efavirenz	Stocrin/ Sustiva	NNRTI	200 mg	3 x 200 mg	Merck/Dupont	1.37
Efavirenz	Stocrin/ Sustiva	NNRTI	200 mg	3 x 200 mg	Merck/Dupont (for Brazil)	2.52
Efavirenz		NNRTI	200 mg	3 x 200 mg	Hetero	3.23
Efavirenz		NNRTI	200 mg	3 x 200 mg	Aurobindo	1.33
Indinavir	Crixivan	PI	400 mg	6 x 400 mg	Merck	1.64
Indinavir	Crixivan	PI	400 mg	6 x 400 mg	Merck (for Brazil)	2.82
Indinavir		PI	400 mg	6 x 400 mg	Hetero	6.30
Indinavir		PI	400 mg	6 x 400 mg	Cipla	5.04
Lamivudine (3TC)	Epivir	NRTI	150 mg	2 x 150 mg	GlaxoSmithKline	0.63
Lamivudine (3TC)		NRTI	150 mg	2 x 150 mg	Hetero	0.27
Lamivudine (3TC)	Lamivir	NRTI	150 mg	2 x 150 mg	Cipla (to not-for-profit programmes)	0.30
Lamivudine (3TC)		NRTI	150 mg	2 x 150 mg	Aurobindo	0.25
Nelfinavir	Viracept	PI	250 mg	9 x 250 mg	Roche	9.89[1]
Nelfinavir		PI	250 mg	9 x 250 mg	Hetero	6.16
Nevirapine	Viramune	NNRTI	100 mg	2 x 200 mg	Boehringer Ingelheim	Free of charge for MTCT only 1.22 for adult treatment
Nevirapine		NNRTI	200 mg	2 x 200 mg	Hetero	0.55
Nevirapine	Nevimune	NNRTI	200 mg	2 x 200 mg	Cipla (to not-for-profit programmes)	0.54
					Cipla (for Uganda)	0.80
Ritonavir	Norvir	PI	600 mg	2 x 600 mg	Abbott	N/A
Ritonavir		PI	100 mg	12 x 100 mg	Hetero	11.78
Saquinavir softgel	Fortovase	PI	200 mg	9 x 200 mg	Roche	6.58[2]
Saquinavir softgel		PI	200 mg	9 x 200 mg	Hetero	2.72
Saquinavir hardgel	Invirase	PI	200 mg	9 x 200 mg	Roche	11.92
Saquinavir hardgel		PI	200 mg	9 x 200 mg	Aurobindo	6.78
Stavudine (d4T)	Zerit	NRTI	40 mg	2 x 40 mg	Bristol-Myers Squibb	0.15
Stavudine (d4T)		NRTI	50 mg	2 x 50 mg	Hetero	0.13
Stavudine (d4T)	Stavir	NRTI	40 mg	2 x 40 mg	Cipla (to not-for-profit programmes)	0.11
Stavudine (d4T)		NRTI	50 mg	2 x 40 mg	Aurobindo	0.13
Zalcitabine (ddC)	Hivid	NRTI	0.75 mg	3 x 0.75 mg	Roche	3.90
Zalcitabine (ddC)		NRTI	0.75 mg	3 x 0.75 mg	Hetero	0.12

[1] For each single pack purchased, one extra pack is delivered free of charge (for Sub-Saharan Africa only).
[2] For every 100 packs purchased, 15 extra packs delivered free of charge (for Sub-Saharan Africa only).

Generic Name	Brand name (*)	Class	Unit dose (**)	Daily dose (***)	Manufacturer	Announced discount price/day (in US$)
Zidovudine (ZDV)	Retrovir	NRTI	250 mg	2 x 250 mg	GlaxoSmithKline	1.49
Zidovudine (ZDV)		NRTI	200 mg	2 x 200 mg	Hetero	0.53
Zidovudine (ZDV)	Zidovir	NRTI	300 mg	2 x 300 mg	Cipla	0.84
Zidovudine (ZDV)		NRTI	100 mg	6 x 100 mg	Aurobindo	0.50
Combination offers announced						
Lamivudine, zidovudine and nevirapine		Generic triple therapy			Cipla (to not-for-profit programmes + Nigeria)	0.96
Lamivudine, zidovudine and nevirapine		Generic triple therapy			CIPLA offer to Governments	1.64
Lamivudine, zidovudine and nevirapine		Generic triple therapy			Aurobindo offer to Governments	0.81
Lamivudine, stavudine and nevirapine		Generic triple therapy			Hetero offer to Governments	0.95
Lamivudine+zidovudine (Combivir)		NRTI	150 mg + 300 mg	2 x 1 tab	GlaxoSmithKline (for developing countries)	2.00
Lamivudine+zidovudine (Duovir)		NRTI	150 mg + 300 mg	2 x 1 tab	CIPLA (for Uganda)	1.52

(*) Brand names may vary between countries

(**) Other unit doses may exist

(***) Adult dose

NNRTI = Non Nucleoside Reverse Transcriptase Inhibitors

NRTI = Nucleoside Reverse Transcriptase Inhibitors

PI = Protease Inhibitors

Annex II

WHO BULK PROCUREMENT LIST FOR HIV TESTS – 2000
ELISAs

Assay name (Manufacturer)	Order Code	HIV type	Antigen	Sample Type	Sensitivity %	Specificity %	Equipment requirements	Storage Temp (°C)	Cost/test (US $)[3]	No. of tests per kit
ENZYGNOST ANTI-HIV ½ Plus (Dade Behring AG) Enyzgnost/TMB reagent kit	OQFK13 OQFK21 OUVP	HIV-1+2+0	Recombinant proteins	S, P	100.0	99.7	A, B, C, D, E, F, H	2-8	0.53 0.45 0.0	192[4] 960
DETECT HIV I+II (Biochem)	RHD-902B RHD-900B	HIV-1+2	Synthetic peptides	S, P	100	97.4	A, B, C, D, E, F, H	2-8	0.43 o.43	96 192
HIV – TETRA, HIV-1+2 (Biotest)	807008	HIV-1+2	Recombinant proteins	S, P	100	99.1	A, B, C, D, E, F, H	2-8	0.50	480
RECOMBIGEN HIV-1/2 EIA (Trinity Biotech plc)	960401A	HIV-1+2	recombinant proteins	S, P	100.0	100.0	A, B, C, D, E, F, H	2-8	0.45	192
INNOTEST HIV-1/HIV-2 Ab s.p. (Innogenetics)	K1054 K1055	HIV-1+2+0	recombinant proteins, synthetic peptides	S, P	100.0	98.8	A, B, C, D,E, F, H	2-8	0.45 0.45	96 480
HIV-*Chex* (SEARO ONLY) (Xcyton)		HIV-1+2	synthetic peptides	S, P	100	100	A, B, C, D, E, F, H	2-8	0.42	96
HIV EIA (Labsystems)	6111011 6111013	HIV-1+2	synthetic peptides	S, P	100.0	99.4	A, B, C, D, E, F, H	2-8	0.45 0.40	96 960
ICE HIV 1.0.2 EIA (Murex/Abbott)	WR100A WR200A	HIV-1+2+0	recombinant proteins, synthetic peptides	S, P	100.0	99.4	A, B, C, D, E, F, H	2-8	0.45 0.45	96 480
VIRONOSTIKA HIV UNI-FORM II plus 0 (Organon Teknika)	84017 84018	HIV-1+2+0	recombinant proteins, synthetic peptides	S, P	100.0	100.0	A, B, C, D, E, F, H	2-8	0.45 0.45	192 576
GENSCREEN HIV 1+2 (BioRad)	72276 72277	HIV-1+2+0	recombinant proteins, synthetic peptides	S, P	100.0	98.5	A, B, C, D, E, F, H	2-8	0.60 0.45	96 480
UBI HIV 1/2 EIA (United Biomedical)	680328	HIV-1+2	synthetic peptides	S, P	100.0	100.0	A, B, C, D, E, F, H	2-8	0.45 0.45	192 960
ABBOTT 3rd GENERATION HIV-1/HIV-2 EIA (Abbott)	7A84-24 7A84-32	HIV-1+2+0	recombinant proteins	S, P	100.0	100.0	Abbott equipment, C, D, E, F	2-8	0.85 0.85	100 1000

A: ELISA reader **B:** ELISA washer **C:** Consumables **D:** Pipette **E:** Power supply **F:** For large volume testing more than 40 samples daily **G :** For small volume testing 1 to 40 samples daily **H**: Incubator **S**: Serum **P**: Plasma **W**: Whole Blood (*under evaluation)

[3] Please note that this price does not include freight nor other taxes.

[4] When ordering the 192 test kits it is necessary to order separately Enzygnost/TMB reagents at no cost. One reagent kit is sufficient for 4 kits of 192 tests.

WHO BULK PROCUREMENT LIST FOR HIV TESTS - 2000

SIMPLE AND/OR RAPID and SUPPLEMENTAL ASSAYS

Assay name (Manufacturer)	Order code	HIV type	Antigen	Sample Type	Sensitivity %	Specificity %	Equipment requirements	Storage Temp (°C)	Cost/Test (US $)	No. of tests per kit
CAPILLUS HIV-1/HIV-2 (Trinity Biotech plc)	6058G 6048G	HIV-1+2	recombinant proteins	S, P, W*	100.0	98.8	G	2-8	2.00 1.10	20 100
SERODIA HIV-1/2 (Fujirebio)	6063	HIV-1+2	recombinant proteins	S, P	100.0	100.0	D, G	2-8	¥130	220
IMMUNOCOMB II BISPOT[5] HIV-1&2 (Orgencis Ltd)	60432002	HIV-1 HIV-2	synthetic peptides	S, P	100.0	99.7	D, G	2-8	1.1	36
DIPSTICK HIV 1+2 (Pacific Biotech Co. Ltd)	HIV-001 HIV-002 HIV-003	HIV-1+2	synthetic peptides	S, P	100.0	98.2	G D (optional)	2-8	0.65 0.42 0.55	48 96 192
DETERMINE™HIV-1/2 (Abbott)	7023-13	HIV 1+2	recombinant protein, synthetic peptide	S, P, W*	100.0	100.0	D, G	2-30	1.2	100
HIV 1&2 DOUBLECHECK (Orgenics Ltd)	60332000	HIV-1+2	recombinant proteins, synthetic peptides	S, P	100.0	99.4	G	2-8	1.35	40
HIV TRIDOT[3] (Mitra & Co., India)	IRI30100 (specify size)	HIV-1 HIV-2	recombinant proteins	S, P	99.6	99.7	G	4-8	1.20 1.20 1.20	10 20 50
SERO!STRIP HIV-1/2[6] (Saliva Diagnostic Systems)	SH0010	HIV-1+2	synthetic peptides	S, P	98.9	100.0	G	2-25	1.40	30
SUPPLEMENTAL ASSAYS										
INNO-LIA HIV Confirmation (Innogenetics)	K1036	HIV-1+2	recombinant + synthetic peptide	S, P	100.0	100.0	D, E	2-8	13.0	20

A: ELISA reader **B:** ELISA washer **C:** Consumables **D:** Pipette **E:** Power supply **F:** For large volume testing more than 40 samples daily **G :** For small volume testing 1 to 40 samples daily
H: Incubator **S**: Serum **P**: Plasma **W**: Whole Blood (*under evaluation)

[5] These assays can discriminate between HIV-1 and HIV-2
[6] Only to be used as second or third line test in the WHO testing strategies

Annex III
Manufacturers per therapeutic group included in the price survey (2000)

	Country	Telephone	Fax	E-mail
Antibacterial drugs				
Bayer AG (ciprofoxacin)	Germany	+49 214 302 4588	+49 214 305 8075	Michaela.oxfort.mo@bayer-ag.de
Chephasaar (clindamycin)	Germany	+49 68 94 971.0	+49 68 94 971 199	Sabine.itt@chephasaar.de
Cipla (ceftriaxone, ciprofloxacin)	India	+91 22 308 2891/ 309 5521	+91 22 307 0013	Exports@cipla.com
Combino Pharm (ceftriaxone)	Spain	+34 93 480 8833	+34 93 480 8832	Estampa@combino-pharm.es
CP Pharmaceuticals (sulfadiazine)	UK	+44 1978 661 261	+44 1978 660 130	Mail@cppharma.co.uk
Doms-Recordati (sulfadiazine)	France	+33 1 41 16 3300	+33 1 47 89 1131	Export@doms-recordati.com
Ecobi (sulfadiazine)	Italy	+39 10 935280-82	+39 10 935 0679	Ecobi@aleph.it
Eskayef (ciprofloxacin)	Bangla-desh	+880 2 801 7501	+880 2 900 0833	Mfar@bol-online.com
FDC Limited (ciprofloxacin)	India	+91 22 678 0652	+91 22 678 8123	Jogfdc@bom4.vsnl.net.in
FURP (sulfadiazine)	Brazil	+55 11 6423 6203 / 6005	+55 11 6423 6202	Furp@furp.com.br
Grupo Reig Jofre (sulfadiazine)	Spain	+34 93 480 6706	+34 93 480 6724	grj.desarrollo@seticetnet.es
Inkeysa,S.A. (ciprofloxacin)	Spain	+34 93 480 99 11	+34 93 372 65 51	Afenesr.inkeysa@nexo.es
KRKA (ciprofloxacin)	Slovenia	+386 7 3312 730	+386 7 3322 742	eva.jozef@krka.si
Laboratorio Chile S.A. (ciprofloxacin, clindamycin)	Chile	+56 2 365 5175	+56 2 365 5173	Asepulve@labchile.cl
Laboratorios Normon (ceftriaxone, ciprofoxacin)	Spain	+34 91 515 59 40	+34 91 416 31 40	Cgovantes@normon.com
Laboratorios Vita (ciprofloxacin)	Spain	+34 93 475 96 00	+34 93 373 30 20	Tjaursch@vita-invest.com
Lupin Laboratories (ciprofloxacin, ceftriaxone)	India	+9122 652 5730	+91 22 652 5726	Lupin@bom5.vsnl.net.in
Lyka Labs Limited (ceftriaxone, ciprofloxacin)	India	+91 610 5900	+91 611 1024	Lykabom@giasbm01.vsnl.net.in
Medispan (ciprofloxacin, clindamycin)	India	+91 44 621 2717	+91 44 621 6645	Medispan@giasmd01.vsnl.net.in
Protein S.A. de C.V. (ciprofloxacin)	Mexico	+52 5657 0888 / 5657 0767	+52 5657 0986	Protein3@ibm.net
Ratiopharm (clindamycin)	Germany	+49 731 402 02	+49 731 402 7330	
Rhone-Poulenc (ceftriaxone, ciprofloxacin)	Bangla-desh	+880 2 956 2893	+880 2 955 0009	
Samchully (ciprofloxacin)	Rep. of Korea	+82 2 527 6300	+82 2 561 6006	Chem@samchullypharm.com
Antifungal drugs				
Cipla (fluconazole, itraconazole)	India	+91 22 308 2891 / 309 5521	+91 22 307 0013	Exports@cipla.com
Eskayef (fluconazole)	Bangla-desh	+880 2 801 7501	+880 2 900 0833	Mfar@bol-online.com
FDC Limited (fluconazole)	India	+91 22 678 0652	+ 91 22 678 8123	Jogfdc@bom4.vsnl.net.in
GPO (fluconazole, ketoconazole)	Thailand	+662 248 1482	+662 248 1488	Krisana@mozart.inet.co.th
KRKA (fluconazole)	Slovenia	+386 7 3312 730	+386 7 3322 742	eva.jozef@krka.si
Laboratorio Chile S.A. (itraconazole)	Chile	+56 2 365 5175	+56 2 365 5173	Asepulve@labchile.cl
Laboratorios PISA (fluconazole)	Mexico	+52 3 678 1668	+52 3 810 1609	Rogonzale@pisa.com.mx
Laboratorios Vita (kentoconazole, fluconazole)	Spain	+34 93 475 9600	+34 93 373 3020	Tjaursch@vita-invest.com
Lyka Labs Limited (fluconazole)	India	+91 610 5900	+91 611 1024	Lykabom@giasbm01.vsnl.net.in
Medispan (fluconazole, ketoconazole)	India	+ 91 44 621 2717	+91 44 621 6645	Medispan@giasmd01.vsnl.net.in
Neon Antibiotics (amphotericine B)	India	+ 91 22 830 1038 / 836 0809	+ 91 22 837 9012	Neon@giasbm01.vsnl.net.in

	Country	Telephone	Fax	E-mail
Antiviral drugs				
Bayvit SA (aciclovir)	Spain	+34 93 473 8889	+34 93 473 7495	Malmirall@bayvit.es
Centrafarm B.V. (aciclovir)	Nether-lands	+31 76 508 1000	+31 76 503 5614	Info@centrafarm.nl
Cipla (zidovudine, lamivudine, stavudine, nevirapine, aciclovir, didanosine, indinavir)	India	+91 22 308 2891 / 309 5521	+91 22 307 0013	Exports@cipla.com
Combino Pharm (aciclovir, zidovudine)	Spain	+34 93 480 8833	+34 93 480 8832	Estampa@combino-pharm.es
CP Pharmaceuticals (aciclovir)	UK	+44 1978 661 261	+44 1978 660 130	Mail@cppharma.co.uk
Ecobi (aciclovir)	Italy	+39 10 935 280-82	+ 39 10 935 0679	Ecobi@aleph.it
FDC Limited (aciclovir)	India	+ 91 22 678 0652	+91 22 678 8123	Jogfdc@bom4.vsnl.net.in
FURP (zidovudine)	Brazil	+ 55 11 6423 6203 / 6005	+ 55 11 6423 6202	Furp@furp.com.br
GPO (zidovudine, stavudine)	Thailand	+662 248 1482	+ 662 248 1488	Krisana@mozart.inet.co.th
KRKA (aciclovir)	Slovenia	+386 7 331 2730	+386 7 331 2742	eva.jozef@krka.si
Laboratorio Chile S.A. (aciclovir)	Chile	+56 2 365 5175	+56 2 365 5173	Asepulve@labchile.cl
Laboratorios PISA (zidovudine, aciclovir)	Mexico	+52 3 678 1668	+52.3 810 1609	Rogonzale@pisa.com.mx
Laboratorios Vita (aciclovir)	Spain	+34 93 475 96 00	+34 93 373 30 20	Tjaursch@vita-invest.com
Medispan (aciclovir)	India	+ 91 44 621 2717	+ 91 44 621 6645	Medispan@giasmd01.vsnl.net.in
Pharmamed (aciclovir)	Malta	+356 693 533/5	+356 693 604	Sales@pharmamed.com.mt
Protein S.A. de C.V. (aciclovir, zidovudine, stavudine)	Mexico	+52 5657.0888 / 5657.0767	+52 5657 0986	Protein3@ibm.net
Ratiopharm (aciclovir)	Germany	+49 731 402 02	+49 731 402 7344	
Samchully (zidovudine, aciclovir)	Rep. of Korea	+82 2 527 6300	+82 2 561 6006	Chem@samchullypharm.com
Antiprotozoals, Antipneumocystis, Antitoxoplasmosis drugs				
Pharmamed (pyrimethamine)	Malta	+356 693 533 / 35	+356 693 604	Sales@pharmamed.com.mt
Cytotoxic drugs				
Cipla (methotrexate, vinblastine)	India	+91 22 308 2891 / 309 5521	+91 22 307 0013 / 307 0393	Exports@cipla.com
ECHO (bleomycin) *1999	UK	+44 181 660 2220	+44 181 668 0751	cs@echohealth.org.uk
Ecobi (calcium folinate)	Italy	+39 10 935 280 / 82	+39 10 935 0679	Ecobi@aleph.t
Laboratorios PISA (vincristine)	Mexico	+52 3 678 1668	+52 3 810 1609	Rogonzale@pisa.com.mx
Medac (calcium folinate, doxorubicine, methotrexate)	Germany	+49 4103 8006 149	+49 4103 8006 153	w.dreier@medac.de
Neon Antibiotics (doxorubicin, vincristine, methotrexate)	India	+91 22 830 1038 / 836 0809	+91 22 837 9012	Neon@giasbm01.vsnl.net.in
Wyeth Lederle (methotrexate)	Italy	+39 6 927 151	+39 6 927 1546	Cacciam@labs.wyeth.com
Opioid Analgesics				
Centrafarm B.V. (morphine)	Nether-lands	+31 76 508 1000	+31 76 503 5614	Info@centrafarm.nl
CP Pharmaceuticals (codeine)	UK	+44 197 866 1261	+44 197 866 0130	Mail@cppharma.co.uk
Labo Wolfs (methadone)	Belgium	+32 3 237 7515	+32 3 237 1827	Alfons.gilis@wolfslab.com
Laboratorie Renaudin (morphine, pethidine)	France	+33 14.112 0382	+33 14 112 0377	
Lomapharm (codeine phosphate)	Germany	+49 51 556 3200	+49 51.556 3240	Lomapharm@t-online.de
Ratiopharm (morphine)	Germany	+49 731 402 6920	+49 731 402 7344	
Technilab Pharma (codeine, morphine)	Canada	+1 450 433 2927 / 320	+1 450 979 6350	Rviauh@technilab.ca

Annex IV

Further reading:

- *Access to drugs: UNAIDS Technical Update*, UNAIDS, Geneva, 1998.
- *HIV-related opportunistic diseases: UNAIDS Technical Update*, UNAIDS, Geneva, 1998.
- *Standard treatments and essential drugs for HIV-related conditions*, WHO, Geneva, (DAP/97.9).
- *The Use of Essential Drugs, including the WHO Model List of Essential Drugs (revised 1999). WHO Drug Information*, 13(4): 249–262.
- *WHO Model prescribing information: Drugs used in HIV-related infections*, WHO, Geneva, (WHO/DMP/DSI/99.2).
- *Safe and effective use of antiretroviral treatments in adults, with particular reference to resource limited settings (*WHO/UNAIDS/International AIDS Society), WHO, Geneva (WHO/HIS/2000.04).
- *Guidance Modules on Antiviral Treatments, Module 4*. WHO/UNAIDS, Geneva, 1998 (WHO/ASD/98.1 – UNAIDS/98.7).
- *Guidelines for Drug Donations* (interagency document), WHO, Geneva,1999 (WHO/EDM/PAR/99.4.http://www.who.int/medicines/docs/pagespublications/supplypub.htm).
- *Guidelines on interaction with commercial enterprises to achieve health outcomes* (Annex to *Guidelines on working with the private sector to achieve health outcomes*), WHO, Geneva, 2000 (http:/www.who.int/wha-1998/EB_WHA/PDF/EB107/ee20.pdf) (EB107/20; 30 November 2000).

Web sites:

UNAIDS: www.unaids.org
UNICEF: www.unicef.org
WHO: www.who.int
MSF: www.accessmed-msf.org

Contacts:

For further information about suppliers or products, contact Technical Services Centre, UNICEF, Supply Division, supply@unicef.dk fax +45 35 269421

For further information on HIV test kit evaluations or the bulk procurement scheme, contact Blood Safety and Clinical Technology (BCT), World Health Organization
Fax +41 22 791 4836

For any comments on this document, or additional information that could be useful to this project, please contact:

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Fax: +45 35 269421

Essential Drugs and Medicines Policy (EDM), World Health Organization
Fax: +41 22 7914167

Department of Policy Strategy and Research, UNAIDS
Fax: +41 22 7914741

Campaign for Access to Essential Drugs, MSF
Fax: +41 22 8498404