The pharmacist's roles in preventing transmission of HIV/AIDS

Module I

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1) Introduction

The successes and failures of campaigns aimed at preventing HIV/AIDS infection have been analysed from the start of the pandemic in the early 1980s to the first decade of the 21st century.

Various positive and negative factors have been identified as having a clear effect on how the message affects targeted behaviour.

Many elements contribute to the success of programmes, such as mastery of information techniques, coordination among those involved, the coherence and clarity of the messages, ongoing adaptation to circumstances and knowledge of the target populations.
The pharmacist has a multiple role, bringing him into contact with population groups, either individually or collectively, and with the various healthcare professionals and mediators. He is therefore part of the local healthcare structure, and also has links to healthcare and educational authorities.

The pharmacist has therefore the skills and abilities needed to create intimate (horizontal) links with the population and professionals. He also acts as an intermediary between them and the healthcare monitoring systems (vertical links). Finally, he acts as a mediator between interlocutors.

This document discusses the many ways in which the pharmacist can be involved in HIV/AIDS prevention policies. Its purpose is to describe the techniques and tools that can be adapted in the light of local requirements.

It looks at the various groups of individuals involved in prevention messages, the skills required, and the roles in healthcare education and vigilance that the pharmacist is able to play in order to make a full contribution to the fight against this global challenge alongside other professionals.

2) Levels at which the pharmacist operates in AIDS prevention

2.1) Horizontal activity vis à vis contact with the population in the course of his everyday work

All pharmacists, whether they work in a pharmacy, dispensary, analytical laboratory or a college, have as part of their fundamental task the duty to act to **inform and help educate patients in matters relating to healthcare so as to preserve, maintain or restore health** after an illness.

To this end the pharmacist develops a network of relationships with patients, their friends, relatives and neighbours. A trusted member of society, the pharmacist is an easily accessible source of **reliable, useful and relevant** information on sensitive topics affecting the private life of individuals and the use of addictive substances frowned upon by the law.

2.2) Intermediary role vis à vis the healthcare authorities

Pharmacists also have a privileged position when it comes to **effectively passing on to the population**, urgently if necessary, information, recommendations, warnings and messages as to what is and is not safe, which are issued by the relevant scientific and political authorities.

Conversely, **the pharmacist can transmit information from the grass-roots to the healthcare interlocutors** with regard to local events that may have wider repercussions. He has a watch-keeping role, raising the alarm when necessary in response to the onset or evolution of any epidemic-like situation. In this way helping to limit the expansion of transmissible infections, reduce the appearance of viral resistance that is already present, and finally speed up the provision of care to people at risk and/or with symptoms of contamination.

It is important for the pharmacist to recognise and fulfil this role, particularly in terms of guidance, mediation and creation of horizontal and vertical relationships and social contacts within his surroundings.
The pharmacist is at the crossroads of available information that is vital to individuals and society at large. He must bear this responsibility of acting as a mediator, which is the foundation of the pharmacist's work and also one of the most interesting and worthwhile aspects of the profession.

3) Target populations

The work that pharmacists do to help prevent AIDS affects the general public, people living with HIV/AIDS irrespective of whether or not they are receiving treatment, and (healthcare) professionals liable to be exposed to HIV/AIDS in the course of their work. The table below lists the populations with which pharmacists come into contact

Table 1: Target populations for pharmacists' work

Type of pharmacy in which the pharmacist operates	Populations who may benefit pharmacist's services
Hospital pharmacy and community pharmacy	· Patients with HIV/AIDS infection irrespective of whether or not they are already receiving treatment
Community pharmacy	· The pharmacy team and trainees · Relatives of patients living with HIV/AIDS · Other people caring for the patient · Professionals at risk of accidents involving exposure to blood · The pharmacy's customers · The general public
Hospital pharmacy	· The dispensary team and students · Medical staff: doctors, nurses etc. · Social workers, clerical staff · Volunteers, visitors, trainees

4) Skills and training

The pharmacist passes on information to the public (healthcare and prevention education messages) and other groups in the healthcare structure (alerting the authorities and other professional groups). He is therefore responsible for the content of the messages he delivers, whether orally or in writing. He must pass on messages that are reliable, useful and relevant to the recipient (patient, general public, professionals).

4.1) Building knowledge

In order to intervene correctly and accurately in AIDS prevention, pharmacists must understand:

- the epidemiological aspects of HIV/AIDS infection globally, nationally and locally;
- transmission modes (in detail), including aspects of sociocultural behaviour;
- prevention modes, and messages to be passed on depending on the situation;
- signs of treatment toxicity;
- immediate clinical signs indicating that rapid and appropriate referral is needed;
- the treatment infrastructure available (in detail) in the country;
- the network of authorities and individuals involved.

4.2) Pedagogical skills

Messages relating to AIDS are of crucial importance, and so the pharmacist and his team must be skilled educators. They must ensure that those hearing the messages can digest and understand them. They can only be persuaded to change their attitudes and adopt healthy, responsible and civic-minded behaviour once they have been made aware of the issues and become motivated.
The pharmacist must plan and organise health education work if it is to be successful. The entire team must participate in this process for the sake of consistency.

Activities can be aimed at individuals or groups depending on the time available. It is important to ensure that the information itself does not become the dominant factor; the target must be selected first.
Learning behaviour will be affected by factors such as personality, learning abilities, psychological and physical manifestations, communication and social interaction skills, living conditions and lifestyle.

Five key questions can help the pharmacist structure the interaction with patients:

- What are the real terms of the question being asked?
- What is at stake, individually and collectively?
- What are the individual's prerequisites, his interests and desires?
- What action has already been taken?
- What are the ideal conditions for digesting the information?

4.3) Keeping up to date

All healthcare professionals working in the AIDS field must keep up to date with the latest developments, as our understanding of AIDS is evolving rapidly. Many organisations offer regular continuing training courses. The Internet is a useful source of inexpensive or even free programmes.

For example:
http://cme.hiv.cmenhiv.com/fr
http://www.who.int/health_topics/hiv_infections/en/

5) Practical aspects of intervention

5.1) Healthcare information and education

In working to develop healthcare information and education activities, the pharmacist must:
provide all useful data on the AIDS epidemic and modes of transmission
assess beliefs and correct them if necessary;
combat discrimination against people living with HIV.

The intervention must be adapted to every target population.

5.1.1) Content

5.1.1.1) Epidemiology

UNAIDS/WHO has stated that in 2003 there were 37.8 (34.6-42.3) million people living with HIV: 36.7 (32.7-39.8) million adults, 17 (15.8-18.8) million of them women and 2.1 (1.9-2.5) million children. The proportion of women being infected rises every year, and women now account for at least half of all new cases of AIDS. The number of new infections was estimated at 4.8 (4.2-6.3) million in 2003; 3 million people died this year and 20 million have died since 1981when the epidemic began.

For further details go to this website:
http://www.unaids.org/bangkok2004/GAR2004

Sub-Saharan Africa is the worst affected (25 million people living with HIV/AIDS); South and South-East Asia comes next with 6.5 million. The number of cases is rising fastest in Eastern Europe, Central Asia and the Russian Federation.
It is important to bear in mind that 95% of people living with HIV/AIDS live in developing countries, and that this trend is growing.
In most industrialised countries (United States, Canada, Australia, Western Europe) the number of new cases has fallen; the epidemic appears to have stabilised.

National, local and social aspects
Pharmacists can download AIDS distribution maps for their own country from the WHO website. These can be used to work out how many people are infected with HIV/AIDS, how many women and children are in this category, the prevalence of the disease, the dynamics of the epidemic, the principal modes of transmission, the social classes most affected, and the situation with regard to STDs.
The data can be downloaded from this address:
http://globalatlas.who.int/GlobalAtlas/InteractiveMap/

The pharmacist should be familiar with the way that data is collected (how a case of HIV/AIDS infection is notified) as this affects its reliability. This simple record will allow him to inform the populations with whom he comes into contact to increase their awareness, always remembering to adapt the prevention message to high-risk groups.

The pharmacist should contact the local healthcare authorities or international NGOs to obtain local data for his region or town.

Table 2: Features of HIV/AIDS epidemic broken down by regions of the world in December 2003 (source: UNAIDS/WHO)

Region	Start of the epidemic				Adults and children living with HIV /AIDS (in millions and range)
	1975-1979	1980-1984	1985-1989	1990-1994	
Sub-Saharan Africa					25 (23,1-27,9)
North Africa and Middle East					0,48 (0,2-1,4)
South and South-East Asia					6,5 (4-9,6)
East Asia and Pacific					0,9 (0,45-1,5)
Latin America					1,6 (1,2-2,1)
Caribbean					0,43 (0,27-0,76)
Eastern Europe and Central Asia					1,3 (0,86-1,9)
Western Europe					0,58 (0,46-0,73)
North America					1 (0,52-1,6)
Australia and New Zealand					0,32 (0,2-0,45)
TOTAL					**37,8 (34,6-42,3)**

Region	Prevalence les adultes	Of adults, percentage and nr. of women (en % et millions)	Principal modes of transmission among adults **
Sub-Saharan Africa	7,5 %	57% (13)	Hetero
North Africa and Middle East	0,2 %	47% (0,22)	Hetero, ID
South and South-East Asia	0,5 %	31% (1,8)	Hetero, ID
East Asia and Pacific	0,1 %	28% (0,17)	ID, hetero, homo
Latin America	0,6 %	35% (0,58)	Homo, ID, hetero
Caribbean	2,3 %	49% (0,20)	Hetero, homo
Eastern Europe and Central Asia	0,6 %	32% (0,44)	ID
Western Europe	0,3 %	26% (0,15)	Homo, ID
North America	0,6 %	25% (0,25)	Homo, ID, hetero
Australia and New Zealand	0,2 %	18% (0,06)	Homo
TOTAL	**1,1 %**	**50% (17)**	

* Proportion of adults (aged between 15 and 49) living with HIV/AIDS in 2003

** Hetero: heterosexual transmission; homo: homosexual transmission;
ID: transmission by intravenous drug use

5.1.1.2) Detailed information on transmission modes

Since the start of the epidemic three main transmission modes have been observed: sexual transmission, blood transmission, vertical transmission (mother/child).
To answer the questions put to him, the pharmacist must **be able to rank transmissibility** and **argue against misconceptions**.

A) *Sexual transmission*
This is the most widespread mode of transmission throughout the world, occurring when people engage in unprotected sex.
Contamination passes through the mucosae of the mouth, genitals or rectum when they come into contact with secretions or blood containing the virus.
The rectal mucosa is most vulnerable to infection.

Type of intercourse		**Risque estimé / acte**
Hétérosexuel	Vaginal	0.1%: - 0.15% (M=> W); - 0.09% (W=> M)
	Anal	Risk 10 times greater than vaginal intercourse
	Orogenitale	Some cases have been described
Homosexuel	Anogenital (sodomy)	Passive partner: 0.5 to 3%; active partner: 0.01% to 0.18%
	Orogenital (fellation)	Passive partner: 0.04%
	Oroanal	?

↗ risks of transmission depending on
Partner's viro-immunological status:
· High plasma viral load (VL)
· Primary infection in particular (peak VL after around 3 weeks)
· CD4 lymphocytes < 200/mm3
· Antigenaemia p24 >0
· Partner multiresistant to antiretrovirals
Functional factors
· Gender: (M => W) > (W => M)
· Intercourse involving contact with the rectal mucosa
· Ejaculation
· Variety and frequency of intercourse
· Menstruation and bleeding during intercourse
· First ever act of intercourse, particularly rape
Factors associated with comorbidity
· Infections, including STDs, genital lesions and ulcers
· Cervical ectopy

Legend:
M => W: HIV seropositive male having sexual relations with an HIV seronegative female
W => H: HIV seropositive female having sexual relations with an HIV seronegative male

Circumcision reduces the risk of transmission.

B) *Other modes of HIV transmission*

Transmission	Patients concerned	Estimate of risk (%)	Risk factors
By blood	IV drug users	0.67%	**High risk:** sharing syringes, needles, drugs **Medium risk:** sharing equipment used in injection (container, spoons, filters, water used in rinsing or dilution, etc.) **Co-factors associated with the practice:** immediate sharing, number of injections per day shared between 2 people, number of people with whom the drug is shared, where the shared injection takes place, where the user comes in the injection sequence **Co-factors associated with the user:** social exclusion, unemployment, living as part of a large group, exclusion from healthcare structures, membership of a high-risk social network, relationship with co-users
	Patients with haemophilia, receiving transfusion or being injected with equipment shared with other patients	Variable	**Very low risk:** Western Europe and the United States (e.g. one in every 2.5 million donations in France) **High risk:** countries that do not have a policy on monitoring sterile injection equipment, blood and organ donations.
	Healthcare professionals while at work	0,32%	By percutaneous exposure to infected blood and **higher risk** in the case of deep wounds, IV or intra-arterial administration, contact with a patient at an advanced stage of the disease and with a high viral load(in the case of contact with mucosa: 0.03%)
	Other: sport, fights, tattooing, acupuncture, deep bites	Some cases	↑ risk if needles and instruments used in tattooing are not cleaned and if they are used immediately after possible contact with HIV
From mother to child	**Foetuses and neonates**	20%	**Untreated**; ↑ in the case of high viral load, low CD4, advanced stage, STD, prolonged membrane rupture
		6%	If ZDV is administered during pregnancy, labour and the first 6 weeks of the baby's life; or if ZDV ± NVP is administered (W34-36 and labour); ↑ if breastfeeding
		1-2%	If multitherapy is administered; ↓ in the case of planned Caesarean and no membrane rupture
	Neonates while feeding	5-7%	↑ if breastfeeding and bottle-feeding are combined
Other forms of transmission	**Contact with body fluids biologiques**	**Zero**	Even if HIV has been isolated in cerebrospinal fluid, pleural fluid, bronchoalveolar fluid, saliva, tears, urine: very low concentrations

Useful information can be found at this website:
http://www.unaids.org/Unaids/EN/Resources

5.1.1.3) Countering misconceptions

HIV can only be passed on in very specific circumstances. Transmission modes are still not well understood. When talking to people or undertaking prevention activities it is important to give very clear, unambiguous messages. Always ascertain whether the person you are talking to has misconceptions, as these can have disastrous consequences for people whether or not they are infected and for their friends and family in terms of discrimination or social isolation.

The HIV/AIDS virus is not transmitted by:

- Everyday social contact: handshakes, caresses, kissing, French kissing.
- Using public facilities: toilets, showers and baths, saunas, swimming pools.
- Going to the hairdresser, medical analysis laboratory, giving blood.
- Sharing everyday objects: glasses, cutlery, plates, clothes, telephone handsets, coughing.
- Insect or animal bites, cats.

In some cultural groups it has been thought that a man with HIV who has sex with a woman who is a virgin would be cured of the disease. This is obviously not true, and increases the risk to the young woman involved because losing her virginity in this way, and being injured in the process, exposes her to a huge risk of contamination.

5.1.1.4) STIs, factors favouring HIV/AIDS transmission

Sexually transmissible infections (STIs) promote HIV transmission because of the local lesions, ulceration and inflammation they cause.

It is vital to know the main signs which patients are likely to report so that they can be referred urgently to a doctor. The pharmacist must also tell patients about prevention for the sake of their partner and have the right treatment available for these infections (see appendix 3).

The principles of care must be well understood by the pharmacist (addresses of treatment centres, information and prevention centres, treatment to be given as quickly and effectively as possible, treatment for partners). It is vital to ensure compliance with treatment.

5.1.1.5) Prevention messages

A) Preventing sexual transmission
Messages relating to preventing sexual transmission are among the most difficult to get right. Human sexual behaviour is a very delicate subject to raise irrespective of the culture, education level or social group of the individual concerned.
Furthermore, it is hard to measure the impact of these campaigns on changing behaviour, and the results are often disappointing.

The situation of women needs particular attention:

Throughout the world many women have little or no control over their own fertility. Depending on the personal, social and/or cultural background this may well be due in the first instance to a lack of discussion or understanding of the physiology and proper working of the female body. This can be seen not only in developing countries but also in industrialised countries even though the level of

education is greater there. Information is not put across effectively, from mother to daughter, between women of different generations, or at school where lessons are supposed to confer understanding.

The pharmacist has a clear role to play in health education irrespective of where he operates.
Girls and women need four kinds of information:

- the anatomical and physiological principles of the female genitals, including daily hygiene and care,
- the practical consequences of a responsible sex life: controlling fertility once sexually active, natural or chemical methods of contraception, signs of conception and what is to be expected once pregnant, problems, sexually transmissible diseases, where to go for advice, taking account of the sociocultural environment etc.
- what birth control methods are currently available: natural methods, female and male condoms, oestro-progestin derivatives (the Pill), abortion (hormone derivatives (morning-after pill) and surgery),
- the impact of HIV infection and other STIs on sex, fertility, maternity, breastfeeding, contraception, abortion, specific infections, treatments and their constraints, remedies.

Various means of communication can be used: handy and discreet leaflets, posters bearing a short message inviting those interested to come and talk, attending information meetings, bringing together small groups of women, healthcare professionals, mediators and representatives of associations, or activities in schools. The pharmacist must be able to recommend lists of bodies that can provide sympathy and advice and/or associations offering resources, dates of local meetings and events, documentation and websites etc.
Moreover, to facilitate the access to condoms, it is important that pharmacists ensure that condoms are available to the public, sold in single units and at a low price.

B) Preventing transmission by blood
HIV transmission by blood can occur:

- among drug users who share injecting equipment
- in the event of blood or organ donation
- in the event of an accident involving exposure to blood (of most interest to healthcare professionals in the context of their work).

Module III addresses the role of the pharmacist in preventing HIV transmission among intravenous drug users.

Guidance on action to be taken following an accident involving exposure to blood is given in module II.

The pharmacist must be familiar with the virus deactivation techniques (disinfection, heat, treatment of surfaces etc.) listed in appendix 2.

A little more detail on waste management: the pharmacist needs to understand the risks associated with handling material contaminated with blood or bloody body secretions. He must be able to advise those who consult him with regard to disposing of contaminated objects.

Any patients who handle syringes, needles or blades should be advised to use them only once, not to share them, and to discard them in cans or plastic bottles with a lid. Some countries or towns have facilities for disposing of contaminated waste. The pharmacist should find out about what is available locally, and if necessary help set up an appropriate logistics circuit for disposing of such objects which can be very dangerous in the hands of adults or children.

5.1.2) Communication tools

Pharmacists need to use a variety of complementary communication tools in carrying out their role as health educators. This role will involve the use of written and graphic material and the organisation of individual or group education sessions, which may, depending on the circumstances, be held:

- at the pharmacy,
- in the context of consultations with other healthcare professionals or mediators,
- in public facilities (schools etc.),
- during events organised by the local authority, associations, or healthcare professionals bringing together a group of people to discuss these topics,
- Confidentiality is of course one of the most fundamental principles in this type of activity.

The main tools that a community pharmacy can use are:

- the shop window,
- posters and billboards,
- brochure displays,
- audiovisual tools (continuous-loop film, etc.),
- team information meetings,
- information consultations and sessions.

Hospital-based pharmacists should ideally work through information meetings involving other healthcare professionals or (individual or group) patient education consultations and sessions.

5.2) Medical alertness and vigilance

The pharmacist's role in monitoring the situation sets him in the position of transmitting information between people living with HIV/AIDS (or at risk) and the authorities. **He is responsible for ensuring that any medical, psychological, social or work-related problems are dealt with in an appropriate and timely fashion.**

As the first point of contact for people coming to the pharmacy to report symptoms, the pharmacist must take specific and structured action to slow down pathological processes. His action, though it may have a low profile, may limit the risk of serious damage and ensure that the patient receives the best treatment for a better prognosis.
Anticipating these situations, drafting procedures and explaining them to the pharmacy team are the best methods for ensuring an appropriate response.

In the context of this role, the pharmacist's objectives relate on the one hand to the patient's health and on the other hand to public health consequences. Their purpose is to:

- limit or prevent HIV and STI transmission
- improve medical care provided to patients
- restrict the emergence of resistant viruses at local, national and global levels.

5.2.1) Situations in which alertness is needed

The most common scenarios are high-risk actions undertaken by infected individuals and individual emergencies presenting a relatively serious threat to the life of those concerned.

Events can arise in times of calm or of unrest: demonstrations, local or national conflict. Any risks and dangers must be assessed and anticipated.

The relevant interlocutors are patients, people taking risks which expose them to HIV/AIDS, other healthcare professionals, formal and informal groups at the neighbourhood, village and town level, and of course the local, regional and national healthcare authorities responsible for collecting data, distributing resources and influencing policy.

So the pharmacist's role is not limited to guidance; he must also act as a vector for information. To this end he must be able to record information relating to a given situation so that it can be passed on to the other healthcare professionals and healthcare authorities as appropriate.

The main situations in which alertness is needed are briefly described below. Readers are advised to consult material and websites containing clear and up-to-date information (http://www.who.int)

5.2.1.1) High-risk activities

A) Sexual risks
The main situations involving potential exposure to HIV by sexual transmission are:

- deliberate or involuntary unprotected sex (in some cultures women are unable to ensure that their partner abstains or uses protection).
- a torn condom
- unregulated prostitution,
- rape and violence, particularly in a war setting

B) Exposure to contaminated blood or body fluids
Individuals can be exposed to contaminated blood or body fluids in many situations. People who are exposed in the course of their work or as a result of their behaviour must be warned of the risks they run.

Situations in which the general public is at risk:

Intravenous drug use of illicit substances, in which users share contaminated injection or preparation material presents a high risk of HIV transmission (see Module III).

In some very poor countries adults and children make their living from waste recycling, and are therefore very exposed to infectious agents when they handle contaminated sharp objects (needles, blades).

Finally, some cultural rituals present risks of HIV exposure. These are generally initiation practices in which the blood or body fluids of several people are mixed directly or via instruments. The danger of contamination is high in these situations (examples include circumcision, infibulation, exchange of blood, scarification, tattooing).

The main high-risk situations in terms of potential HIV exposure at work relate to accidents involving exposure to blood, which affects medical and laboratory staff working in healthcare facilities, clinics and establishments. Other groups of workers can also be affected: rubbish collectors, gardeners working in public parks and gardens, sewage workers etc.

High-risk situations for patients undergoing invasive procedures include:

- nosocomial contamination of patients via equipment that is re-used and shared among patients. Some parts of Africa, Asia and Eastern Europe do not have disposable equipment for administering injections, taking samples or making incisions, or do not have reliable decontamination and sterilisation facilities.

- risks associated with blood transfusions: some countries have not yet set up safety systems for blood donations or treatments involving cell derivatives or stable blood extracts. There are various reasons for this, and commercial financial interests can block the creation of a healthcare policy aimed at making these products safe.

- the use of contaminated organs in transplants (bone marrow, kidney, liver, heart, skin etc). Some corrupt and unsafe supply circuits put recipients at great risk.

- medical practices involving the insertion of needles, such as acupuncture for example.

C) *Foetal / infant exposure (pregnancy and lactation)*
The prevalence of AIDS among pregnant women is high in many countries. It is a useful indicator of prevalence in the population as a whole. The conditions of vertical transmission of HIV from mother to child are now fairly well known. Methods of prevention during labour (administration of an appropriate antiretroviral treatment) and breastfeeding (if the mother breastfeeds) must be properly understood and taught to pregnant women, women who may become pregnant, girls, and if possible couples.

Module II describes in detail the indications for antiretroviral treatment for HIV-positive pregnant women. Intravenous or oral administration of zidovudine to women during labour and delivery and to the infant for the first 6 weeks of life have proven effective in preventing materno-foetal transmission.

Nevirapine is used in some medical or financial circumstances: unprepared labour, emergency situation and/or better cost-benefit ratio in developing countries with inadequate healthcare logistics. Other antiretrovirals should be selected only after weighing up the benefits and risks to mother and foetus. Medium- and long-term toxicity for children, even if they remain HIV-negative, has been established in terms of mitochondrial cytotoxicity years after exposure to antiretrovirals.

5.2.1.2) Contribution of pharmacists to HIV screening

The pharmacist is often the first healthcare professional consulted when clinical signs appear. It is therefore important that he is able to identify on sight the clinical signs reported by patients which may indicate HIV infection and refer them for care as quickly as possible (screening test, introduction of appropriate therapy). Patients must be notified of their serological status as soon as possible, and made aware of the precautions they need to take for the benefit of others and themselves. If pharmacists adopt the right approach to these patients they can help limit the spread of viruses and prevent potential contamination of those close to the patient.

It is difficult, but essential, to realise the urgency of the matter. Some situations are self-evident and are listed below. Readers are advised to consult **Module II** for further details.

- Cutaneous and allergic symptoms; oral mycoses
- Severe fatigue, asthenia and decline in activity
- Significant weight loss, severe diarrhoea
- Neuropsychological symptoms, convulsions
- Respiratory symptoms such as coughing and spitting
- Sudden decline or impairment of sight
- Signs of drug dependency: skin eruptions, behaviour and signs associated with withdrawal (aggression, mood swings, sweating, myotic pupils etc).

When the pharmacist suggests that an individual go for screening, he must be sufficiently persuasive to convince the patient to follow through without compulsion.

If a patient asks questions of the pharmacist on the basis of clinical signs, high-risk behaviour, social circumstances (marriage, disputes etc.) or doubts, the pharmacist must stress the benefits of screening. The following arguments can be put forward:

- If the individual is contaminated, taking the test will allow him to face up to the situation, accept it and especially to take action to manage it. It is vital to know as quickly as possible what can be done and how to obtain care and information. The patient must also consider how to talk about his condition and take on this new responsibility so that he does not contaminate those close to him (in particular, ensuring that he does not have unprotected sex).
- If the test is negative, all the patient's doubts will disappear and he will experience clear mental relief.

In addition, it is much better for an individual to take a pro-active role in managing his own health rather than perhaps being screened in less satisfactory clinical conditions or, even worse, without his knowledge.

Of course, many psychological, cultural and social barriers exist and must be anticipated by the professional. These include:

- thinking about the disease in its social and moral context, leading to fears of discrimination and rejection;
- the belief that nothing can be done once a person is HIV-positive (drugs, cost, care);
- the belief that HIV/AIDS was invented by scientists or is a biological weapon made to control people;

- that prevention is impossible in a context where women cannot insist that they are protected;
- the difficulty that doctors and healthcare professionals have in raising these subjects with people and discussing them properly, as a consequence of which the full import of the matter is not appreciated;
- lack of facilities, cost;
- inadequate promotion of the need for screening;

The pharmacist can provide full information with regard to screening centres and should explain what will happen, including pre- and post-test counselling, the rights and obligations of all parties concerned with regard to information and confidentiality whatever the outcome of the test might be.

5.2.1.3) Preventing the appearance of resistant viruses in the treated population

The pharmacist's role in preventing the appearance of resistant viruses in patient populations is an integral part of the prevention effort. By restricting the appearance of resistant viruses the pharmacist helps to reduce their spread and reduce the severity of the pandemic.

To this end he must be able to:

- identify treatments which have become inadequate as a result of **side-effects or drug interactions (see Module II)**
- assess patient compliance, analyse the pharmaceutical reasons for poor compliance (difficulty in taking the drugs, poor conditions, forgetfulness, inadequate diet, inappropriate drinking etc.) and refer the patient to other healthcare professionals (access to programmes, funding for treatment)
- report drug supply circuits that do not provide drugs of the minimum required quality. The pharmacist can pass on information to the healthcare authorities in his country, reporting cases he has observed and submitting samples of products thought to be involved.

Resistance is more likely if the patient interrupts the treatment. It is therefore important for the pharmacist to systematically investigate all drug-related factors that may encourage resistance.

He must therefore consult patients being treated to ascertain whether:
- drugs are being stored in conditions which might cause them to deteriorate,
- any of the drugs are out of date
- any side-effects have occurred
- any drug interactions are possible (for example, if the patient is self-medicating)
- the patient is not complying with his treatment
- the patient is facing problems in gaining access to treatment

5.2.2) Recommendations for optimum intervention

The political and social contexts of the various countries affected by the HIV/AIDS epidemic vary widely. Resources available to pharmacists can range from nothing at all to unlimited resources. The number of practising pharmacists is sometimes well below what is needed to carry out the many specific tasks facing them. In these situations some pharmaceutical work is, unfortunately, very often carried out by other professionals or by people with absolutely no qualifications or training. These gaps in pharmacist cover are very disturbing, particularly with regard to AIDS.

5.2.2.1) Be well trained

Irrespective of the resources available, the quality of pharmaceutical services depends on training, keeping knowledge up to date and passing on skills to colleagues in the same team.

5.2.2.2) Know your local healthcare structure

Pharmacists must keep a contact book listing the addresses, mobile phone and fax numbers and email addresses of doctors, midwives, fellow pharmacists, medical centres, establishments providing care, hospitals and clinics, patient and mediator associations, practitioners of traditional medicine and shamans.

Contact details for healthcare facilities are useful to help the patient find his way through the bureaucratic jungle.

These mini-databases can be consulted either on paper or electronically: you could have a wall-chart showing where the various groups involved are based, keep a directory, on the Internet, or in a PDA.

Any contacts that can help structure or improve the support network for people living with HIV/AIDS will enhance the quality of this ever-changing set of resources.

5.2.2.3) Organise your work appropriately

A community pharmacy should be set up so as to allow the pharmacist to perform to the best of his ability and work effectively:
This includes, in particular:

- generating decision tables to help the community pharmacy team to intervene quickly
- organising patient consultation facilities (where in the pharmacy consultations can take place, when the pharmacist will be available, what to do when he is absent, etc.)
- knowing how much time the pharmacist has to take action
- having blank sheets of paper available to record situations encountered in the community pharmacy so that analyses and actions can be tracked.

5.2.2.4) Evaluate your activity

Evaluating activity allows you to identify possible barriers to efficacy and adjust the activity as a result. To allow this evaluation to take place you should, if possible, record facts in writing to ensure that messages are preserved.
It is also essential to keep running records of data for each patient and on particular topics. This data can then be analysed and compared with the benefit of hindsight, and can inspire a fresh approach or new ideas. Finally, it is important to link activities carried out by various members of the pharmaceutical team to the member who carried them out.

These assessments will allow those who conduct them to demonstrate their professional commitment, and are particularly useful when trying to raise funds from sponsors.

The easiest quantitative indicators to establish are:

- the number of information leaflets handed out,
- the number of condoms sold or given away,
- the number of contacts or referrals for a person facing problems,
- the number of pharmaceutical opinions given,
- the number of adverse events recorded, resolved or not resolved.

The following qualitative indicators are relatively easy to establish:

- the level of knowledge about general issues and procedures in the team.
- the results of an audit carried out on a particular day with an evaluation of the situations covered,
- a satisfaction index based on the views of people using the community pharmacy

5.2.3) Analysis of situations

Intervention sheets can be completed by the pharmacist for each of the situations presented below, modelled on the sheet for accidents involving exposure to blood presented in appendix 1. This tool can be a visual prompt to carry out correct and appropriate action when the event occurs.

A reminder of the main recommendations for each situation follows.

5.2.3.1) Sexual exposure

Action will vary according to whether or not the pharmacist is consulted within 72 hours.

A screening test is vital as soon as the risk is known in order to determine the patient's HIV status. If the patient is found to be HIV positive, it is important to ascertain whether or not this is a case of de novo contamination.

Patients must be made aware of prevention measures.

5.2.3.2) Blood exposure (accident, cultural ritual, etc.)

When faced with exposure to potentially contaminated blood, the first thing to do is to establish how much time has passed since the event so as to decide on the most appropriate action (see appendix 1).

Other recommendations include:

- proper cleaning: the wound must immediately be cleaned with appropriate disinfectants (see appendix 2) and clean dressings.
- referring the patient for a screening test
- referring the patient for medical care and information

In the case of cultural rituals, the patient's family must be made aware of the risks.

5.2.3.3) Breastfeeding

Here again it is important to estimate the length of time that has elapsed since exposure to infected milk. If action is taken sufficiently soon after exposure, medical care can prevent the virus being passed on to the foetus.

6) Conclusion

The pharmacist has important responsibilities in the establishment and success of HIV/AIDS infection prevention programmes and STIs. He stands at the interface between patients, carers, doctors, nurses, family and friends. This unique position gives him a remarkable opportunity to **help transmit and adapt information** between all concerned so as to facilitate the general care and quality of life of the various people in this individual network.

Practical procedures for emergency intervention can be devised in line with national and/or local recommendations, ensuring the best response to high-risk situations. This will allow the pharmacist to fulfil his role as a facilitator and mediator in the prevention and care chain.

The pharmacist and his staff must undergo **training** in HIV/AIDS infection, STIs, their modes of transmission and prevention. The pharmacist must keep his knowledge up to date and must also **remain aware of the healthcare policy of the country in which he is working** and promote its application to patients and healthcare professionals with whom he comes into contact: **prevention is part of his obligation to operate in a coherent and coordinated manner in the interests of society at large.**

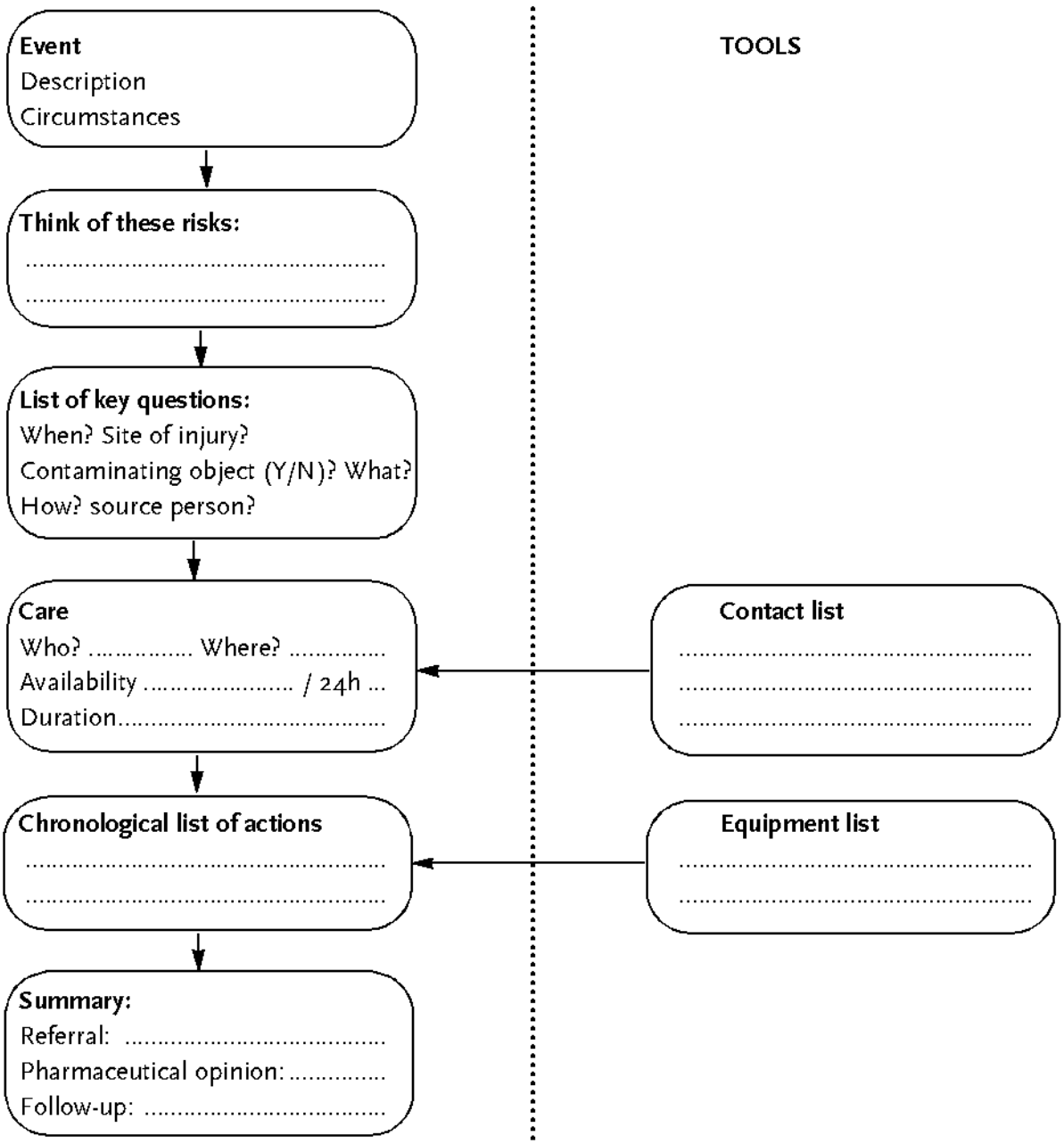
7) APPENDICES

Appendix 1 – Specimen pharmaceutical intervention form
Appendix 2 – HIV deactivation techniques
Appendix 3 – Table of common sexually transmissible infections

7.1) Appendix 1 - Example intervention form

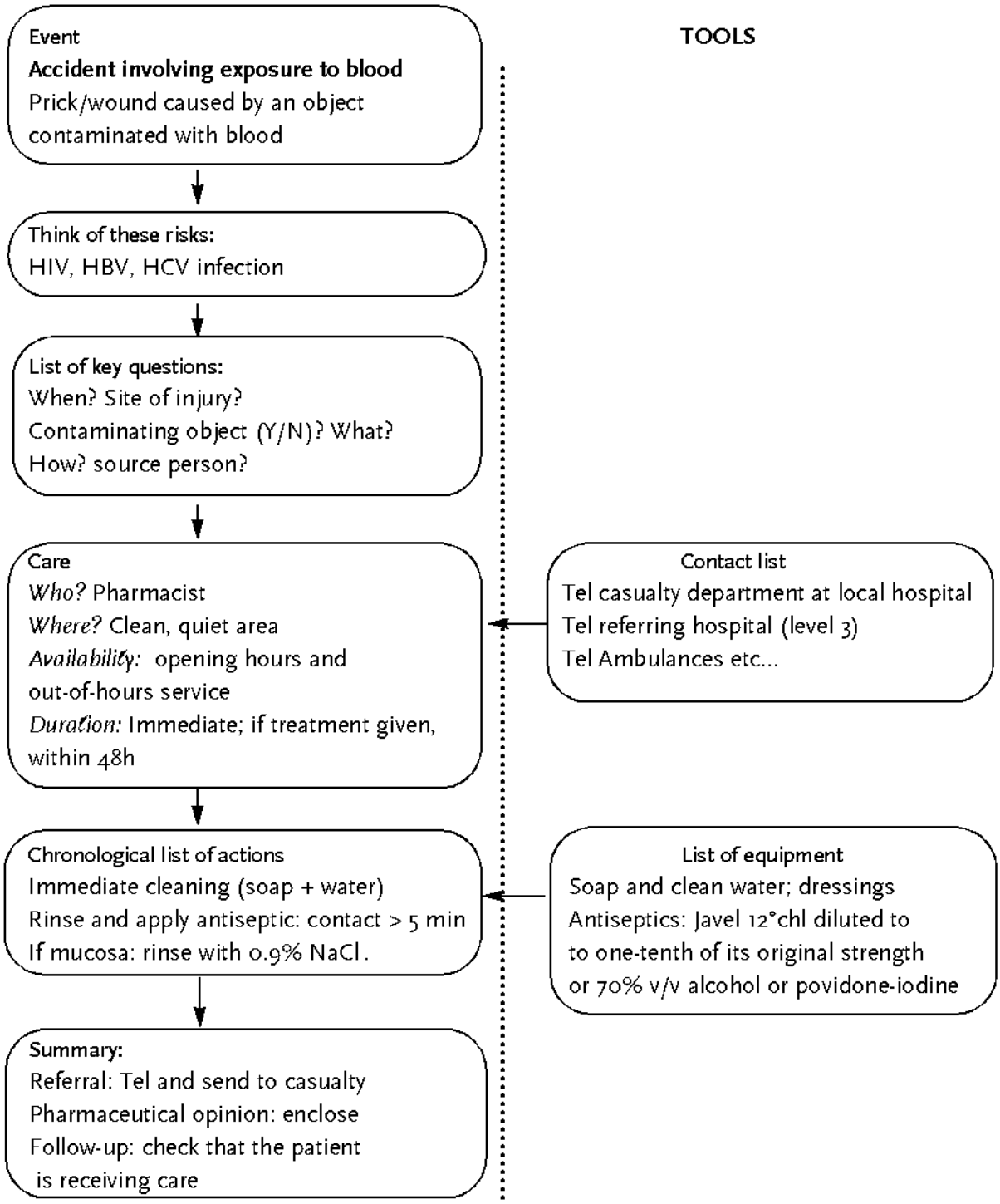
INTERVENTION FORM
FOR A PHARMACY EMERGENCY

Name of the healthcare professional who treated the event:
Date of the event:
Follow-up:
Reviewed by the senior pharmacist: on: at .....
Document dated: .... /...../ .....



INTERVENTION FORM
FOR AN ACCIDENT INVOLVING EXPOSURE TO BLOOD

Name of the healthcare professional who treated the event:
Date of the event:
Follow-up:
Reviewed by the senior pharmacist: on: at .....
Document dated: .... /...../ .....



7.2) Appendix 2 - HIV deactivation techniques

HIV DEACTIVATION

Disinfectants Antiseptics	Deactivation time	Indication	Comments
0.1% sodium hypochlorite (= Javel water 12°Chl diluted to one-tenth of its original strength)	15 minutes	Surface disinfectant	Note the expiry date Surface corrosion
0.5% sodium hypochlorite (= Eau de Javel 12°Chl diluée one-fifth of its original strength)	1 minute		
2,5% Iodine solution (prepared by adding 1 part of 10% solution to 3 parts of water) 4% to 10% iodine solution Iodine or povidone alcohol	15 minutes	Antiseptic	Colours skin
70% v/v alcohol (ethanol) (prepared by adding 8 parts of ethanol 90%v/v to 2 parts of water)	1 minute	Antiseptic	Volatile, short period of action
0.1% quaternary ammonium	10 to 30 minutes	Antiseptic et surface disinfectant	Limited shelf life
Chlorhexidine 1 to 2 %	15 minutes	Antiseptic	
2% Glutaraldehyde 1% Formaldehyde	10 minutes	Surface disinfectant	Activity reduced by protein residues
0.2% Glutaraldehyde	30 minutes to 1h	Instrument disinfectant	

N.B.: oxygenated water is not very effective
The other physical agents that deactivate HIV are:
56 °C heat applied for 30 minutes
121 °C heat (steam steriliser > 2 bars) applied for < 15 minutes
UV rays and gamma rays **are not effective** in deactivating HIV

In review, the two antiseptics of choice are javel water and iodine solutions. In effect, javel water (because widely available commercially) and iodine in alcohol (very inexpensive to produce and easy to store) are highly effective.

As additional information, commercially available javel water is titrated at 12ffl chlorine, which corresponds to 12g of active chlorine per liter

7.3) Appendix 3 - Summary table of the main sexually transmissible infections

Manifestations	Abnormal vaginal secretion +/- itching +/- burning sensation in the vulva	Vulva oedema +/- excoriations	Pus from the neck of the womb (Cervicitis)	Purulent urethral discharge	Dysuria	Adult treatment	Treatment for pregnant or breastfeeding women
VAGINITIS							
Trichomonasis (*Trichomonas vaginalis*)	YES yellow-green +/- offensive smell	no	YES possible	possibly YES (men)		Oral **metronidazole:** 2g, single dose or if treatment fails 0.4 to 0.5g, bid, for 7days No alcohol	metronidazole CI during the first trimester of pregnancy
Bacterial vaginosis (*Gardnerella vaginalis* +/- other bacteria)	YES uniform grey-white Offensive smell (*«rotting fish»*)						
Candidosis (*Candida albicans*)	YES thick, creamy-white	YES	no	rarely YES (men)	sometimes YES (women)	**Clotrimazole**: One 0.5g vaginal suppository, single dose or **Clotrimazole:** One 0.2g vaginal suppository per day for 3 days or **Nystatin:** One 0.1 MIU vaginal suppository per day for 14 days	
CERVICITIS							
Gonorrhoea (*Neisseria gonorrheae*)	YES	no	YES mucopurulent	YES (men)	YES (women and men)	Oral **Cefixime**[1], 0.4g, single dose or IM **spectinomycin**, 2g single dose or IM **ceftriaxone** 0.125g, single dose	Oral **cefixime,** 0.4g, single dose or IM **ceftriaxone ,** 0.125g, single dose
Chlamydiosis (*Chlamydia trachomatis*)	YES	no	YES	discrete YES (men)	rarely YES (women and men)	Oral **azithromycin,** 1g, single dose or oral **doxycyclin** 100mg bid for 7 days	Oral **azithromycin** 1g, single dose or oral **erythromycin** 0.5g qid for 7 days

1 Ciprofloxacin (0.5g oral, singe dose) is no longer effective in most Asian countries; resistance is spreading throughout the world and so this drug should be avoided. Trimethoprim/sulfamethoxazole and kanamycin are no longer active in most countries; they should be avoided unless a bacterial sensitivity test has been performed. Azithromycin (oral, 2g, single dose) can treat both gonorrhoea and chlamydiosis, but the digestive effects are greater at this dose.

Risk factors to be evaluated:

- age >21 years
- multiple partners (or a new partner) within the past three months and depending on the sociological context

IST avec ulcérations, vésicules ou végétations		
Syphilis *(Treponema pallidum)*	- **Initial phase:** the only symptoms are firm, painless **ulcers** which may not be noticed - **Second phase:** macular or papular eruptions on the palms and soles of the feet; adenopathies, mucous lesions - **Late phase:** neurosyphilis, cardiovascular disease	**Benzathine penicillin** IM: 2.4 MIU, single dose; for advanced syphilis, 2.4 MIU / 7d, 3 weeks - If the patient is allergic: oral **doxycyclin** 100 mg bid, 14d- - If the patient is pregnant: oral **erythromycin** 2g/d, 14d; (30d if the patient has advanced syphilis)
Chancroid *(Haemophilus ducreyi)*	- The only symptoms are **ulcers** of the genital organs, which are painful and bleed freely when touched; - Painful adenopathies +/- fistula	Oral **erythromycin** 2g/d, (bid or tid), 7d or oral **ciprofloxacin** 0x5g bid, 3d or oral **azithromycin** 1g, single dose or IM **ceftriaxone** 0.25g single dose
Venereal lymphogranuloma *(Chlamydia trachomatis of a specific serotype)*	- Small ulcer (**chancre**) often absent and painful inguinal ganglion; - Rare chronic condition	Oral **doxycyclin** 100 mg bid, 14d or if the patient is pregnant: Oral **erythromycin** 2g/d, (bid or tid), 14d
Herpes infection *(Human herpes simplex virus 2)*	- Multiple **vesicles** on the genital organs (women: vulva, vagina and cervix; men: penis, sometimes urethra) - Primary infection: fever and adenopathies; frequent relapse	-Level 1 analgesic + local disinfection**; -if possible, oral **aciclovir** for 24h, 1 to 1.2g/d, 7d for primary infection, 5d if relapse.
Papillomaviroses *(Human papilloma virus HPV)*	- **Condyloma acuminatum** (raised = **warts**) or flat, painless, multiple; often affecting the genital organs and the anus, more rarely the rectum, vagina, cervix and urethra; highly contagious, frequent relapse. - Some HPVs may develop into cancer (cervical)	-Local disinfection chlorhexidine + cetrimide - small condylomas: 0.5% **podophyllotoxin*** applied locally (CI for pregnant women) - condyloma > 3cm or cervical, urethral and rectal: cryotherapy, electrocoagulation or excision
Donovanosis *(Calymmatobacterium granulomatis)*	- Endemic in some tropical and subtropical countries - **Granulomatous** lesion, extensive painless nodules on the external genital organs; **ulcers** that bleed freely when touched	Oral **azithromycin** 1g D1, then 0.5g/d qd, >14d or oral **doxycyclin** 100 mg bid, 14d or oral **erythromycin** 2g/d, (bid or tid), 14d or oral **cotrimoxazole** (0.8g SMX+0.16g TMP) bid if also HIV: + IM **gentamicin** 3 to 6 mg/kg/d qd

- Use **chlorhexidine + cetrimide** for local disinfection, administer **gentian violet** for 5 days
- **Podophyllotoxin** is extremely caustic; a **0.5%** concentration can be applied by patients who have been well trained but **10** or **25%** concentrations must only be applied by skilled professionals; these concentrations (**10** and **25%)** must not be applied to cervical, urethral or rectal lesions.
- In the case of external lesions: apply vaseline or zinc oxide cream to healthy skin to protect it, and apply **0.5%** podophyllotoxin cream only to the lesions. Internal lesions (only the vagina) are treated by healthcare professionals;
- Leave to dry. Wait 3 to 4 hours before washing with soap and water
- Apply twice a day for 3 consecutive days per week; treatment should not be given for more than 4 weeks at the most

8) List of abbreviations

A
AIDS: acquired immune deficiency syndrome

C
CI: contraindicated

F
FIP: fédération internationale pharmaceutique

H
HIV: human immunodeficiency virus
HPV: human papilloma virus

I
ID: intravenous drug
IM: intra-muscular

M
M: man

N
NGOs: non governmental organizations
NVP: nevirapine

P
PDA: personal digital assistant

S
STD: sexually transmissible disease
STI: sexually transmissible infection

U
UNAIDS: United Nations Joint Co-sponsored programme on HIV/AIDS
UV: ultraviolet

V
VL: viral load

W
W: woman
WHO: world health organization

Z
ZDV: zidovudine

9) Bibliography