REPRODUCTIVE HEALTH AND AIDS IN SUB-SAHARAN AFRICA
Problems and Prospects

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The significant slowdown in the rate of HIV/AIDS spread in developed countries is not mirrored in other regions of the world, especially Asia and Africa. In neither region are the dominant modes of transmission related, as in developed countries, to MSM (Men having Sex with Men), injecting drug use or blood transfusions; transmission is mainly through heterosexual intercourse – at higher risk where there is an existing sexually transmitted disease –, and mother-to-child transmission during pregnancy or breastfeeding. The essentials for proper prevention, therefore, are not just information about marital sexual behaviour inside and outside marriage, but also the prevalence of STDs, people's own serostatus awareness, breastfeeding practices, couples' fertility goals, and possible contraceptive practices. Annabel DESGRÉES du LOÛ *reviews the available literature on these issues in the African setting.*

That AIDS is a major epidemic in Africa is an established fact. The proportions of the epidemic and the severity of the disease are radically altering population dynamics: in some large African urban centres, AIDS is the main cause of adult mortality (Garenne *et al.*, 1995; Delcroix and Guillaume, 1995) and some projections foretell a one-third to three-quarters rise in infant mortality in the worst-affected countries (Bureau of the Census, 1994; Delcroix and Guillaume, 1995). The already-stretched financial and human resources of the health care services are foundering under the tide of patients and added costs incurred by this chronic disease. One area particularly affected by this epidemic in every respect is *reproductive health* – a term which embraces the health needs of all aspects of human reproduction. By analogy with the WHO definition of health as "a state of complete physical, mental and social well-being", reproductive health is defined not simply as an absence of disease or difficulties during the reproductive process, but rather as all the conditions in which the reproductive process

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can be accomplished in a state of physical, mental and social well-being. In other words, it is the ability of women and men to undertake sexual activity safely, whether or not pregnancy is desired, and if it is desired, for the woman to carry the pregnancy to term safely, deliver a healthy infant and nurture it in good health (WHO, 1992; Pachauri, 1994). The AIDS epidemic affects all aspects of this definition: safe sexual activity is not easy in the context of AIDS in Africa; desiring pregnancy also becomes problematic when one of the partners is HIV-positive; it is not that easy to deliver a healthy infant when one in seven women seen at antenatal clinics (as in Côte d'Ivoire for example) is HIV-positive; and finally, breast-feeding by an HIV-positive mother can be fatal, since the virus can be transmitted through breast milk.

Here, I review the literature on how AIDS is impacting reproductive health in Africa. It lays no claim to be an exhaustive review, because some of these issues have been extensively studied; instead, I have tried to summarize current knowledge and research on the influence of the AIDS epidemic on sexuality and reproduction in order to gauge the implications and stress the challenges now faced by the various health programmes. I start by setting the growing AIDS epidemic in Africa in its family and sexual context. I then review the impacts of the epidemic on marital and partnership sexual intercourse and fertility in that setting, and conclude by analysing existing and possible interactions between AIDS prevention campaigns and programmes to improve reproductive health.

I. – Family and sexual context

The family context of the growing AIDS epidemic

Most of the early AIDS research in Africa was conducted among 'high-risk' groups – commercial sex workers, lorry-drivers, male labour migrants in large urban centres, etc. – who, by definition, are outside the family population.

Most of these studies focused on sexual relations, since the primary transmission mode of HIV in Africa is through heterosexual contact. Very little research was done on sexual transmission of the virus in a family setting and its implications, because the risks of sexual intercourse in this setting were viewed as marginal to the spread of the disease. But the epidemic spread rapidly and all sections of the population in all age groups are now affected; antenatal clinics, where the WHO sentinel surveillance posts to monitor the progression of the epidemic are based, frequently report 10% or higher seroprevalence in large urban centres: the current rate is approximately 15% among pregnant women in Abidjan (Djomand *et al.*, 1995; Welffens-Ekra *et al.*, 1996). This makes it essential for anti-AIDS work to not only study the epidemic among groups considered as engaging in high-risk behaviour, but also from the family angle, particularly as the

organization of sexual relations, which is central to the AIDS epidemic in Africa, cannot be taken out of the context of the organization of the family and reproduction (Hogsborg and Aaby, 1992).

Between-country situations may vary widely, but some broad guidelines can be discerned. African societies are often polygamous; in sub-Saharan Africa, more than a third of women are in polygamous marriages, in proportions varying widely by country and age (Klissou, 1995): the proportion of married women in polygamous unions is over 50% in Togo (Agounke *et al.,* 1989), 57% in Burkina Faso (Klissou, 1995), 36% in Niger (Kourgueni *et al.,* 1993) and only 14% in Rwanda (Barrère, 1994). The proportion increases with age, decreases with educational level, and is higher in rural settings than urban areas (DHS surveys cited above). This high level of polygamy is compounded by high marital mobility. Divorce rates are high: a Bissau study revealed that 30 to 40% of first marriages end in divorce (Hogsborg and Aaby, 1992). This marital mobility is facilitated by polygamy, which ensures that most first-marriage divorcees remarry (Klissou, 1995).

Sexual abstinence in the postpartum period, although declining, is another salient feature of the family context in African countries. In most societies, a live birth is always followed by a period of sexual abstinence extending through part or all of the breastfeeding period, which on average lasts up to two years. This protracted post-natal abstinence is often cited as the main reason for polygamy (Klissou, 1995) and a factor in the increased number of sexual partners. Marianne Hogsborg and Peter Aaby (1992) showed that in some groups in Bissau where abstinence was generally observed (approximately 80% of respondents reported having remained abstinent throughout breastfeeding), it was associated with an increase in the number of extra-marital partners as men turned to other sexual partners during breastfeeding.

Another more recent characteristic of African families is the rising incidence of female-headed households. Unstable marriages, the rise in labour migration taking men away from home, polygamy with some men maintaining wives in different places, has put many women in the non-traditional role of household head. Even married women do not always live under the same roof as their husband, increasingly so with the woman's marriage order: only 55% of women who are wives of marriage order 3 or above live in the same house as their husband according to the Bissau study (Hogsborg and Aaby, 1992). Statistics on woman-headed households are very incomplete, but do give an idea of the extent of the phenomenon: the proportion of woman household heads in most sub-Saharan African countries was estimated at 15 to 25% in the decade 1980-1990 (Pilon, 1996a). As the trend deepens, it is wreaking radical changes to societies, especially family patterns and relations between the sexes (Pilon, 1996b), which are decisive in the setting of the AIDS epidemic. Family structures and the 'geographical distribution' of families significantly impact the number of sexual partners taken by individuals. The increasing frequency of

physical non-cohabitation in sub-Saharan Africa, in particular, is producing an increase in the number of sexual partners any individual has at a given time. The Bissau study reported that single men aged 25-40 averaged three to four partners, and married men (including monogamously-married men) two to three (Hogsborg and Aaby, 1992).

Demographic trends have also led to a discernible increase in extra-marital sexual activity in recent years: recent surveys into nuptiality and age at first intercourse have revealed a rise in age at marriage or union of any form (Caraël, 1995a; Cleland and Ferry, 1995; Lagarde *et al.*, 1996a; Delaunay, 1994). At the same time, age at first sexual intercourse has fallen: so there is a substantial increase in 'pre-marital' sexual exposure – a high risk period for STD and AIDS transmission. So, Emmanuel Lagarde *et al.* show that in the Mlomp region of Senegal over the past thirty years, male age at marriage has risen by 7 years, age at first sexual intercourse has fallen by 10 years, and the number of pre-marital partners has increased (Lagarde *et al.*, 1996a). In the Niakhar region of Senegal, between the 1965 and 1972 birth cohorts, median age at first marriage has risen by eighteen months but age at first birth has remained unchanged, suggesting an increase in pre-marital sexual activity (Delaunay, 1994).

Finally, the AIDS epidemic is both evolving within and influencing its family and sexual context, modifying and weakening the structure of families affected by the disease (Delcroix and Guillaume, 1995). There is a disappearance of nuclear-type families, and a rising incidence of lone-parenthood, and complete or incomplete orphaning due to death or desertion.

Sexual relations surveys There is abundant literature on sexual relations. Most AIDS infections in Africa are sexually transmitted, so clarifying high-risk practices means studying sexual behaviour. On this aspect of research, let me first mention the ANRS' *Sexualité et sida. Recherches en sciences sociales*, a conspectus of its own research on the matter. While it does not focus specifically on Africa, it does give a major conceptual framework to this type of research on sexuality, and merits some consideration.

The work sets out considerations on sexuality as a research topic. As Michel Bozon puts it, it is not an insignificant research subject: "steeped in meanings as it is and enveloped in an 'enclave of intimacy', human sexuality is not within the scope of ordinary observation" (Bozon, 1995). This means finding new "approaches and strategies of observation", whence the AIDS epidemic opened up a hitherto fairly uncharted field of research. That field is now wide open, and surveys into sexual beliefs, attitudes and practices abound. The WHO, in particular, has conducted general population surveys of sexual behaviour (KABP – *Knowledge, Attitudes, Beliefs and Practices*; and PRS – *Partner Relations Surveys*: Caraël, 1995a) in fifteen developing countries (limited to aspects directly related to the AIDS epidemic). These surveys were carried out between 1989 and 1991 among

representative samples of 1,000 to 4,000 people aged 15-49; nine of the fifteen surveys related to African countries. They were particularly concerned with premarital sexual activity as being the highest-risk period for contracting HIV and STD. The survey results are mixed to say the very least: as regards sexual experience among young people (15-19 years), 1 to 69% (according to country and region) of boys and 0 to 56% of girls claimed to have had sexual intercourse before marriage (Caraël, 1995a)! No general conclusions can be reached about urban/rural differentials. However, the within-country sexual behaviour of young people in all urban centres closely resembles that of their rural counterparts. The most proximate factor to premarital sexual activity is educational achievement (positively dependent), but not in all cases. Situations for the other factors are very mixed. One aspect surveyed was virginity at the time of first regular intercourse, which was estimated from observations of the number of respondents who reported the same age at first sexual intercourse and first marriage. While this can only be an approximation because of the probability of under-reporting of pre-marital sexual relations among women, some conclusions can be drawn. The apparently high proportion of girls who are *virgo intacta* on marriage correlates with a low level of extra-marital sexual activity after marriage: this makes it a good indicator of the power of social control on female sexuality. On the other hand, the same indicators do not correlate for men. These surveys also reveal a fairly low frequency of coitus with the regular partner – a finding made in other specific surveys conducted by other researchers: Emmanuel Lagarde *et al.* (1996a), in a survey carried out in rural Senegal, described an average coitus frequency of twice a month among established couples; Uche Isiugo-Abanihe (1993) observed a high frequency in Kenya: approximately twice a week.

A significant incidence of extra-marital sexual intercourse is reported in all the surveys reviewed: 10 to 50% of men according to country, and from 0 to less than 20% of women in the WHO surveys. Men consistently report a higher level of extra-marital sexual intercourse and more partners than women (Caraël, 1995b): in urban Nigeria, over half the men and 2 women in 5 reported having had extra-marital coitus (Isiugo-Abanihe, 1993). These figures vary with religion, education (frequency of extra-marital relations rising with educational achievement), and whether the union is polygamous or monogamous: polygamous men tend to be more faithful than monogamous men because they have a range of sexual partners within marriage, but monogamously-married women are more faithful than their polygamous counterparts because their husband is not shared (Isiugo-Abanihe, 1993). Seasonal migrations are a significant factor of increased 'casual' sexual activity, whether with commercial sex workers or otherwise (Pilon *et al.*, 1993). Emmanuel Lagarde (1995) found that, in the village of Mlomp in Casamance, 42% of the men who leave their village to collect palm wine as seasonal workers have coitus with casual partners, against 13% of those who remain in the village. Where extra-marital sexual rela-

tions are concerned, it is not easy to distinguish those with sex-workers from others. Simply, it would be wrong to classify all sexual relations which involve an exchange of gifts or money as prostitution; sexual relations are frequently accompanied by gifts in Africa, and do not necessarily involve prostitution proper. In the current economic crisis, it would seem that an increasing number of women have extra-marital sexual relations accompanied by gifts which help them to make ends meet; but they neither consider themselves nor are regarded as commercial sex workers (Lagarde *et al.,* 1996a.; Isiugo-Abanihe, 1993). It is a phenomenon particularly encountered among unmarried women (widowed, divorced) who lack the financial support of a husband (Lagarde *et al.,* 1996a), and adolescent girls who, as John Caldwell explains, have to finance their studies but have to get by on their own because of the absence of their fathers, either working elsewhere or living with another woman (Caldwell *et al.,* 1993).

Finally, this rapid contextualization of sexual intercourse in sub-Saharan Africa would not be complete without a reference to the high proportion of individuals affected by sexually transmitted diseases (STDs), which are a major risk factor for HIV transmission. Approximately 30% of adult men in African countries have had a sexually transmitted disease at least once in their lives, and far from all of them always seek treatment (Ferry, 1995). In a recent survey in Nigeria, a third of sexually active men and women claimed to have had at least one course of treatment for an STD (Orubuloye *et al.,* 1994). There is no reliable data on the female prevalence of STDs, because they go largely under-reported by women, who may neither know about nor notice them. Because the situation is probably much worse than observations suggest, therefore, Benoît Ferry (1995) stresses the urgent need to screen for and treat these diseases in anti-AIDS campaigns. So far, screening and treating of STDs has tended to be secondary in health programmes, because they did not, on the face of it, represent a major threat to society; among the Yoruba of Nigeria, for example, it was a social norm and even an imperative for a man to have had at least one attack of venereal disease (Orubuloye, 1996). The AIDS epidemic changed all that: STDs are both an indicator of high-risk behaviour and a major biological cofactor of the HIV infection risk (Hinman, 1995). Screening for them is now paramount to identify and offer prevention to at-risk individuals, while treating them is vital to reduce the risk of HIV infection. So, all present-day anti-AIDS campaigns include an anti-STD aspect, and many countries actually have 'national anti-AIDS/STD programmes'.

The state of family planning Family planning is still underdeveloped throughout sub-Saharan Africa, although some countries have gone further down that road than others, especially in East Africa and Southern Africa (Botswana, Kenya, Zimbabwe). The chief reason for this lag is politicians' reluctance to engage with po-

pulation issues and authorize, then support, family limitation programmes (Vimard, 1997; Locoh, 1994).

Demographic and Health Survey (DHS) data for 1993 showed very low contraception prevalence in Burundi, Mali, Senegal and Uganda; the contraceptive methods used were also mainly traditional and so fairly ineffective (3% contraceptive prevalence in Mali). Zimbabwe, on the other hand, had an observed contraceptive prevalence of 43%, with a significant proportion of highly effective methods – 31% of women used the pill (Jolly and Gribble, 1996). Much of the current evidence points towards rapid expansion of planned parenthood programmes continent-wide, especially in countries where they did not previously exist: governments are gradually turning towards birth control policies (Vimard, 1997) and recent figures show a highly significant decrease in fertility in the above-mentioned East African countries (Botswana, Kenya, Zimbabwe), and a slighter but real decline in other countries, including West African states like Nigeria and Senegal (Cleland *et al.,* 1994).

II. – Immediate impact of AIDS on reproductive health

Modification of couples' sexual behaviour

As mentioned earlier, there has been little study of how AIDS has influenced stable couples to modify their sexual relations, compared to the copious literature on 'high-risk' sexual relations (casual sex, sex with prostitutes, etc.). Early anthropological research on the AIDS epidemic was reluctant to analyse sexual practices for fear of an approach which would brand AIDS as the result of abnormal sexual practices. Pressure from later epidemiologic studies which pointed to casual sex as a key risk factor led anthropologists to try and clarify the determinants of these specific types of 'high-risk' sexual behaviour. Now, because in high prevalence areas the epidemic seems also to be spreading through sexual intercourse within stable couples, they, too, are coming under study, but it is still a largely-unexplored field of research.

In many African societies, marriages are not necessarily based on emotional ties between the spouses, and men's extra-marital sexual activities are not their wives' concern (Caldwell *et al.,* 1993). Many women HIV carriers have thus been infected by their husbands, and yet it is difficult for them to negotiate condom use for marital intercourse, even knowing of their husband's sexual activity with other partners. Generally, there is little discussion of sexual matters between spouses, co-wives and generations (Caldwell *et al.,* 1993; Aonon, 1996). These judgements may be somewhat hasty, however, and some surveys have shown that change is possible. I.O. Orobuloye *et al.* conclude from surveys among the Yoruba in Nigeria in the 1990s that women do have some say over sexual relations

with their husbands. First, there are the sexual taboos codified by the community: sexual intercourse is prohibited during menstruation, the postpartum period or upon attaining grandmotherhood. The woman can therefore adduce these taboos to deny sexual intercourse, and will be supported by the community against the husband's non-supportive reaction. But what of a woman's attempt to refuse intercourse outside these commonly sanctioned taboo periods? I.O. Orobuloye *et al.* found that of 600 women questioned, 580 had already refused intercourse at least once with their husband, 21% citing one of the community taboos, but 23% as part of a marital quarrel, and 56% that they did not feel like it. So women can 'just say no'. Admittedly, husbands often do not take kindly to it: only 32% accept it with equanimity, others react badly or seek sex elsewhere. In a polygamous society where men can easily find another partner, this risk of seeing the husband turn to another woman is apparently the main reason for Yoruba women not refusing sexual intercourse.

But what if one partner has an STD? Firstly, only a third of those with an STD told their spouse, generally at the doctor's request after explaining that treatment is effective only if the man and the woman are treated at the same time. On learning of their husband's infection, three out of four women refused intercourse until the end of the treatment. Such a refusal is perfectly defensible in the Yoruba community, where intercourse is taboo in situations of 'impurity' or 'pollution', to which STD can be likened. In 16% of cases, intercourse continued but with condoms, which are a contraceptive method used by this group. Husbands seem to put up with enforced abstinence if the treatment is short. In the opposite case – i.e., where the woman is STD-infected – only one man in three abstained from marital intercourse during the treatment, and one man in twenty-four sought a divorce. It seems that men in this society tolerate their spouse's infection more than women, because they often feel responsible for the infection. So Yoruba women have some control of their marital sexual activity insofar as they can deny intercourse to an infected partner, or negotiate condom use. That said, there is always the risk of a non-supportive reaction (infidelity, anger) or even desertion by the husband. Also, the study considers only STDs, not HIV, for which, unlike STD, there is no cure at all, let alone a short-term one, and which has to be lived with. Also notable is the low condom use rate: the problem of infection is addressed by abstinence during the treatment period – a solution inapplicable to HIV infection, which is lifelong. What the studies do, however, is open up a pathway to AIDS prevention in marriage, since they show that there can be dialogue between spouses in sexual matters. It is notable that in the survey population, the woman has some power over her own intercourse with her husband, but apparently none in persuading her husband to use protection in sexual relations with other women. The authors of the study recommend measures on this (Orubuloye *et al.,* 1993).

A qualitative survey carried out in Abidjan among couples one of whom is HIV-positive revealed that all types of situation were currently encountered (Vidal *et al.,* 1994): the HIV-positive individual may or may

not inform their partner of their serostatus. When they do, reactions are varied: often the couple continue living together but abstain from intercourse, and the uninfected spouse takes 'outside' partners. In a very few cases, the couple have regular safe sex with a condom. One couple reported always having had protected sex, except for a short period, so that the woman (HIV-negative) could get pregnant because they wanted a child. In many cases, the infected partner does not tell their spouse but either carries on as before on the assumption that their spouse is inevitably already infected and so condom use is to no avail, or finds non-AIDS risk arguments for using a condom: pregnancy avoidance, gastric infection, etc. This is a very interesting study in revealing the complex tangle of situations within discordant couples. The same type of survey on the sexual behaviour of couples affected by HIV, but this time with a quantitative aspect, would be very relevant.

A prospective study of fifty HIV-positive women in Kigali between 1988 and 1991 to identify their counselling and social services needs makes the same findings: three years into the survey, 21% of the women had still not told their partner of their serostatus. However, the reactions of partners when they did tell them were more supportive than expected: understanding and acceptance were most common. Less than half the partners asked to be tested. Condom use in couples was twice as high when the partner was informed of the test result, but even among these couples a third still did not use condoms; nor did the incidence of pregnancy decrease after women had their test results. In general, however, communication within couples about HIV (on the test, condom use, unborn children, intercourse, etc.) remained very poor. The article's authors conclude from the results that what is needed is counselling for couples rather than individuals alone (Keogh *et al.*, 1994).

Condom use within couples – especially married couples – is an abiding problem. Prevention campaigns need improvement in this respect, because the messages they deliver are not always clear. So, Marianne Hogsborg and Peter Aaby observed that the result of prevention campaigns in Guinea based on the message "use condoms with partners you don't know" was that, once people concluded they knew their partner, they stopped using condoms, while women refused sex with a condom because they felt humiliated by the implied inference (Hogsborg and Aaby, 1992).

Another consequence of the AIDS epidemic in this area is that fear of infection, very much present in high seroprevalence countries, creates a fear of sexual intercourse, and fear of marriage. In Uganda, for example, Jackson Mukiza-Gapere and James Ntozi (1995) found young people turning away from marriage for fear that "marriage can kill". At the same time, some married individuals renounced all non-marital relations to avoid the risk of infection.

AIDS and fertility Relations between AIDS and fertility behaviour seldom feature in studies on sexuality. Not one abstract in the ANRS' *Sexualité et sida. Recherches en sciences sociales*, for example, mentions the interactions between fertility, reproductive goals and the risk of HIV transmission. In the list of work presented, only one team has considered it, but only as a review of the way AIDS is approached from the medical angle, with a cursory estimate of its place in gynaecological practice (Plaza *et al.*, 1995). This paucity of the literature on the subject is surprising. There is no doubt that the problem is much more acutely posed in African societies, where high fertility is the ideal, than in Western societies.

By contrast, attempts have been made to project the influence of AIDS on future fertility levels. In a summary article on the possible influence of HIV on fertility in sub-Saharan Africa, Simon Gregson notes that models predict the epidemic as having no or very few direct consequences on the crude birth rate as long as prevalence rates remain low: it would take prevalence rates of 25-30% among women aged 15-45 years to effect a significant reduction in the crude birth rate (Gregson, 1994). On the other hand, many indirect effects of the AIDS epidemic on fertility are to be expected because the possible interactions between the disease and the determinants of fertility are many and complex.

The epidemic acts first by changing the population age-structure through the disease's differential effects on age patterns of mortality, the most affected groups being adults of reproductive age and children. But while a reduction in the size of reproductive age groups will produce a decline in the crude birth rate, increased infant mortality may have the opposite effect, decreasing birth spacing by a reduction in the breastfeeding and postpartum abstinence periods (Gregson *et al.*, 1997); it must also be borne in mind that the death of a child creates a replacement need in countries where high fertility is an economic need and social imperative (Dozon and Guillaume, 1994).

The fertility impacts of the anti-AIDS approach are also very mixed. On the one hand, the main AIDS protection methods currently available – condoms and abstinence – may bring about a fertility decline. Conversely, increasing STD screening and treatment, as part of current anti-AIDS programmes, should produce an increase in fertility by reducing impaired fertility. It should not be lost to sight, however, that its very nature as a contraceptive may be a reason for rejecting condom use in communities where fertility is highly valued (Delcroix and Guillaume, 1995). Indeed, relations between reproductive goals and the context of the AIDS epidemic are highly complex: the desire for children may be curbed by fear of passing on the infection or leaving them orphaned; conversely, as Damien Rwegera observed in Côte d'Ivoire, for people living with AIDS, children were the means by which the family survived (Rwegera, 1995). The birth of a child is a pledge of durability for the affected couple, and for an

HIV-positive individual, increasing his or her fertility is a way of warding off death.

Then there is the problem of breastfeeding: for HIV-positive mothers, breastfeeding is a key factor of mother-to-child AIDS transmission. However, it has not so far been decreed inadvisable in developing countries, whatever the mother's serostatus, because the WHO felt the risks of bottle-feeding outweighed those of mother-to-child HIV transmission. This view could be revised in the future in the light of contrary findings (Gray *et al.,* 1996). Bottle-feeding, it seems, should be considered (with caution and on a case-by-case basis) when the mother is HIV-positive (UNAIDS, 1996), which could pose problems of birth spacing (because breastfeeding plays a contraceptive role) which must be taken into account.

Finally, studies in various African countries point to a possible connection between infertility and HIV serostatus. The sperm of symptomatic HIV-infected men display a reduced fertilizing capacity (Setel, 1995); studies of HIV-infected women cohorts show reduced fertility. A 1985 Nairobi survey carried out among commercial sex workers demonstrated a connection between HIV serostatus and subfertility (Simonsen *et al.,* 1990). In Zaire, the same connection between subfertility and HIV-infection was found among women surveyed between 1986 and 1989 (Batter *et al.,* 1994). In Gabon, again in the 1990s, a survey into the fertility-related responses to retroviral infection seroprevalence revealed a positive correlation between HIV seroprevalence and primary infertility (Schrijvers *et al.,* 1991). The initial findings of two longitudinal studies in progress in south-west Uganda confirm these observations: in the Masaka district between 1990-1996, Lucy Carpenter *et al.* observed a 20% fertility decrease among HIV-positive women compared to HIV-negative women adjusted for age and marital status (Carpenter *et al.,* 1997). In the Rakaï district, a group follow-up commenced in 1995 showed a 55% reduction in pregnancy prevalence among HIV-positive women compared to non-infected women (Gray *et al.,* 1997). This observed subfertility among HIV-infected women may be partly due to the fact that seropositive women are more frequently unmarried, reduce their sexual activity when ill, and may be more responsive to contraceptive advice. But these factors do not account for all the difference, because most of the women surveyed were asymptomatic and, as mentioned earlier, counselling HIV-positive women against reproduction has little effect. It seems that this subfertility of HIV-positive women can be partly attributed to biological factors, therefore.

The frequent association of STD and HIV could explain this phenomenon, because some STDs do cause infertility (Retel-Laurentin, 1979). However, in the survey by Gray *et al.,* the lower prevalence of pregnancy among HIV-infected women remains significant even when checked by STD, especially syphilis. The more likely assumption, therefore, is of a lower pregnancy rate, or higher risk of negative pregnancy outcomes (miscarriage, stillbirth) among HIV-positive women. The earliest available data

on this seems to confirm the latter assumption (Gray *et al.,* 1997; Desgrées du Loû *et al.,* 1998).

So, a vast field of research is opening up on the complex interactions between AIDS and fertility, which may equally result in increased or decreased fertility. We could apparently expect to see a fertility decline among affected individuals and groups in African countries, but probably more as a result of the physiological damage done by HIV infection to women's and men's fertility, and more widespread condom use, than conscious choices made by the infected persons themselves (Setel, 1995; Gregson *et al.,* 1997). The proportion of infected individuals who know their serostatus is too low for any modification in their reproductive behaviour (if there is one – which remains to be studied) to affect total fertility. This is especially so in that both partners must be involved in the decision, but in Africa infected individuals seldom inform their partners on learning their serostatus.

There is a consensus in the literature, however, that this is a fairly unexplored area in which fieldwork data are scarce (Gregson *et al.,* 1997). Improved knowledge and a better understanding of the interactions between HIV infection and fertility are needed, in particular to work out programs which integrate AIDS prevention, family planning and reproductive health (Setel, 1995).

Whither the levirate? The AIDS epidemic may also call into question a widespread African practice: the levirate or widow's lot. In many African communities, a dead man's widow or widows are remarried to one of his brothers, or even to a son of one of his mother's co-wives. This practice accounts for a considerable proportion of all marriages: Marc Pilon's study in Togo estimated that in 1985 it accounted for 45% of remarriages of women and 10% of all marriages (Pilon, 1988). However, Annie Le Palec (1994) in Bamako found that where a man had died of AIDS, doctors tended to warn an elder brother of the deceased so that the widow(s) should not remarry in the same line and "continue to plunge the family into mourning". Thus, the singular situation arises that a deceased's wives may not be warned about their husband's disease, nor their own possible seropositive status, but the husband's family is "warned against them". Annie Le Palec (1994) and Bernard Taverne (1996) pointed up the dangers of this behaviour which puts potentially infectious women, ignorant of their own serostatus, on the sexual and matrimonial market, when the custom of levirate could, with the necessary precautions, be a good way of caring for HIV-positive women and their children by enabling them to remain within the lineage to which their children belong.

III. – AIDS campaigning from a reproductive health perspective: what forms of prevention?

Target preventive measures

Define knowledge of the risk

The WHO KABP surveys referred to earlier contained questions about AIDS-awareness, the modes of transmission and severity of the disease, and patient outcomes (care, management, ...). Public awareness of AIDS seems closely related to access to media and education. Young people – especially the better-educated – are best-informed about the disease. AIDS-awareness is generally lower among women than men, and early marrieds. Of those who had heard about AIDS, a high proportion (71 to 88%) knew that it could be transmitted by a seemingly healthy person. This is a surprising finding because the idea of an asymptomatic infectious disease – i.e., one which individuals can carry without themselves developing – is not immediately obvious. In all probability, it is due to the success of information and prevention campaigns waged in these countries, especially as the result correlates positively with access to media. The idea of transmission through sexual contact has been well-assimilated (more than 90%), again largely under the influence of education. In the same way, the fact that AIDS can be transmitted by transfusion or injection, and mother-to-child transmission during pregnancy, were known to more than 80% of the groups surveyed. It must be stressed, however, that knowledge of perinatal transmission, which was quite high in the general population surveys, declined radically in surveys of pregnant women alone. This is reported in two surveys: one carried out in Kigali, Rwanda (Ladner *et al.,* 1996) the other in Kinshasa, Zaire (Heyward *et al.,* 1993); whereas previous surveys in the same cities had indicated that 90% or more of women of reproductive age were aware of the risk of mother-to-child HIV transmission, 30 to 50% of pregnant women in the later surveys seemed unaware of the risk. These differences may be attributable to the survey methods used, but may also reflect the difficulty pregnant women have in coping with the idea of this type of AIDS transmission. Very little was known about the risk of mother-to-child transmission through breastfeeding. In a recent survey into family planning and reproductive health knowledge and practices in the town of Yopougon in Abidjan, fewer than 7% of interviewees cited breastfeeding as a way of passing on the virus to children (Toure *et al.,* 1997). Much of this ignorance is due to the lack of any reference to it in prevention campaigns: the strategic choices on breastfeeding and AIDS in Africa are complex ones. Because of the risks of malnutrition related to bottle-feeding, the financial cost of bottle-feeding and the symbolic aspects of breast-feeding, official campaigners have long been reluctant to call for

infected mothers to stop breastfeeding, and so have played down this mode of HIV transmission (Desclaux, 1995).

A detailed description or analysis of all the surveys carried out into AIDS risk perceptions is a study in its own right and far exceeds the scope of this review. I shall simply cite the findings of the WHO KABP surveys that a large section of the public regards the AIDS epidemic as a major health problem (approximately two thirds of respondents) and as a personal risk (over half the respondents). At the same time, people reported having changed their sexual behaviour as a result: fewer multipartnerships, less use of prostitutes, sexual monogamy, ... Condom use, on the other hand, was very rarely cited (Cleland, 1995). The significant number of respondents reporting behaviour changes (over 50% of men who were aware of AIDS, and approximately 30% of women) must be approached with caution, however. First, they are only claims; then, the KABP survey questions on behaviour change quickly followed those on the awareness of AIDS as a serious illness. That may have skewed the replies, as respondents might find difficulty admitting that they had not changed their behaviour when they had just acknowledged perceiving AIDS as a major personal and public health threat. It might therefore be better-advised to regard these claims more as a measure of AIDS perception than of real behaviour changes resulting from it.

Small-scale, point-in-time surveys carried out contemporaneously with the WHO PRS and KABP, moreover, reveal few behaviour changes: in Bissau, few respondents felt at risk of AIDS in 1990, and only a minority reported using a condom, and then only occasionally (HIV-2 seroprevalence was approximately 5% in Bissau in 1990, Hogsborg and Aaby, 1992). In Mlomp, in rural Senegal, almost one adult in three reported having had at least one casual encounter during the year preceding the 1994 survey. Of them, a further third reported using condoms "most of the time". Groups with the highest-risk sexual behaviour (widowed or divorced women, migrant seasonal workers) also take the fewest precautions, and in particular make least use of condoms in casual sex (Lagarde *et al.,* 1996b).

Significantly, the KABP surveys omit any direct reference to the family, the fact that an infected individual can transmit the disease to his spouse and children, proposed strategies for protecting spouses and children from the disease, etc. AIDS is always approached from the angle of 'high-risk sexual behaviour', i.e., intercourse with commercial sex workers or non-spousal partners, and never in terms of a disease capable of affecting all sections of the population and found within couples and families.

Risk awareness and behaviour change

As Marcel Calvez (1995) aptly points out, improving public awareness – and especially that of 'at-risk' groups (determined from surveys of sexual behaviour) – of the AIDS transmission risk is not enough, because awareness of a risk does not necessarily mean that avoiding action will

be taken, especially where sexuality is concerned. The survey of the sexual behaviour of urban married couples in Nigeria clearly illustrates this paradox: in the survey population, Uche Isiugo-Abahine (1993) observed a very high rate of extra-marital sexual intercourse at the same time as a high level of awareness about AIDS and its modes of transmission. Respondents cited casual sexual intercourse as a major risk factor in AIDS transmission, but only a third of them thought that fear of AIDS had changed extra-marital sexual behaviour, while most claimed not to be concerned by the epidemic and intended to continue having unprotected casual sex. The same type of remark recurs in the WHO surveys (Ingham, 1995) and in other cross-sectional surveys: in Senegal, Emmanuel Lagarde *et al.* found that the groups with highest-risk sexual behaviour were also the best-informed about AIDS (Lagarde *et al.*, 1996).

Marcel Calvez suggested that these contradictions could be better understood by considering sexuality as an object of research. We must bear in mind that sexual activity takes place in an emotional setting, and so, even from a prevention angle, cannot be considered in terms of risk-taking alone, because "the deciding factor in sexual intimacy seems to be not health preservation, but the partners' mutual recognition of one another's emotions" (Calvez, 1995). Few studies on risk and improved prevention take this aspect of sexuality into account. Nathalie Bajos and Domenica Ludwig's peer review of the literature on risk and risk accommodation classifies them into two broad groups (Bajos and Ludwig, 1995). One takes an individualistic approach, making individuals' health concerns predominant, based on the premiss that, for an individual "health preservation behaviour is natural and paramount". Accordingly, high-risk behaviour stems from a misperception of the risk. This type of analysis is necessarily oversimplistic on several counts: firstly, its working hypothesis is that behavioural change is a decision taken by the individual independently of emotional, social and especially sexual relations and their setting. Then, the individual's sexual history is often disregarded, even though it has direct consequences for the uptake of new practices. Lastly, the models used are often simplistic, with a dichotomous variable (condom: yes / no) which does not square easily with the diverse range of risk accommodation strategies.

The second group, by contrast, takes into account the basic sociocultural principles which individuals use to define risks. They look at risk definition as the fusion of experience, social and personal identity, and an epidemiologic and preventive rationale. Health is not the paramount concern. In Benoît Bastard and Laura Cardia-Vonèche's studies, for example, sexuality is defined not as an object in itself but as one component of a wider whole, "the emotional and sexual interplay between two people". Their study shows that only a very small minority of individuals see sexuality in health terms. Most people see sexuality only in terms of intimacy and pleasure, and the desire to enter new relations far outweighs if not completely effaces health concerns (Bastard and Cardia-Vonèche, 1995).

That calls into question an entire prevention rationale whose driving force was individual health preservation.

This criticism of models for high-risk behaviour analysis based solely on individual risk perception is also found in the article by Jean-Paul Moatti *et al.* These authors show that the highly rationalist models used often produce only circular results, in which the explanatory factors "are actually only another variant of the dependent variable they purport to explain", and the beliefs advanced as causes of behaviour are very often only efforts to explain away that behaviour *ex post*. Finally, these models always start from the false premiss that the social norm is zero risk, or total safety – false because ways of rationalizing the risk-taking exist, especially where the emotions are concerned. Using the "subjective expected utility" economic model, these authors show that maximizing protection against the risk of HIV transmission is far from always being the most rational alternative for the individual. They advance the interesting postulate that, rather than assessing what risk is being run, the individual estimates the regret he/she may feel after a course of behaviour. Prevention could therefore be steered in this direction, with for example, "messages about condom use to maximize the anticipated regret if it is not used with a partner of unknown serostatus" (Moatti *et al.*, 1993).

This entire discussion on risk-taking and the importance of integrating emotional factors in the AIDS risk is particularly interesting in the family context, where affection for the partner, fear of estrangement, and concern for children far outweigh concerns of self-preservation. So, it must be borne in mind that women in African families must balance the risk of contracting the AIDS virus against that of her husband's rejection if she attempts to negotiate condom use or a halt to family building (which may seem to outweigh the risk of bearing an HIV-infected child).

Define and improve prevention programmes

AIDS prevention can be considered on two levels in reproductive health terms: prevention of sexual transmission as part of family planning programmes, and prevention of vertical mother-to-child transmission.

Interactions with family planning

A three-pronged approach must be taken to reduce sexually transmitted HIV: information on modes of transmission to encourage at-risk behaviour changes, prevention and treatment of STDs, and promoting condom use. On the face of it, family planning centres are ideal for this type of project. Their particular merit is to reach women – especially uneducated women (Rutenberg *et al.*, 1994) – who tend to have less access than men to other sources of information (media, prevention campaigns, etc.). Although operating in the

same sphere of relations – sexual relations –, family planning programmes do not have the same function as anti-AIDS campaigns, since they are directed towards fertility control, and the admittedly close relationship between fertility and sexual intercourse is no less delicate for that. A series of questions arise, therefore, demanding urgent answers: how will condom promotion (as part of the fight against AIDS) impact contraceptive use? How will resources be allocated between service providers? Can family planning programmes ignore the AIDS epidemic? (Adeokun, 1994).

In an excellent review of the relationship between AIDS and family planning programmes, Saroj Pachauri explains why family planning centres, including those focused on reproductive health, often fail to take account of problems related to sexuality, especially their client groups' sexual health needs. For example, most centres have no services for the diagnosis and treatment of STDs or reproductive tract infections, despite the major impact such infections have on individual fertility, or rather infertility. The emergence of AIDS has stimulated the interest of public authorities in the treatment of STDs, but STDs and family planning have very often been separate vertical programmes with no interactions, instead of a single programme integrating the different aspects of reproductive health (Pachauri, 1994). Some attempts have been made to integrate programmes, usually unsuccessfully. The pressure of economic and demographic priorities brings the risk of a return to vertical programmes. The Indian family planning program offers an instructive example: initially intended to encompass all aspects of reproductive health, it became targeted primarily on reducing population growth, entirely neglecting the needs of adolescents, the unmarried, the infertile, and reproductive tract infections or unwanted pregnancies. In resource-poor developing countries, is it really feasible in the midst of an AIDS epidemic to develop integrated programs which cater for all aspects of reproductive health, given the cost of combating AIDS and STDs? The implications, especially for resource reallocation, must be considered before such services are put in place. Opponents of integration argue that the fight against AIDS is expensive and complicated, and that integrating it within family planning programmes could stigmatize them. Its proponents, on the other hand, contend that family planning centres are the most appropriate ways of reaching sexually active persons, and that they have the qualified staff and technologies necessary to promote safe sexual intercourse (condoms, spermicides, etc.).

Saroj Pachauri has examined the various aspects of such a project. The first step is to integrate the diagnosis and treatment of reproductive tract infections into family planning programmes, because they interact with one another: the presence of a reproductive tract infection may lead to the failure of contraception, either directly because the patient blames the contraception for the infection, or indirectly, because infection is an obstacle to fertility, so individuals are reluctant to voluntarily reduce fertility which they see as in doubt.

Also, family planning services have been operating in some countries for the best part of thirty years, and are among the best-evaluated and highest-profile health programmes: many lessons drawn from the family planning experience can be used in the fight against AIDS. For example, it is known that individuals must be offered a broad range of solutions from which to choose those most suited to them, that communication must be developed with sexual partners, the importance of counselling, support groups, the approachability of health care personnel, the testifying role which satisfied 'clients' can play.

Lastly, AIDS must be made an element of maternal and child health programmes: firstly, because the high rates of mother-to-child transmission (10 to 50% according to the study) is making AIDS a major child health issue in the worst-affected countries, and one likely to cancel out the improved child survival rates of recent years. Also because, although results are lacking on the matter, HIV-positive women seem to have a higher incidence of premature births, low-birth-weight children, miscarriages and foetal deaths. Finally, the HIV virus has been found in the breastmilk of HIV-positive mothers (Gray *et al.*, 1996), which raises a serious public health problem in countries where breast-feeding is the main and safest source of food for new-borns (Pachauri, 1994).

While the debate on this issue is now well in hand, few field schemes have been tried out. In Africa, particularly, there is virtually no integration between the two types of programme, whatever the paper aspirations, chiefly because family planning programmes are under-developed. So anti-AIDS campaigns are waged separately with separate funding (Adeokun, 1994). Among the very few noteworthy attempts at integration is that reported by Ricardo Vernon *et al.* A leading Latin American private family planning agency agreed to integrate a three-pronged anti-AIDS campaign in its programmes: handing out AIDS prevention information, distributing condoms via agency instructors, and putting educational messages across in the media. This pilot scheme revealed a large demand for information on AIDS, not just from at-risk groups but also among normal family planning centre client groups. It also emerged that family planning centre instructors were able to address these information needs. Finally, one of the most important findings of the study was that integrating AIDS prevention did not impact negatively on family planning, and in particular did not harm the image of condoms, which was seen as a preventive instrument rather than one of 'sexual licence' as might have been feared. This study concludes on a very optimistic note, therefore, recommending closer integration of anti-AIDS campaigns with health education programmes already in place (Vernon *et al.*, 1990). The converse effect was reported in Burkina Faso, where an AIDS/STD prevention pilot scheme had positive family planning repercussions, because two-thirds of those who used the condoms distributed did so at least in part as a pregnancy avoidance strategy (Tankoano, 1995).

While not concerned with an integration scheme, the study by Naomi Rutenberg *et al.* in Tanzania confirms the close linkages between the two

types of program: in the married couples observed in the study, men who used condoms with their wives were more likely to use them in extra-marital relations (Rutenberg *et al.,* 1994). That would suggest that the information delivered by family planning is also used for other, extra-marital, sexual intercourse. The same study, however, reported that men who used condoms for marital and extra-marital sex also had the most extra-marital intercourse. Given the earlier finding that the most at-risk groups also tended to be the best informed, it is reasonable to wonder where cause and effect lie: do these men have more extra-marital intercourse because of their knowledge, gleaned from family planning information, that they are protected; or, conversely, do they take more precautions because they knowingly engage in high-risk behaviour, and thus seek out information from any source (family planning or elsewhere)? The study omitted to ask the men about the source of their information on condoms. The ingoing assumption – but it is only an assumption – is that it comes from family planning services.

Even so, there are obstacles to merging the two types of programme (Pachauri, 1994). Firstly, they address different target groups: in theory, family planning advice is addressed to all women, which in reality mainly means married women, rarely adolescents or childless women, and, worse still, rarely men. Cost and priority considerations dictate that anti-AIDS/STD campaigns are often targeted only on high-risk groups. Integrating anti-AIDS/STD campaigns into family planning programmes would therefore mean opening them up to a wider target public, with appropriately trained staff to signpost clients with a high-risk of reproductive tract infections towards relevant solutions. Then, there is the technology issue: the same methods are not effective to prevent reproductive tract infections and pregnancy. Oral contraception, for example, protects effectively against pregnancy, but not infection. This means developing a method which fulfils both functions equally well, but also one which prevents infection but not pregnancy for infected couples who want to have children. Is that feasible? Finally, most family planning services are used by married women, and while, as we have seen, they may be a primary target, it must also be appreciated that these women often have little ability to assert dominance in the sexual realm. The messages put out must take account of this and develop specific measures for them. The nature of the sexual encounter gives prostitutes more negotiating power, but other women may not have the leverage to negotiate condom use with a non-compliant partner (Pachauri, 1994).

Finally, we have seen that lone women – unmarried, widowed or divorced – are a group particularly at risk for STD and AIDS transmission (Lagarde *et al.,* 1996a.; Rutenberg *et al.,* 1994). But such women are not, on the face of it, a primary target for family planning services, as presumably not being involved in reproduction. This particular avenue needs further exploration, to determine how these women's needs might be addressed by family planning centres and anti-AIDS campaigns.

To conclude with one problem which, as far as I am aware, has not yet been taken into account in anti-AIDS programmes: postpartum abstinence. As Marianne Hogsborg and Peter Aaby found in Bissau, the protracted period of postpartum sexual abstinence traditionally recommended to avoid "contaminating the mother's milk" is a factor for "sexual licence" among men who comply with the taboo; it creates an entitlement to "compensatory" extra-marital sexual intercourse (Hogsborg and Aaby, 1992). In their study, these authors suggested condom use during breastfeeding to enable sexual intercourse while "protecting" the mother's milk, but to little avail. This may be an idea worth taking up, however, as individual antipathy to condom use has receded under the effect of information campaigns. In any event, action on postpartum abstinence may be worthwhile, since the tradition seems to be a major contributor to sexual multiple partnerships.

Decrease mother-to-child transmission

One key way to reduce mother-to-child transmission, given the current unavailability of treatments in Africa, would be to persuade HIV-positive women to reduce their fertility. That will be no easy task.

In the study in urban Rwanda cited earlier, Susan Allen *et al.* (1993) showed that prevention campaigns to this end had failed. In their study, 1,458 women of reproductive age were tested for AIDS and given information about the disease, its modes of transmission, and especially mother-to-child transmission. In the counselling phase, each HIV-positive woman was informed about the risks of pregnancy for herself and her child, and oral contraception was advised. In spite of this, half the HIV-positive women who used oral contraception at the time of the test had discontinued it one year after the test. In the two-year post-test and -instruction follow-up period, 43% of the HIV-positive women became pregnant. Of these, women with fewer than 4 children at the time of the test were significantly more likely to fall pregnant again than the others. The HIV test results and accompanying instruction, therefore, were not followed, in this study, by decreased fertility among HIV-positive women. On the contrary, it seems that HIV-positive women with fewer than 4 children were in a "rush" to complete their fertility. Moreover, as the authors of the study suggest, for a woman who must live with HIV, becoming pregnant may be a way to continue a normal lifestyle despite the infection, to reduce the risk of losing spouse and family support. Post-HIV test counselling, therefore, would not seem sufficiently influential to overcome the cultural, psychological, or quite simply practical obstacles (cost of contraception) facing a woman who plans to reduce her fertility. The article concludes by recommending that linkages be forged between AIDS prevention and family planning services, because HIV-positive women who wish to halt reproduction need special support from the community as a whole.

The validity of a policy to dissuade HIV-positive women from further reproduction is open to question, however, given the fact that asymptomatic HIV-positive women (which accounts for the very great majority of seropositive pregnant women) have a 70 to 80% chance in each pregnancy of giving birth to a perfectly healthy, non-HIV-infected child (Dabis *et al.*, 1993). A culture in which fertility is highly prized and childless women are easily marginalised may justify the risk-taking, especially as the family support networks still found (although they are changing) in African societies give some women the certainty that their child will be brought up by a relative and so not be orphaned by their death.

Other pathways for decreasing mother-to-child transmission should perhaps be explored: treatments which decrease the risk of transmission, but are affordable to developing country populations, for example. In joint clinical trials conducted in France and the United States, significant reductions in mother-to-child transmission were recorded after zidovudine-AZT was administered to the mother during pregnancy and labour (CDC, 1994). However, this is a costly treatment, and the trial did not include breastfeeding women. This rules it out for Africa, therefore, not least on cost grounds. Clinical trials are under way in developing countries to test treatments which, although still AZT-based, are more adapted to the technical and economic constraints of developing countries (Dabis *et al.*, 1996; Lallemant, 1996). Other ways of reducing mother-to-child transmission of HIV can be envisaged alongside treatment by antiretrovirals like AZT: perinatal transmission could be reduced by vaginal disinfection or Caesarean section (the latter to be approached with great caution in Africa because of the associated risks of maternal mortality and morbidity); to reduce postnatal transmission, it is essential to find alternatives to breast-feeding which do not aggravate the risks of malnutrition and infection. Finally immunizations are currently under study. All these types of intervention are still at the proposal or testing stage (Dabis *et al.*, 1995); as yet, African health centres and hospitals have no medical means of reducing the risk of mother-to-child transmission by seropositive pregnant women.

Until such treatments become available, counselling for pregnant women and women of reproductive age through antenatal centres and MCH programmes remains a priority: firstly, to reach seronegative women, and prevent future infections (M'Pelé *et al.*, 1994); and secondly, to support HIV-positive women and help them reduce the risk of mother-to-child transmission as far as possible, at present by reducing the breastfeeding period (PNLS-CI, 1996), but perhaps, tomorrow by offering more appropriate treatment.

Conclusion

The AIDS epidemic poses a serious threat to reproductive health, especially in Africa, where transmission is primarily heterosexual and affects all sections and ages of the population. This literature survey suggests that a number of avenues of research remain largely unexplored: few surveys have been conducted in Africa on sexual relations within stable couples in a context of high AIDS prevalence, or within couples one of whom knows themselves to be HIV-positive. Likewise, very little work has been done on fertility-related responses to HIV: the influence of the mother-to-child transmission risk on family planning, changes in the fertility behaviour of HIV-positive women, not to mention the risk of AIDS transmission by breastfeeding.

In terms of action, family planning policies, very much in their infancy in many African countries, are now seen as a priority for the African continent. But, if they are to deliver effective action, synergies absolutely must be forged between the different reproductive health programmes and anti-AIDS campaigns: family planning programmes, AIDS/STD prevention programmes, maternal and child health programmes, antenatal clinics, etc. Here, too, research has a key role to play, because while there is an imperative need for such synergies (as yet virtually non-existent), the details of how they are to be achieved remain to be defined: can anti-AIDS campaigns be integrated within other reproductive health programmes? Should they be? And if not, what are the alternatives?

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DESGRÉES du LOÛ (Annabel).– **Reproductive Health and AIDS in Sub-Saharan Africa: Problems and Prospects**

The AIDS epidemic and the associated prevention campaigns have profoundly modified the relationships between sexuality, contraception and procreation in the developing countries. Based on a survey of the literature on the subject, this article gives a synthesis of the state of knowledge and research about the impact of the epidemic on reproductive health in the countries of Sub-Saharan Africa, and the lessons to be drawn for the elaboration of health programmes.

The AIDS epidemic is extremely widespread in these countries (the proportion of pregnant women infected with the HIV virus is often over 10%), affecting all sections of the population and in a family context that differs from that of the developed countries, characterized by a high incidence of polygamy and marriage breakdown and a limited decision-making role for women. The epidemic has the potential to modify sexual and matrimonial behaviour, but can also, by its indirect effect on the structure of the population and its direct effect on the reproductive physiology, influence individual and group fertility. AIDS is one of the most serious public health problems facing many African countries, and an urgent need exists for an integrated approach to its prevention in the various programmes designed to improve reproductive health. In particular, it is important than close links be quickly established between anti-AIDS programmes, and family planning and maternal and child health programmes (MCH).

DESGRÉES du LOÛ (Annabel).– **Santé de la reproduction et sida en Afrique subsaharienne : enjeux et défis**

Dans les pays en développement, l'épidémie de sida et les campagnes de prévention qu'elle suscite bouleversent l'articulation sexualité-contraception-procréation. À travers une revue de la littérature sur le sujet, cet article a pour objectif de faire une synthèse de l'état des connaissances et de la recherche concernant les répercussions de l'épidémie de sida sur la santé de la reproduction dans les pays africains au sud du Sahara, et des conséquences qui peuvent en être tirées pour l'élaboration de programmes sanitaires.

Dans ces pays, l'épidémie de sida est fortement développée (la proportion de femmes enceintes infectées par le VIH dépasse souvent 10 %), touche toutes les couches de la population, et intervient dans un contexte familial différent du contexte occidental : polygamie importante, forte instabilité conjugale, faible pouvoir de décision chez les femmes. Elle apparaît susceptible de modifier les comportements sexuels et matrimoniaux, mais aussi, en agissant à la fois de façon indirecte sur la structure de la population et de façon directe sur la physiologie de la reproduction, la fécondité des groupes et des individus. Ainsi, la nécessité d'une approche intégrée de la prévention de cette maladie, qui représente un des plus graves problèmes de santé publique auxquels aient à faire face bon nombre de pays africains, dans les différents programmes d'amélioration de la santé de la reproduction, s'impose aujourd'hui. Des liens étroits devraient être rapidement établis, en particulier, entre les programmes de lutte contre le sida et les programmes de planification familiale ainsi que les programmes de protection de la mère et de l'enfant (PMI).

DESGRÉES du LOÛ (Annabel).– **Salud reproductiva y Sida en África subsahariana : riesgos y desafíos**

En los países en desarrollo, la epidemia del Sida y las campañas de prevención que ha suscitado han provocado cambios en la articulación sexualidad-anticoncepción-procreación. Este artículo hace una síntesis del estado de la investigación y los conocimientos actuales sobre las repercusiones de la epidemia en la salud reproductiva de los países de África subsahariana a través de una revisión de la literatura disponible sobre el tema. El objetivo de la revisión es derivar consecuencias para la elaboración de programas sanitarios.

En los países de África subsahariana, la epidemia se expande rápidamente (la proporción de mujeres embarazadas infectadas supera el 10 %), afecta a todos los grupos, y lo hace en un contexto familiar diferente del occidental: nivel elevado de poligamia, inestabilidad conyugal importante y bajo poder de decisión por parte de las mujeres. Es posible que esta expansión provoque cambios en los comportamientos sexuales y matrimoniales y también podría influir en los niveles de fecundidad a través de su efecto indirecto sobre la estructura de la población y directo sobre la fisiología de la reproducción. Por consiguiente, es necesario elaborar una estrategia integrada de prevención de esta enfermedad, que representa uno de los problemas más graves de salud pública en un número importante de países africanos, en los diferentes programas de mejora de la salud reproductiva. En concreto, deberían establecerse programas conjuntos de lucha contra el Sida, de planificación familiar y de protección de la salud materno-infantil.