ORIGINAL RESEARCH ARTICLE

Antiretroviral treatment in the private sector in Namibia

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Summary: Antiretroviral treatment (ART) has been available in the private sector in Namibia since 1998. National guidelines were developed by the Ministry of Health and clinicians of the public and private sector in 2003 and launched at the start of the public sector ART programme by the Ministry of Health. The Namibian HIV Clinicians Society was established around this period to promote adherence to the national guidelines and to provide comprehensive training for health professionals. To monitor adherence to national ART guidelines, in 2003, the Society requested access to anonymized data on ART dispensing from the medical insurance industry. Dispensing data from all Namibian medical insurance companies were obtained. ART regimens were categorized as recommended (non-nucleoside reverse transcriptase inhibitor-based and boosted protease inhibitor [PI]-based), not recommended (non-boosted PI-based or stavudine/didanosine-containing regimens), ineffective (dual therapy) and second line or salvage regimens. This analysis was repeated in 2004, 2005 and 2008. In 2003, only 2306 adult private patients received ART, of which only 1527 (66%) were recommended regimens. In 2008, 7010 private patients received ART, of which 6372 (91%) were recommended regimens. The private sector covered about 15% of the total number of 46,732 reported ART patients reported in the year 2008. Many of these private patients might not have accessed ART in the public sector.

Keywords: HIV, antiretroviral therapy, resource-limited settings, coverage, guideline, Africa

BACKGROUND

The private health sector has played an important role in prevention and comprehensive management of HIV in several countries in southern Africa, with major diamond mining companies, car manufacturers and breweries initiating HIV prevention programmes, confidential HIV counselling and testing in the 1990s and introducing antiretroviral treatment (ART) in 2003 at plants in South Africa, Botswana and Namibia. These programmes were usually well documented and managed by external agencies and supported by development partners.[1–6]

Namibia has a relatively well-developed health insurance industry. The medical insurance for government employees, the Public Service Medical Aid Fund (PSEMAS), is the largest scheme, with over 130,000 members and dependents. PSEMAS is subsidized by the government.[7] In the area around the capital Windhoek, over 30% of the population is enrolled in a medical insurance scheme. Overall the poor have limited access to health insurance, with only 5% coverage in the lowest quintile and 70% coverage in the highest quintile.[8]

Initially, there were no ART guidelines and clinicians prescribed ART without national guidance or supervision. The WHO guidelines for ART in resource-limited settings published in April 2002 made clinicians and decision-makers in developing countries aware that introduction of ART on a large scale was technically feasible.[9–13]

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Namibian clinicians from the public and private health sector came together in September 2002 to build consensus on the future direction of ART. The consensus document of this meeting formed the basis of the Namibian national ART guidelines that was further developed by a core group of public and private clinicians and reviewed by external experts. At the launching of the national ART guidelines in May 2003, the Minister of Health announced the gradual rollout of ART to all district hospitals.[14] To support this initiative and to promote adherence to the national ART guidelines by all public and private clinicians, the core group established the Namibian branch of the southern African HIV Clinicians Society that included nurses, pharmacists, clinicians and scientists. The purpose of the society was to assist the Ministry of Health in capacity building on comprehensive management of HIV disease and to provide a platform to support prevention of HIV and to promote treatment literacy.

In the public health sector, the Ministry of Health established a comprehensive programme for prevention of mother-to-child transmission (PMTCT) and ART with substantial external support for recruiting and training of additional staff allocated to newly established counselling and PMTCT/ART clinics.[15] Rapid HIV testing was introduced and laboratory capacity for CD4 testing was strengthened. At a central level, viral load measurement and protocols for quality control were established. All antiretroviral drugs (ARVs) were purchased by the central medical stores through international tender procedures. Clinicians and pharmacists in public hospitals were trained to ensure that all patients received recommended ART regimens as foreseen in the national ART guidelines. All patients had to

identify a treatment supporter who would participate in adherence counselling. Monthly numbers of newly enrolled patients, deaths, defaulters (lost to follow-up) and ART regimens dispensed were reported to the Ministry of Health.

In the private sector ARVs were usually prescribed for a three-month period and dispensed monthly by pharmacists. However, if patients lived in remote areas, ARVs were dispensed every three months.

In the same year a system was put in place at all private pharmacies in Namibia to facilitate dispensing of medication, whereby the pharmacist would dial-up to a central electronic system confirming the reimbursement of the cost of the dispensed medication for members and dependents of medical insurance companies, whereby anonymous information on the transactions was stored.

From June 2003, the Ministry of Health and the Namibian HIV Clinicians Society organized joint training seminars on ART throughout the country for private and public clinicians. However, training was not mandatory for private practitioners and there was a concern that private practitioners who did not attend training sessions would prescribe not-recommended or ineffective ART regimens and that this would rapidly lead to ARV resistance.

To assess the scope of the problem, the society approached the Namibian Association of Medical Aid Funds and requested to gain access to an anonymized extract from electronic reimbursement claims for ARVs.

METHODS

Data on ARV dispensing from the last quarter of 2003 were made available. The combination of ARVs received was established for each patient. Each combination was compared by a team of medical experts from the society with Namibian and international ART guidelines and classified into four categories: recommended (non-nucleoside reverse transcriptase inhibitor [NNRTI]-based and boosted protease inhibitor [PI]-based), not recommended (non-boosted PI-based or stavudine [d4T]/didanosine [DDI]-containing regimens), ineffective (dual therapy) and second line or salvage regimens. This process was repeated in 2004 and 2005 and data of the second quarter of 2008 were available for analysis. Ethics approval was obtained from the Institutional Ethics Committee.

RESULTS

The total number of ART regimens dispensed between 2003 and 2008 increased from 2306 in 2003, to 2844 in 2004, 5475 in 2005 and 7010 in 2008. In 2003, 2306 adult patients received ART, of which 1527 (66%) were recommended regimens. By 2008, the total number of ART patients had increased to 7010 ARV patients, of which 6372 (91%) received recommended regimens. During the same period not-recommended and ineffective regimens dropped from 525 (23%) to 141 (2%). However, second-line regimens increased from 16 (1%) in 2003 to 355 (5%) in 2008 (see Table 1).

Of all 7010 ART adult regimens dispensed in 2008, 5288 (75%) were covered by PSEMAS and 1725 (25%) by other insurance schemes. The adult ART patients insured by PSEMAS were less likely to receive recommended regimens (4724 out of 5288 patients; 89%) than patients insured by other insurance schemes (1648 out of 1725; 96%) (risk ratio [RR] 0.935, 95% confidence interval [CI] 0.924–0.948).

Among the 7010 adult patients in 2008, gender was known for 5421 (77%); 2679 (52%) were women and 2556 (48%) men. Of the adult patients in 2008, 6372 (91%) received recommended regimens, 144 (5%) not-recommended, 100 (1%) ineffective treatment and 355 (5%) second line or salvage regimens.

The total number ART regimens dispensed for children younger than 15 years increased from 155 in 2003, to 202 in 2004, 220 in 2005, and 225 in 2008. The number of recommended regimens increased from 68 (44%) in 2003, to 91 (45%) in 2004, 194 (88%) in 2005, and dropped to 189 (84%) in 2008. From 2003 to 2008 the number of ineffective regimens dropped from 87 (56%) to 10 (4%). No second-line regimen was dispensed in 2003 while in 2008, 21 (9%) children received second line or salvage regimens (see Table 2).

The number of children under 15 years of age increased from 155 (6%) in 2003, to 202 (7%) in 2004, 220 (4%) in 2005, and 255 (3%) in 2008. Among the 225 children aged under 15 years, gender was known for 186 (83%): 77 (41%) were girls and 109 (59%) were boys.

DISCUSSION

There was a marked rise in ART regimens dispensed between 2004 and 2005. This period coincided with an initiative by the Namibian Business Coalition and the Namibian Institute for Pathology and PharmAccess to promote anonymous HIV workplace surveys targeting employees in 24 companies. Following these surveys there was an increased interest for new affordable insurance schemes offering low-cost insurances to previously uninsured employees, of which the majority opted for HIV/AIDS coverage only.[16]

These insurance schemes introduced several quality assurance mechanisms in consultation with the HIV Clinicians Society and medical insurance companies to ensure that all

Table 1 **ART regimens dispensed for adults in the private sector, Namibia, 2003–2008**

	Year							
ART category	**2003***		**2004***		**2005***		**2008***	
Recommended	1527	66%	2355	83%	4868	89%	6372	91%
Not recommended	525	23%	35	12%	376	7%	141	2%
Ineffective	238	10%	10	4%	179	3%	142	2%
Second line/salvage	16	1%	30	1%	52	1%	355	5%
Total†	2306†		2844†		5475†		7010†	

ART = antiretroviral treatment

*Calendar year during which ART dispensing data were collected for a three-month period

†Number of adult patients that received ART during the same three-month period

Table 2 **ART regimens dispensed for children aged under 15 years in the private sector, Namibia, 2003–2008**

	Year								
ART category	**2003***		**2004***		**2005***		**2008***		**Total**
Recommended	68	44%	91	88%	194	88%	189	84%	542
Not recommended	0	0%	0	12%	4	2%	5	2%	9
Ineffective	87	56%	110	4%	20	4%	10	4%	227
Second line/salvage	0	0%	1	1%	2	9%	21	9%	24
Total†	155†		202†		220†		225†		802

ART = antiretroviral treatment

*Calendar year during which ART dispensing data were collected for a three-month period

†Total number of children aged under 15 years that received ART during the same three-month period

new ART patients received recommended first-line regimens, key laboratory parameters were monitored and that second-line regimens were only issued after consultation with an HIV specialist.

The HIV Clinicians Society also established four local branches to facilitate professional development evening seminars, case discussions and training on adherence counselling. The society also organized an annual conference with international experts. The society also participated at annual conferences of the Namibian Medical Aid Funds whereby the data on dispensing of ART regimens in the private sector were presented and discussed. Continuous professional development meetings have probably contributed to the increased proportion of recommended regimens and reduction in not-recommended or ineffective regimens. However, PSEMAS has so far not introduced a mechanism for quality assurance, which may explain the difference between the lower proportion of recommended regimens dispensed through PSEMAS.

The number of children aged under 15 years receiving ART in 2008 was much lower in the private sector than in the public sector. In the year 2008, for example, only 213 (3%) of all 7216 private patients on ART were children aged less than 15 years old. This proportion was lower than in the public sector, where 7504 (13%) of 51,872 children younger than 15 years old were on ART in 2008.[16] In the private sector, most pregnant women were offered HIV testing as early as 1997 and HIV-positive mothers delivered by Caesarean section. Zidovudine and nevirapine (NVP) and ART were introduced by gynaecologists and general practitioners in line with international guidelines from industrialized countries. In addition, insurance schemes provided support to seropositive mothers not to breastfeed by providing free infant formula milk for the first six months of life. These factors may have contributed to low vertical HIV transmission rates in the private sector so that fewer children in this sector needed ART.

In the public sector, single-dose NVP was introduced in 2002 in two major hospitals. ART was provided since 2003 for pregnant women with WHO clinical illness stage 3 or a CD4 count <250 cells/μL. In 2006, the criteria for initiating ART were revised to include pregnant women with a CD4 count <350 CD4/μL. However, in rural areas, PMTCT coverage using single-dose NVP was still incomplete with only 70% of the 256 antenatal clinics providing PMCTC services. Since 2006, early detection of HIV infection through DNA polymerase chain reaction (PCR) based testing using dry blood spots was introduced by the Ministry of Health, facilitating early detection of HIV infection and timely referral and initiation of ART.[17] This probably further contributed to the high enrolment of HIV-infected children. Following the introduction of a more effective ART combination for PMCTC at the end of 2008, only 2% of exposed children tested positive during the first quarter of 2009.[18]

Another reason for the low number of children receiving ART in the private sector may be that treating children is more complex due to the frequent adjustments of ART regimens for growing children. There are only few private paediatricians in Namibia and they are concentrated in urban areas. Private clinicians may therefore be reluctant to treat young children or refer them to public services. In the public sector all clinicians, nurses and pharmacists managing HIV patients work within teams with nurses and pharmacists who received training on paediatric ART. Clinicians in the public sector are therefore more confident in treating children.

In the public sector 25,939 (65%) female patients and 13,783 (35%) male patients received ART.[19] This distribution is common in sub-Saharan Africa, where HIV transmission is predominantly heterosexual and women have more opportunities to be tested for HIV and to be referred for further assessment and clinical management.

In Namibia, persons with formal employment have more access to medical insurance and more men than women have formal employment. In the greater Windhoek area enrolment in a medical aid fund is equally likely for men as for women.[10] In the private sector, therefore, the number of men and women are almost equal, with 51% women and 49% men.

A meta-analysis of ART programmes concluded that the effectiveness of ART programmes in developing countries is similar as ART programmes in industrialized countries and that the provision of ART free-of-charge to patients increases virological suppression rates.[20] This was confirmed by a study in Botswana that showed that out-of pocket cost of ART leads to discontinuation of ART and poor adherence.[21–23] In Namibia, PSEMAS is the only medical insurance scheme for which 5% out-of-pocket payment is required for ART.[8] This may have contributed to the lower proportion of recommended regimens dispensed to PSEMAS members.

There are several limitations to our study. The dispensing data were based on reimbursement claims for ARVs. Medication dispensed may have been different than the ART regimen prescribed by the clinician if the pharmacy did not have the prescribed medication in stock or if the patient was not able to pay for all prescribed medication.

Private patients who had no medical insurance coverage may have paid directly out-of-pocket. This may have been in particular the case for nationals from neighbouring countries, such as Angola or Zambia. Collection and analysis of early

warning indicators for HIV drug resistance is feasible in the public sector and should and could also be collected by the private sector as indicated by a recent study on three early warning indicators in northern Namibia.[24]

The increase of second-line and salvage regimens is a concern. Existing managed care initiatives should be strengthened and implemented by all medical insurance providers. Additional early warning indicators for HIV drug resistance should be considered. In particular, assessing on-time pill pick-up and calculation of medication possession ratio as a surrogate for adherence to prescribed ART should be used to assess the efficiency of the private sector response in Namibia.

CONCLUSIONS

Anonymous ART dispensing data from electronic reimbursement claims can be used successfully to monitor numbers of ART patients and regimens used in the private sector. The vast majority of private ART patients in Namibia received recommended regimens. Additional supportive measures are needed to contain the increase of costly second-line regimens. Quality assurance measures should be strengthened in collaboration with the Ministry of Health, the Namibian HIV Clinicians Society and the Medical Insurance industry.

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