

WORLD HEALTH ORGANIZATION
NATIONAL AIDS COUNCIL-NATIONAL DEPARTMENT OF HEALTH
PAPUA NEW GUINEA

STI

HIV

CONSENSUS REPORT ON
STI, HIV AND AIDS EPIDEMIOLOGY
PAPUA NEW GUINEA
2000

**CONSENSUS REPORT
ON STI, HIV and AIDS
EPIDEMIOLOGY:
Papua New Guinea
2000**

Acknowledgements	1
Summary	2
Background	4
Methodology	4
Objectives	5
Current Epidemiological Status	5
Estimation of STI and HIV Prevalence and Incidence	9
Surveillance Systems for STI, HIV and AIDS and Risk Behaviour	12
Conclusions and Recommendations	12
Annexes	15

ACKNOWLEDGMENT

The acknowledgements are addressed to all the members of the National AIDS Council Secretariat and the National Department of Health, the Institute for Medical Research, all participants of the workshops, the AusAID, and the World Health Organization in providing helpful data and analyzing the status for this report.

SUMMARY

Based on some early surveys, and ongoing reporting from provincial clinics, Papua New Guinea has been considered to have substantial levels of STI transmission. Recent surveys of sex workers in Port Moresby and Lae found high levels of chlamydia (prevalence rate 31%), syphilis (32%) and gonorrhoea (36%); in a population-based survey of village women carried out in the Highlands, the prevalence was at a similar level for chlamydia, (25-31%) but lower for syphilis (4%) and gonorrhoea (15%). It is estimated that more than one million of new cases of STI occur every year, two thirds of them being chlamydial infections.

HIV infection was first detected in Papua New Guinea in 1987. To the end of 1999, the cumulative number of reported HIV infections has reached 2,342, including 772 AIDS cases and 158 deaths due to AIDS. The predominant mode of transmission among reported cases has been heterosexual intercourse (89%), with virtually equal numbers being detected in males and females, and a substantial number of cases in newborns infected via their parents. The trend in the annually reported number of AIDS cases has continued to rise more sharply each year since the mid-1990s.

Screening of virtually all blood donors for HIV infection has been carried out since the early 1990s. HIV sentinel sero-surveillance in other population groups began in 1997. The methodology has changed somewhat each year with regard to the choice of sentinel groups and sites, and the number of sites is still limited. The available data indicate that HIV prevalence among antenatal women in Port Moresby increased twofold, to 0.3% between 1998 and 1999, and in blood donors, there was a similar increase, from 0.09% to 0.25% in Port Moresby during the same period, and from 0.02% in 1997 to 0.04% in 1998 in the country as a whole. A survey among members of the Defense Force found an HIV prevalence of 0.4% in 1999. Much higher levels of infection were found in female sex workers (17% in Port Moresby and 3% in Lae in 1997) and among patients attending STD clinics (7% in 1999, increasing from 3% in 1998 in Port Moresby and 0.7%-1.2% in 4 other locations in 1997-1999).

Based on these data, the average prevalence of HIV infection in PAPUA NEW GUINEA still remains low. However, there has been a rapid increase over the past year in HIV prevalence in Port Moresby, and in the general hospital of this city, AIDS is now reported to be the most frequent medical cause of admission and the leading cause of death.

The prevalence of HIV infection in PAPUA NEW GUINEA overall cannot be estimated with a great deal of confidence, because the available surveys to date have been limited to a few locations and population groups. In particular, outside Port Moresby and a few other cities, HIV prevalence has only ever been measured in blood donors, and Port Moresby is the only location in which prevalence has been systematically measured in antenatal women. Using available information, the number of people living with HIV infection in Papua New Guinea in 1999 was estimated to be somewhere in the range of 3,400.

A wide range of social, economic and cultural factors in PAPUA NEW GUINEA have led to an environment in which sexual risk behaviours including low levels of condom use in casual partnerships are widespread. There have been a few behavioural surveys carried out recently. Among sex workers, the proportion reporting consistent use of condoms was around 15% in Port Moresby and Lae in 1999.

The response to HIV/AIDS and STIs in PAPUA NEW GUINEA will continue to require strengthening of surveillance systems. Improved standardization of case definitions and reporting procedures will provide better province-specific data on HIV and AIDS diagnoses. Systematic and repeatable surveys of HIV prevalence among sex workers and STD clinic attendees in multiple locations in and outside Port Moresby will indicate trends in a higher-risk segment of the population. Antenatal testing for HIV contribute to surveillance. Blood donors also represent a crucial window into a lower risk population. Other populations that may be considered for sentinel monitoring are people with tuberculosis, and Defense Force personnel. Voluntary testing for antenatal women would be accompanied by counseling as appropriate, depending on resources.

Ongoing behavioural monitoring, particularly among sex workers and male client populations, will also provide key information to support and evaluate prevention programs, as will some form of regular assessment of STI levels in selected population groups.

BACKGROUND

It has been recognized since early in the twentieth century that some sexually transmitted infections occur at high levels in parts of Papua New Guinea. A large number of surveys have been reported, on the occurrence of syphilis, gonorrhoea, donovanosis and other STIs.

Since the first case of HIV detected in Papua New Guinea in 1987, there has been a steady increase in the reporting of both HIV and AIDS diagnoses. The National AIDS Surveillance Committee in Papua New Guinea was established in 1987, since then a number of activities have been initiated. To determine HIV prevalence in low- and high-risk population in Papua New Guinea, an anonymous serosurveillance was conducted in Government-administered antenatal and STD clinics from representative sites around country from June 1989 to May 1990. Although three of 1233 samples were HIV-positive in a pilot study (all three from Port Moresby's STD clinic), there were no positive among either 3898 STD samples or 4050 antenatal samples during the first year of surveillance. The surveillance continued during 1991 and 1992 at three sites, five of 2000 samples at the Port Moresby STD clinic were positive, while there were no positive samples among 4025 tests done at other two sites. HIV pre-tests were performed on 90-95% of the blood transfused in the country (25-30,000 units tested annually). In addition, prevalence of HIV infection has been monitored among sex workers and Defense Force personnel in recent years.

A few behavioural surveys have also been carried out in selected populations.

In order to provide a comprehensive assessment of the current situation in Papua New Guinea, including estimates of the numbers of people with STIs and HIV/AIDS and to provide advice about the future directions of surveillance, the National AIDS Council Secretariat organized a workshop in Port Moresby in May 2000, with technical and financial support of WHO.

METHODOLOGY

The participants in the workshop were directly involved in the collection and interpretation of information related to STIs, HIV/AIDS and behavioural factors in Papua New Guinea. In advance of the workshop, available data were compiled, and distributed to participants at the workshop.

The first part of the workshop was taken up with invited presentations on the current epidemiological situation in Papua New Guinea, HIV laboratory systems, and the methodology of estimation and projections.

Participants then were divided into subgroups to review and summaries the available data on STIs, HIV/AIDS and social and behavioural factors. These groups reported back in plenary, and summary statements were prepared. Two further discussion groups then considered estimation of the numbers of people with HIV infection in Papua New Guinea, and recommendations for the future of surveillance systems related to STIs, HIV/AIDS and behaviour. Again, reports were made back to the full meeting for ratification

OBJECTIVES

- To *review available data* on the occurrence of sexually transmitted infections, HIV/AIDS and related social and behavioural factors in Papua New Guinea
- To *make estimates and projections* where possible of the incidence and prevalence of sexually transmitted infections and HIV/AIDS in Papua New Guinea
- To *consider recommendations for the improvement of surveillance* for sexually transmitted infections, HIV/AIDS and related social and behaviour factors in Papua New Guinea

CURRENT EPIDEMIOLOGICAL STATUS

SEXUALLY TRANSMITTED INFECTIONS

Data sources

Case reporting from health centres: All district health services make reports to the Department of Health. These reports are of syndromic diagnoses, and are available broken down by sex and by province for 1996-99.

Case reporting from STD clinics: In each province, there is an STD clinic which reports on both clinical and laboratory diagnoses of STIs. Reports for all provinces are currently available to 1999

Special surveys: A number of STI surveys in various PAPUA NEW GUINEA populations have been carried out over the past several decades. The Institute of Medical Research has carried out surveys of sex workers in Port Moresby and in some Highlands locations, and among patients attending STD clinics in Goroka and Lae. The Obstetrics and Gynecology Department at Port Moresby General Hospital has surveyed STIs among women in antenatal and gynecology clinics

Summary

- Among Highlands populations surveyed, gram stain and culture had detected a prevalence of gonorrhoea of around 1-2%, but retesting with PCR indicated that the prevalence was in fact 15%. It was up to 36% in sex workers.
- Chlamydia prevalence was up to 26% based on PCR in Highlands's populations, and it was 31% in sex workers.
- Prevalence of syphilis was 4% in Highland's populations, and 32% in sex workers.
- Trichomoniasis was found in 45-50% of both the low and high-risk populations.
- Donovanosis was once endemic in many parts of Papua New Guinea, but it has apparently become very rare, with cases only infrequently reported

See Annex 1: (Table 1.1 - Table 1.4)

HIV/AIDS

Data sources

HIV/AIDS case reporting: For each AIDS and HIV diagnosis, a report is made to the Department of Health. Basic information for each case includes province of diagnosis, province of origin, age, sex and route of transmission.

Sentinel surveillance: Surveys of HIV prevalence have been carried out among STD clinic attendees in 5 provinces and among woman attending antenatal clinics (ANC) in Port Moresby at various times over the past four years.

Blood donor screening: the Red Cross in Papua New Guinea has screened virtually all blood donors for HIV infection since 1993. Prevalence among donors is available by sex, and separately for Port Moresby.

Special surveys: A survey of HIV prevalence among sex workers in Port Moresby and Lae was undertaken in 1998. A survey of male Defense Force personnel was carried out by the Department of Health in 1999.

Results

See Annex 2: (Fig.2.1 - 2.5), Tables (2.1 - 2.2)

Summary

- In population groups that may be considered to be at lower risk (blood donors and pregnant women) the prevalence of HIV infection remains low, but it is already high in groups at higher risk (sex workers and STD clinic attendees)
- There has been a steady increase in the number of case reports of HIV infection and AIDS, and there is likely to be substantial under diagnosis and underreporting of cases.
- The sex ratio of HIV cases is approximately equal, i.e. approximately equal numbers of males and females infected. The HIV cases have been mostly transmitted by heterosexual contact, but a high proportion is still reported with no information on route of transmission.
- Recent survey of sex workers on Port Moresby gave a prevalence of 16% and 3 % in Lae sex workers, but the representativeness of this sample is unknown.
- Prevalence among STD clinic attendees in Port Moresby has steadily increased from 2.4% in 1997 to 7% in 1999. Prevalence recorded among clinic attendees in Lae, Kundiawa and Hagen has been much lower (around 1% in 1999).
- Data among blood donors and pregnant women are useful to assess trends over time, even if there are biases within each group.
- Patients with tuberculosis were tested at Goroka in 1994-96 and again in 1999 and the prevalence of HIV infection was found to increase from 2.8 to 4.6%; In Port Moresby, a 1990 survey found a prevalence of 4%, and the estimate for 1999 was around 14%.
- In 1998, AIDS was the most frequent cause of death in the PMGH medical ward
- There is a clear indication of higher HIV rates in Port Moresby compared to the rest of the country, but this may be partially due to variations in rates of testing and in case reporting

SOCIAL AND BEHAVIOURAL FACTORS

Data sources

Demographic Health survey: The national health survey carried out in 1996 involved a number of questions about knowledge and behaviour related to the risk of STI and HIV transmission.

Special surveys: the Institute of Medical Research carried out Surveys of sexual behaviour among sex workers, police and male transport workers in 1996 and 1998.

Results

See Annex 3: (Table 3.1 - Table 3.3)

Summary

- Partners within a marriage rarely use condoms.
- In a recent a study done by IMR, the proportion of sex workers who said they used them in the last week increased substantially between 1996 and 1998.
- Consistent use of condoms with clients was reported by between a quarter and half the sex workers surveyed through the IMR study and the STD clinic in Port Moresby, but much less (5%) by the sex workers surveyed in Lae.
- Among male client populations (police and security men) 64% reported that they used condoms regularly with sex workers.
- A national demographic health survey found that 60% of women had heard of condoms, and that 12% reported having used a condom at least once.
- Although there is known to be a risk of HIV transmission from traditional circumcision, scarification and tattooing practices, there are few or no data available that could be used to assess population risk.
- Surveys of sex workers in Port Moresby indicate that their clients are drawn from a wide range of professions and social classes, including white-collar workers.
- Sexual behaviour surveys among sex workers indicate a predominant practice of vaginal intercourse, but 30% also report anal sex. A similar proportion reports forced sex and group sex.
- Most sex workers in Port Moresby appear to be independent, not working with brothels or pimps. Their practice may be based in hotels, guesthouses, or in their own house. Others work from the streets, or in open spaces such as beaches and parks.
- Although most surveys have taken place in the main cities, it is clear that sex work is being widely practiced in smaller towns and villages, particularly in relation to highways, seaports, economic development sites, etc.

ESTIMATION OF STI AND HIV PREVALENCE AND INCIDENCE

Incidence and prevalence are recognized as the key epidemiological indices to be used for monitoring disease occurrence in populations. In communicable disease control, both are important for different purposes.

Incidence shows the rate of new infection, and therefore helps to target and evaluate activities aimed at preventing transmission.

Prevalence, on the other hand, shows the proportion of the population currently infected. For a treatable STI such as gonorrhoea, prevalence indicates the extent of under diagnosis, undertreatment or both. For HIV, prevalence is a measure of both cumulative transmission, and the potential for future transmission.

STIs and HIV Surveys are almost always cross-sectional, and therefore can only directly measure prevalence. For infections that are generally symptomatic, such as gonorrhoea in men, incidence can be monitored from case reporting. In general, however, measurement of incidence generally requires follow up of individuals, which is much more difficult and resource-intensive than cross-sectional surveying. There are nevertheless some indirect ways to measure incidence. For example, HIV prevalence in people who have recently become sexually active is a reasonable surrogate for incidence in this population.

Prevalence surveys generally involve a selected population group, which can not be assumed to be representative of the whole population of any given region or country. When estimating numbers of people with a specific chronic infection, it will usually be necessary to make various assumptions about the applicability of available prevalence surveys.

The usual approach to estimating the numbers of people in a population with a chronic infection such as HIV is to break the population into subgroups of known size, and apply available prevalence estimates to each subgroup.

**RESULTS FOR HIV/ AIDS ESTIMATES IN
PAPUA NEW GUINEA IN 1999 AND
AIDS PROJECTIONS FOR THE NEXT 5 YEARS.**

Available HIV prevalence rates used for estimation

Areas	Populations			
	Blood donors	ANC	STD patients	Sex workers
Port Moresby	0.25%	0.34%	7%	17%
Other	0.1%	0.12% (estimate based on ratio in blood donors)	1%	3%

Estimated current HIV infections in 1999

The workshop considered 3 scenarios:

"Low" scenario:

Assume that the 15-49- year-old population has the same HIV prevalence rate as antenatal women in Port Moresby, this prevalence is obtained directly from the available surveys, and in other parts of the country, it is estimated by assuming that the ratio of prevalence among woman attending antenatal clinics between Port Moresby and the rest of the country is similar to the corresponding ratio for blood donors. The resulting calculation gives 168,000 (Port Moresby) x **7/6** x 0.34%+1,907,000 x 7/6 (other areas) x 0.12% = 666 + 2670= **3,336**. (7/6: ratio used for adjustment of the available data on 15-45-year-old population to obtain the population of 15-49 year-olds).

"Medium" scenario:

Assume that the 15-49- year-old population of PAPUA NEW GUINEA has the same HIV prevalence as antenatal women in Port Moresby. This gives

2,075,000 (PAPUA NEW GUINEA) x 7/6 x 0.34% = **8,231**.

"High" scenario:

Assume that 90% of the population of 15-49 year-olds of PAPUA NEW GUINEA has the same HIV prevalence rate as antenatal women in Port Moresby, and that the remaining 10% are at higher risk, having the HIV prevalence 3%, which is between Port Moresby and other city rates among STD patients: 1,867,500 (low risk) x 7/6x 0.34% + 207,500 (high risk) x7/6x 3%= 7,408+7,265=**14,700**

Based on the discussions and scenarios, the following consensus was proposed :

Population	Assumption	Size of population	Average HIV prevalence rate	Estimated HIV Prevalence
Port Moresby				
General adult Population 15-49	Average HIV prevalence rate from ANC attendees in 1999	140 000	0.34%	480
STD patients	Yearly incidence of most common STI at 30%	60 000	7%	4 200
Rest of country				
General adult Population 15 - 49	Average HIV prevalence rate from ANC attendees in 1999 (based on average HIV prevalence rate from blood donors in 1999)	1 575 000	0.15%	2 360
STD patients	Yearly incidence of most common STI at 30%	675 000	1%	6 750
Totals		2 450 000	0.6%	+/- 13 800

Estimated and projected AIDS incidence

Based on a 1999 HIV prevalence estimated at 13 800, estimation and 5 years projection of AIDS incidence has been derived by plotting the data on Epimodel software. The results are presented on Annex 4 (Table 4) regarding AIDS projections. It is estimated that in 1999 only, more than 1200 new cases (adult and children) of AIDS occurred. It is further projected that this number of yearly new AIDS cases will increase to more than 1800 per year in 2005.

ESTIMATES ON STI

Assume that the 15-49- year-old population of PAPUA NEW GUINEA (2,420,800) has the same STI prevalence as the rate among highland village women, there would be a minimum of 363,000 gonorrhoea cases (15 %PCR), 750,500 Chlamydia cases (31 %PCR), 10,000 syphilis cases (4%, RPR+TPHA) per year.

SURVEILLANCE SYSTEMS FOR STI, HIV/AIDS AND RISK BEHAVIOUR

STRENGTHS AND CONSTRAINTS OF CURRENT SYSTEM

HIV/AIDS/STI case reporting systems have been developed but like all such systems, there are problems of underreporting and standardization of case definition and variations across provinces in the application of reporting procedures.

HIV sentinel surveillance was initiated in 1997 using a national protocol. However, the methodology has not been fully consistent throughout the years and the number of sites remains limited. The only survey among sex workers was carried out at in two sites in 1998. STD patients have not been surveyed annually in all sites. Among ANC, annual surveys have been focused on Port Moresby.

Blood screening has been continuously performed on a national basis since the early 1990s, and provides a good database on HIV prevalence among blood donors.

Surveys on STI prevalence carried out in clinics or in the community have shown the extent of STI among high-risk groups and low risk groups, particularly when they have employed recent detection techniques with higher sensitivity such as PCR.

A few behavioural studies have been conducted in sex workers and some other populations at higher risk of STIs.

CONCLUSIONS AND RECOMMENDATIONS

- Although higher than in the rest of the Pacific, HIV prevalence in Papua New Guinea remains relatively low and there is a window of opportunity for prevention. However, recent data also show the rapidly increasing HIV transmission in Port Moresby.
- Awareness of STI/HIV needs to be reinforced. Availability and social acceptability of condoms both to sex workers and their clients will need to be substantially increased for them to have their full benefit.

- Another factor that could lessen the risk environment for sex workers are provision of health clinics that are accessible. Decriminalization of sex work may also be worth considering.
- The role of alcohol and cannabis is likely to be important also in heightening the likelihood that condoms will not be used in risky sexual contacts.
- A number of factors are likely to contribute to a high continuing risk of HIV transmission. Most of them are socio-economic and demographic factors such as low economical status; unemployment; high literacy; low education rates; poor access to health facilities and health information due to geographical isolation, socio- cultural barriers to accessing treatment particularly with women, and natural disasters; urban migration, population mobility, separation of families for employment, development projects such as mines, forestry and development of roads; gender issue with lack of autonomy in women; community acceptance of violence against women-rape, “line-ups” ; religious barriers in discussion on condom promotion; and lack of resources, trained staff and infra-structure. High prevalence of STI and individual factors as lack of knowledge on STI symptoms, lack of perception of personal risk, and low condom use rate are also listed.
- There is need to reinforce epidemiological surveillance

PAPUA NEW GUINEA’s ability to estimate HIV prevalence, particularly outside Port Moresby, has been limited by the number of sites and population groups in which surveillance has taken place. Similarly, the estimation of trends over time in HIV prevalence can only be undertaken if there are repeated surveys using standard protocols. Therefore the adoption of standard surveillance procedures is a high priority.

It will be necessary to define coordination mechanisms, as well as revising national surveillance protocols and developing operational plans for implementation of HIV surveillance. Sentinel groups should include sex workers and male STD patients as the first priority, followed by military recruits and antenatal women. TB patients are another possibility that was suggested. Proposed sentinel sites are: Port Moresby, Lae, Goroka, Hagen, Daru, Vanimo, Rabaul, and Madang. However, sentinel groups required for each of these sites should be carefully considered considering the capability of each site to obtain the planned sample size, and local epidemiological characteristics. Sample sizes of 150-200 for high-risk groups and higher (300-400) for low risk groups should be used. Sampling procedures should be

consistent and repeatable, with consecutive collection of blood samples over up to two months of the same period of the year, and for the same group in the same site. Antenatal women should be taken as a sentinel group in sentinel surveillance based on planned sample size, not in screening of all women. Syphilis serological testing could be set up alongside HIV testing as appropriate.

For routine passive reporting, case definitions need to be reviewed. Health care workers should be trained in reporting, via a standard reporting form and reporting process. Program managers need to be instructed to use epidemiological information to provide support to their activities. Quality validation by supervision and training should be taken in account. Along with feedback from the Central level to the province level, the feedback from provinces to districts should be improved.

It would be of value to conduct further surveys of STI complications and to continue studies on antibiotic sensitivity of *N. gonorrhoea*.

Key behaviors should be monitored using a simple standard questionnaire for surveillance purpose to measure indicators such as the percentage of men visiting sex workers, number of clients per sex worker per week, number of sexual partners among the general population, and consistent condom use with regular sexual partners and with non regular partners. For in depth assessment of diverse risk behaviors, quantitative data need to be complemented by qualitative data. Consistent methodologies, undertaken by interested and appropriate social scientists. Behavioral surveys can be incorporated into HIV sentinel surveys among STD patients in clinics.

Overall, a national approach to surveillance systems, including their development, implementation, coordination, and analysis and dissemination of resulting information is essential in ensuring that these tasks are carried out optimally. The first step will be to clearly define roles and responsibilities in surveillance. An inclusive structure that brings in all organizations with relevant expertise or access to data will ensure that available data are widely shared, and that consistent procedures are adopted.

Finally, particular attention should be given to use surveillance data for planning interventions, particularly in Port Moresby and in groups at high risk.

ANNEX 1

**Table 1.1 - Sexually Transmitted Diseases, case reporting of syndromes by sex, province and year
Papua New Guinea: 1996 - 1999
Genital Ulcers**

Province	1996		1997		1998		1999		Sub Totals		Grand Total	Pop. estimate
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		1998
Western	13	6	169	141	148	127	98	56	428	330	758	145177
Gulf	26	21	108	73	164	55	61	14	359	163	522	72740
Central	60	33	103	56	131	64	86	41	380	194	574	164526
NCD	479	154	1139	741	770	414	564	300	2952	1609	4561	282191
Milne Bay	113	32	276	235	407	322	258	155	1054	744	1798	189122
Oro	175	91	221	85	105	74	116	65	617	315	932	115290
SHP	705	121	563	307	370	280	436	283	2074	991	3065	400872
Enga	133	77	557	458	932	664	814	630	2436	1829	4265	312353
WHP	1159	835	1215	1032	1758	1519	1397	1191	5529	4577	10106	406732
Chimbu	1547	881	844	741	766	753	682	572	3839	2947	6786	188458
EHP	731	685	785	832	898	887	948	765	3362	3169	6531	321711
Morobe	395	198	535	376	378	269	415	288	1723	1131	2854	447468
Madang	172	158	321	209	191	169	169	158	853	694	1547	293416
e Sepik	81	87	108	133	127	153	137	88	453	461	914	284296
W Sepik	11	10	73	61	46	54	58	32	188	157	345	164967
Manus	8	0	6	18	10	8	3	2	27	28	55	39608
NIP	16	16	41	40	21	28	34	29	112	113	225	108676
ENB	32	28	140	58	56	48	71	67	299	201	500	241958
WNB	91	28	77	67	58	65	50	33	276	193	469	176808
NSP	0	0	5	23	21	21	11	27	37	71	108	181856

ANNEX 1

**Table 1.2- - Sexually Transmitted Diseases, case reporting of syndromes by sex, province and year
Papua New Guinea: 1996 - 1999
Genital Discharges**

	1996		1997		1998		1999		Sub Totals		Grand Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Western	34	15	66	72	81	117	78	84	259	288	547
Gulf	102	27	35	55	71	79	30	22	238	183	421
Central	147	76	130	85	129	83	77	72	483	316	799
NCD	1569	878	2196	1585	1997	1656	1308	1124	7070	5243	12313
Milne Bay	271	127	229	150	245	181	295	210	1040	668	1708
Oro	374	158	342	152	195	415	201	192	1112	917	2029
SHP	496	560	679	759	663	699	602	808	2440	2826	5266
Enga	307	154	944	743	2031	1594	1790	1353	5072	3844	8916
WHP	2440	1849	1806	2162	2703	2578	2502	2485	9451	9074	18525
Chimbu	1951	1610	1719	1618	1277	1504	1555	1805	6502	6537	13039
EHP	1974	1797	2014	2269	1968	2431	2428	2892	8384	9389	17773
Morobe	586	724	728	586	739	670	653	521	2706	2501	5207
Madang	535	462	334	404	295	343	394	458	1558	1667	3225
e Sepik	208	314	151	299	162	294	76	236	597	1143	1740
W Sepik	58	72	104	217	59	85	72	87	293	461	754
Manus	25	55	28	46	22	62	26	44	101	207	308
NIP	37	58	73	110	45	72	29	80	184	320	504
ENB	105	74	152	238	159	275	195	399	611	986	1597
WNB	99	87	114	314	107	227	120	195	440	823	1263
NSP	0	0	5	22	47	144	18	95	70	261	331
Total	11318	9097	11849	11886	12995	13509	12449	13162	48611	47654	96265

ANNEX 1

Table 1.3: Prevalence of STIs (%) among low risk populations

STIs	Antenatal women		Highland village population		
	1992	unspecified year	1995	1996	1998
Gonorrhoea			1-2 (GS +culture)		15% (PCR)
Chlamydia	17.7 (Direct IF)		25 (PCR)	26.4 (PCR)	31% (PCR)
Syphilis		4 %-10% (RPR+TPHA)	4 (RPR+TPHA)		
Trichomoniasis			46.5 (Micros)		50% (PCR)
Bacterial vaginosis			9.1		

Table 1.4: Prevalence of STI among sex workers in 1998

STIs	Prevalence % (n=407)	Technique
Gonorrhoea	36	PCR
Chlamydia	31	PCR
Syphilis	32	RPR+TPHA
Trichomoniasis	44 in Lae, 21 in Port Moresby	PCR

ANNEX 2

Fig 2.1:

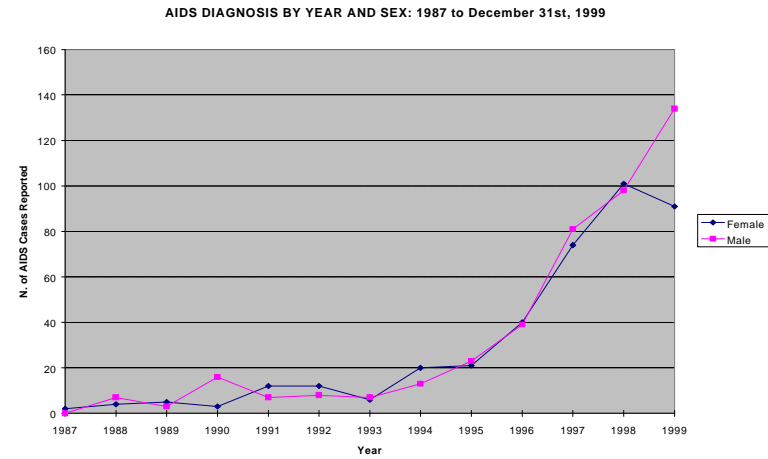
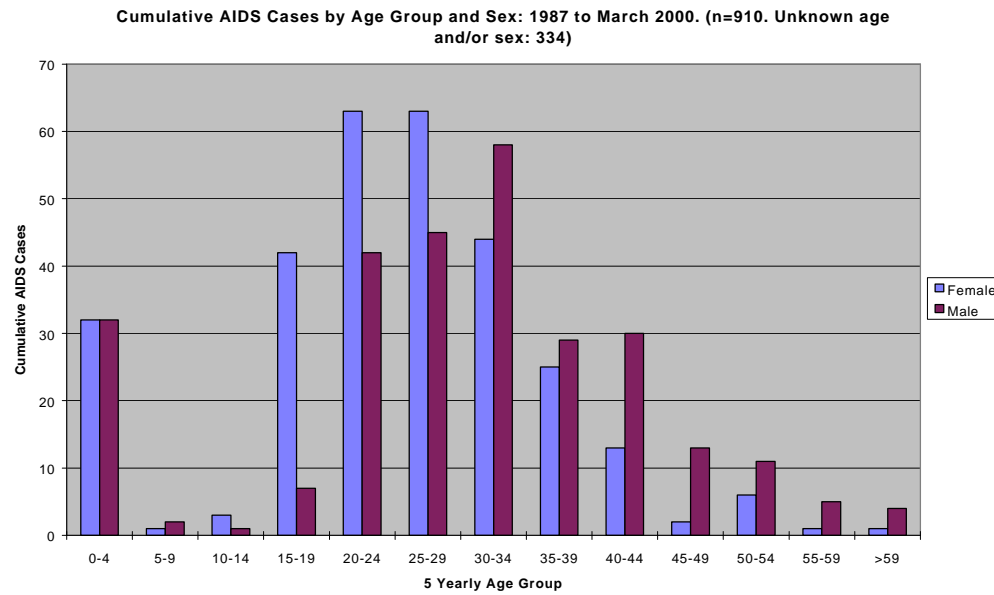


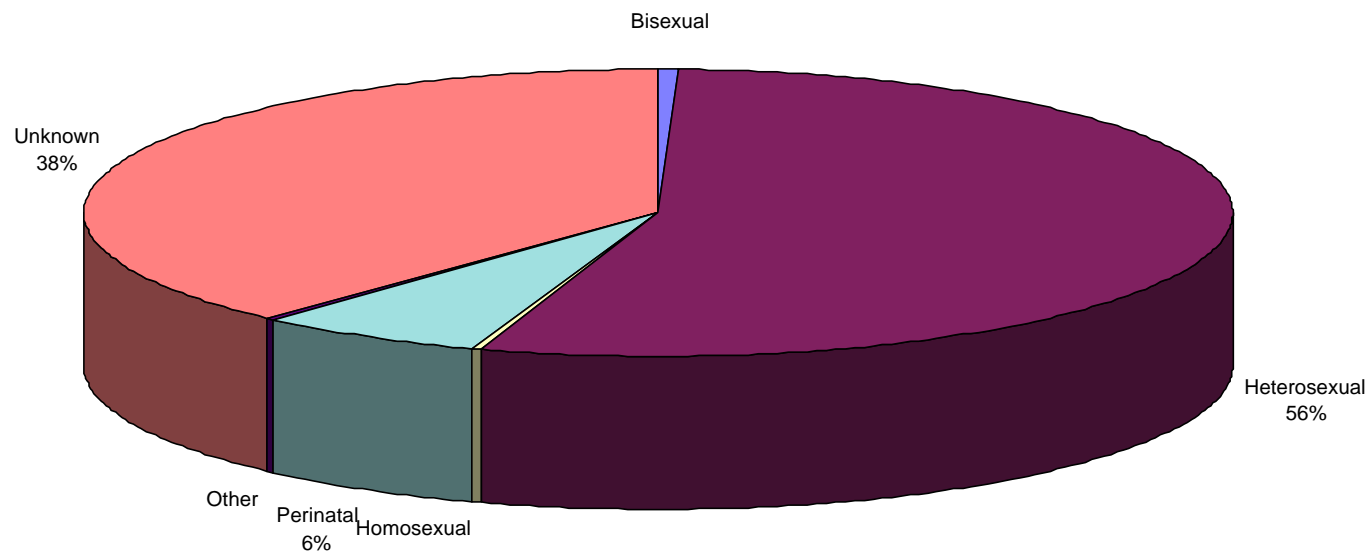
Fig 2.2:



ANNEX 2

Figure 2.3:

Cumulative AIDS Cases Reported by Mode of Transmission: 1987 to December 31st 1999



ANNEX 2

Fig 2.4:

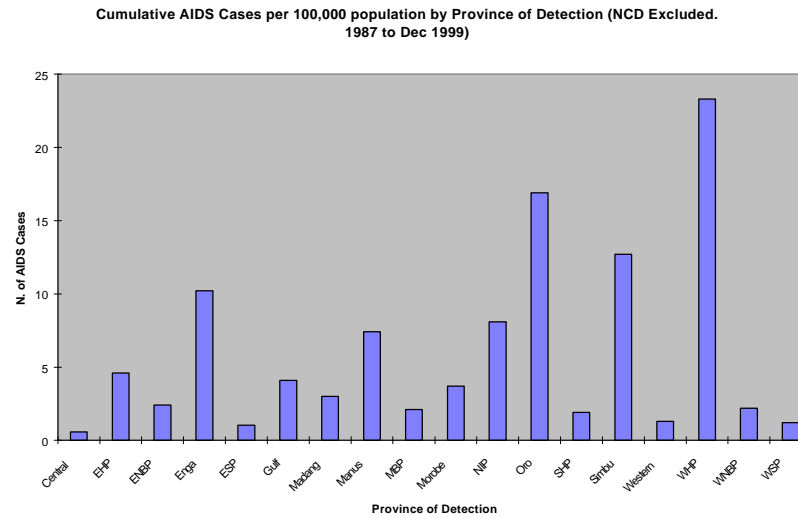
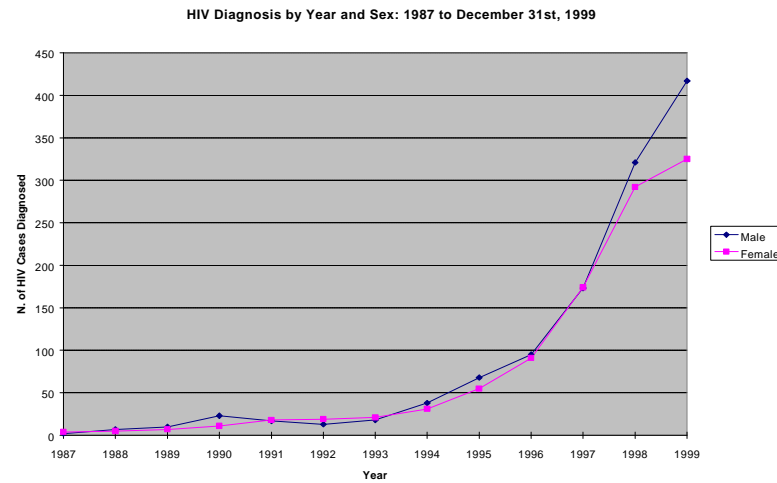


Figure 2.5.:



ANNEX 2

Table 2.1: HIV prevalence among low risk populations (Blood donors and antenatal women)

Year	Blood donors, PNG		Blood donors, Port Moresby		Antenatal women, Port Moresby	
	No. of samples	Pos rate %	No. of samples	Pos rate %	No. of samples	Pos rate %
1988	13200	0.000				
1989	26214	0.000				
1990	120784	0.005				
1991	24004	0.004				
1992	23184	0.004			0	0
1993	22601	0.004			1446	0
1994	25576	0.023			4248	0.5
1995	25190	0.016			5229	0.11
1996	28554	0.032	5396	0.130	4663	0.24
1997	24248	0.021	5277	0.038	4914	0.26
1998	24120	0.042	5428	0.090	5081	0.37
1999	No figure available*		5884	0.255	5387	0.32**

* 26 positives from PNG BTS in 1999 but figures for total tested not available. Using number of donors from 1999 gives a prevalence rate of 0.1

** 17 positive among antenatal patients, 1999

Table 2.2: HIV prevalence (%) among sex workers, STD patients and Defense Force personnel, 1997-1999

Site	1997	1998	1999
Sex Workers, Port Moresby	ND	16.3 (n=196)	ND
Sex Workers, Lae	ND	2.97 (n=202)	ND
STD patients, Port Moresby,	2.4 (n=251)	Mar-Apr: 4.1 (n=242)	6.9 (n=261)
STD patients, Goroka	0.1 (n=2016)	ND	ND
STD patients, Lae	ND	2.9 (n=1102)	1.2 (n=164)
STD patients, Mt Hagen	0.28 (n=2465)	1.0 (n=300)	1.0 (n=293)
STD patients, Kundiawa	ND	3.6 (n=300)*	0.7 (n=292)
Defense Force Personnel, Taurama Barracks	ND	ND	0.4 (n=243)

* This sample included symptomatic hospital patients and was not surveillance as such

ANNEX 3

Table 3.1: Knowledge on AIDS and HIV prevention and condom use among general population, 1996.

	Males	Females
AIDS and prevention	n=110	n=263
Heard about AIDS	75%	-
AIDS is fatal	45%	16%
Knew only that is sexually transmitted	52%	36%
Knew about both sexual and blood- borne transmission	7%	5%
It can be prevented by		
• Having only one sexual partner	22%	14%
Having one faithful partner	-	22%
• Using condoms all the time	17%	3%
• Both of the above	17%	-
Condom	n=113	n=119
• Had heard of condom	80%	60%
• Having used condoms at least once among those who had heard about them	38%	12%

ANNEX 3

Table 3.2: Condom use in sex acts in last week, evaluation study, Port Moresby, (PNGIMR, 4/1999)

Sex Workers (n=194)		Policemen (n=198)	
With clients (n=181)	With other men (n=145)	With sex workers (n=109)	With other women (n=106)
71.2%	50.3%	64.2%	7.6%

Table 3.3: Condom use among sex workers, Port Moresby and Lae (PNGIMR, 7/1999)

Condom Use	Port Moresby (n=108)		Lae (n=68)		Total (n=173)	
	With clients	With non clients	With clients	With non clients	With clients	With non clients
Consistent use	24.5%	9%	4.5%	9%	14.7%	9%
Use in sex acts in the past week	45.3%		46.3%		45.7%	

ANNEX 4

TABLE 4: HIV ESTIMATES (1986 – 2000) AND AIDS ESTIMATES AND PROJECTIONS (1986-2005)-PAPUA NEW GUINEA – MAY 2000-07-22

Year	Adult		Pediatric		Pediatric		Adult	
	HIV New	HIV Current	HIV New	HIV Current	AIDS New	AIDS Cum	AIDS New	AIDS Cum
1986	1121	1121	10	7	3	3	0	0
1987	1139	2254	24	21	10	14	6	6
1988	1195	3416	49	47	22	36	34	39
1989	1233	4547	78	85	40	76	102	141
1990	1273	5648	114	136	63	139	172	313
1991	1314	6707	152	197	91	230	256	568
1992	1357	7721	191	266	122	352	342	911
1993	1400	8690	230	340	156	507	432	1342
1994	1446	9611	262	413	189	697	524	1867
1995	1492	10483	293	484	222	918	620	2487
1996	1541	11340	322	553	253	1172	685	3171
1997	1590	12178	351	620	284	1455	752	3923
1998	1642	12998	380	686	314	1769	821	4745
1999	1695	13800	403	748	341	2110	893	5638
2000	1749	14583	425	808	366	2475	966	6604
2001					390	2865	1043	7647
2002					413	3278	1121	8768
2003					434	3712	1202	9970
2004					454	4167	1286	11256
2005					473	4640	1372	12628

Assumptions: Widespread transmission of HIV started in 1986. HIV prevalence estimated in 1999 at 13 800. Epimodel exponential 3 , position 161

ANNEX 5

List of Participants

	PNG Participants	Designations	Divisions /Departments
1	Dr. Malau	Director	National AIDS Counsel Secretariat
2	Dr. Moiya	SMO	National AIDS Counsel Secretariat
3	Mrs. A. Gege	Statistical Officer	National AIDS Counsel Secretariat
4	Ms Rosa Au	Senior Tutor	Sociology /Anthropology Department- UPNG
5	Dr. C. Mgone	a/Director	Institute of Medical Research Goroka
6	Mrs. Aileen Natera	Senior Tutor	Anth Dept UPNG
7	Dr. Aeno	a/Director	Blood Transfusion Services
8	Dr. Tabua	SMO	STD Clinic PMGH
9	Dr. D. Babona	SSMO	Central Public Health laboratory
10	Dr. J. Wangi	Principal Tech Adviser	Disease control - NDOH
11	Mr. B. Kapa	Senior HEO STD/AIDS	Disease control - NDOH
12	Dr. G. Hiawalyer	Director	Health Information, Monitoring & Evaluation - NDOH
13	Mr. A. Badu	Health Statistician	Health Information, Monitoring & Evaluation - NDOH
14	Mr. J. Anang	Research	Institute of Medical Research - Lae
15	Dr. G. Babona	Director Medical Services	Port Moresby General Hospital
16	Ms Madeline Lemeki	Research Officer	National Statistics Office
17	MR. G Kalmayen	Senior HEO TB	TB Section - Disease Control - NDOH
18	Dr. Solomon	SSMO TB	TB Section - Disease Control - NDOH
19	Mr. Boiha	Director	National Research Institute
20	Dr. Taufa	Chairman/Com Med	Medical Faculty - UPNG
21	Dr. Banakori	SMO/TB	TBClinic - Port Moresby General Hospital - NCD
22	Steven Toikilik	EPI - Manager	Logistics/Family Health - NDOH
23	Dr. Millan	Chairman	Goroka Provincial AIDS Counsel Secretariat
24	Dr. Hawap	a/Principal Adviser	Family Health Section - NDOH
25	Mr. Wilfred Peters	Research	Institute of Medical Research - Lae
26	Dr. Dakulala	SMO Physician	Angau Base Hospital, Lae - Morobe Province
27	Gigimai Getrude	Provincial Planner	Chimbu Provincial Gornment Office
28	Paso Pohe	Provincial Planner	Manus Provincial Government Office
29	Samuel Petau	National Planner	Department of National Planning Office (DNPO)
International Participants			
30	Dr. Ruth Stark	WHO Representative	WHO PNG Office
31	Dr. Salik Govind	Program Manag. Officer	WHO PNG Office
32	Dr. Steve Borge	Scientist	WHO PNG Office
33	Dr. Sue Crockett	Technical Adviser	Sexual Health Project - AUSAID in PNG
34	Jacqui Davison	Second Secretary	AUSAID in PNG
35	Dr. John Kaldor	Consultant	WPRO
36	Dr. Nguyen T.Thanh Thuy	Consultant	WPRO

