

Twenty-two years of HIV infection in Bhutan: epidemiological profile

Pandup Tshering¹, Karma Lhazeen², Sonam Wangdi^{3*} and Namgay Tshering⁴

¹ Department of Public Health, Ministry of Health, Bhutan

² Communicable Disease Division, Department of Public Health, Bhutan

³ HIV/STI/Hepatitis Unit, Communicable Disease Division, WHO – Regional Office for South East Asia, New Delhi, India

⁴ Namgay Tshering National STI and HIV/AIDS Control Programme, Department of Public Health, Bhutan

Abstract

Aims: To describe the HIV epidemiology in Bhutan.

Methods: Data from the database of people living with HIV infection in Bhutan, survey reports from the National STI and HIV/AIDS Control Programme from the Ministry of Health and published literature on HIV in Bhutan were reviewed.

Results: Bhutan continues to have a low HIV prevalence with only 470 cases reported by the end of 2015. However, there is a slow but steady recent increase in the number of cases. The main mode of transmission is unsafe heterosexual practice in the general population and is occurring mostly in urban and business districts. More than half of cases have been diagnosed in only three districts. Although the number of cases among key populations such as sex workers and intravenous drug users remains significantly low, the information available remains very limited. There is only scarce published literature on HIV in Bhutan and an absence of a strategic surveillance system. A high level of sexually transmitted infections and multiple sexual relationships represent the existing threats that may fuel a larger epidemic.

Conclusions: Bhutan has maintained a low HIV prevalence over the past two decades, which is reflected in the national response to HIV. However, with the presence of existing and newly emerging risk factors, this response needs to adapt continually. To ensure that HIV prevalence remains low, it is crucial to invest in a strategic information system to monitor rates of infections to guide the public health response.

Introduction

Bhutan is a small land-locked country located between China in the north and India in the south, with an estimated population of 733,643 of whom 53% are male and 48% female. The majority of the population continues to live in rural areas (65.5%) and is engaged in agriculture and livestock farming. Nearly 61% of the population is in the economically active age group of 15–64 years, while about 5% is over the age of 64. According to the Population and Housing Census of Bhutan, life expectancy stands at 66.2 years (65.65 for males and 66.85 for females) [1]. More than 90% of the population has access to primary healthcare delivered through a network of 31 hospitals, 178 basic health unit clinics and 654 outreach clinics [2]. The Constitution of Bhutan mandates the government to provide free access to basic health services [3].

For the past 30 years HIV infection has been one of the major causes of ill-health and mortality in the world. It is a global pandemic with over 37 million people estimated to be infected across the globe [4]. It has spared no country, not even the most isolated, such as Bhutan. The country has remained isolated from the outside world for the major part of its existence as a nation. It was only in 1971 that it became a member of the United Nations and started slowly opening its doors to the outside world. Television and the internet were introduced in 1999.

The first case of HIV infection was detected in 1993 with a total cumulative number of cases of 470 by the end of 2015 [5]. While the number of reported cases seems small compared to other countries in the region with very high burden of infection, it is still of public health concern given the small size of its population. Its two immediate neighbours are China, with an estimated 0.7 million people living with HIV (PLHIVs), and India with which Bhutan shares an open border with over 2.1 million PLHIVs [6].

Therefore, HIV was given the due attention it deserved with the establishment of the National STI and HIV/AIDS Control Programme in 1988, even before the first case of HIV was detected within its border [7].

The challenge for the country is to continue to maintain this low prevalence when considering the risks that come with modernisation and globalisation. In order to move forward with an HIV intervention programme, it needs to learn from good practices and the experience of other countries. However, this is a challenge as there is a lack of information regarding HIV infection in small countries with a low population similar to Bhutan. The majority of the evidence comes from highly populated countries with a large epidemic and, in most cases, concentrated in key populations.

This article is an attempt to review the current data on the epidemiology of HIV infection in Bhutan since the first case of HIV was diagnosed in 1993. It aims to analyse and describe the infection trend in the country with the hope that it will inform future interventions and serve as a reference for other similar types of countries.

Surveillance system and data sources

The National STI and HIV/AIDS Control Programme in Bhutan has an HIV case reporting system with unique identifiers that maintains a database of HIV cases. All PLHIVs are assigned a unique identifier by the Care, Support and Treatment Unit upon confirmation of their status. Information such as age, occupation, mode of transmission, diagnosis location and address are collected. This facilitates follow-up and patient tracking and forms the basis of a database that can be analysed over time to improve the understanding of the dynamics of HIV infection in the country. The information is collected on paper-based forms and then transferred onto Excel spreadsheets centrally where the information is collated. This programme also produces biannual reports to update and disseminate information on new recorded cases. There is, however, no sentinel surveillance programme currently in place

*Corresponding author: Sonam Wangdi, HIV/STI/Hepatitis Unit, Communicable Disease Division, World Health Organization Regional Office for South-East Asia, Indraprastha Estate, Mahatma Gandhi Marg, New Delhi, 110 002 India
Email: wangdis@who.int

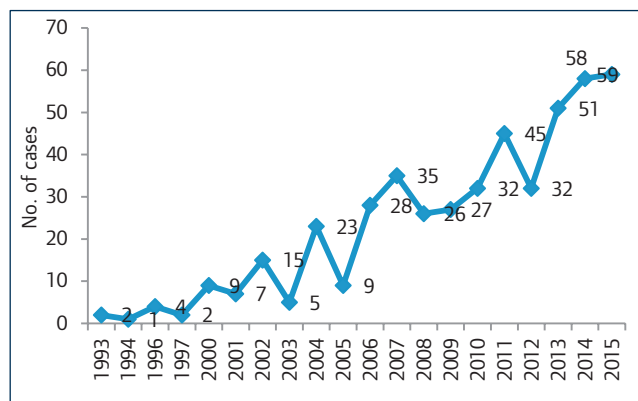


Figure 1. Detection of HIV by year in Bhutan

Table 1. Routine antenatal clinic (ANC) screening report

Antenatal Care (ANC)- Voluntary Counselling and Testing Report

Year	No. of ANC attendants tested	HIV-positive cases	Prevalence
2012	10,509	6	0.06%
2013	9339	8	0.09%
2014	11,281	1	0.01%

as, although initiated among antenatal clinic attendees, STI and TB patients, armed forces and migrant workers, it was discontinued in 2007 because of the low HIV prevalence and costs that then outweighed its potential benefits. For the purpose of this article the main source of data and information comes from the national PLHIV database in addition to other survey reports and published literature.

HIV case profile

The first case of HIV infection was reported in 1993 and since then there has been a slow but steady increase in the number of cases (Figure 1). From 2007 onwards there was a notable rise in the number of cases being detected and during the period 2013–2015 there was the greatest increase in the number of annual HIV cases ever reported. At the end of 2015, the total number of cases stands at 470, 80% of them reported between 2007 and 2015.

Estimated number of PLHIVs

There have been no population-based surveys performed in Bhutan to estimate the HIV prevalence among the general population. However, surveillance in antenatal clinics in 2006 has estimated the prevalence among pregnant mothers attending antenatal clinics at 0.02% [8]. Voluntary counselling and testing records maintained by the National Programme show a similar prevalence level at 0.01% among pregnant women attending antenatal clinics in 2014 (Table 1) [9]. UNAIDS has estimated that approximately 1100 (1000–2700) individuals are presently living with HIV in Bhutan [10].

Sex, age and occupations of PLHIV in Bhutan

There is no marked difference between sexes among the 470 reported cases (231 females and 239 males). However, the age at diagnosis is different, with females affected at a younger age as compared to the opposite sex. In the age range 20–22 years, the number of young females infected is almost twice that of

Table 2. The number of HIV infections by age and gender

Age group (years)	Female	Male	Total
<5	18	7	25
6–14	5	4	9
15–19	11	3	14
20–24	47	27	74
25–29	62	59	121
30–39	57	94	151
40–49	23	34	57
>50	8	11	19

Table 3. Adult occupation at the time of HIV diagnosis

Occupation	No. of cases	%
Civil servant	27	6%
Corporate employee	23	5%
Driver	43	10%
Farmers	87	20%
Housewives	106	24%
Private/Business	75	17%
Armed forces	34	8%
Religious body	10	2%
Sex worker	12	3%
Student/trainee	6	1%
Unemployed	13	3%

males. Over 70% of the total reported cases fall in the age range 20–39 years (Table 2).

The highest proportion of infections among adults was noted among female spouses, mostly detected through contact tracing (24%, $n=106$), farmers (20%, $n=87$), private entrepreneurs (17%, $n=75$), members of the armed services (8%, $n=34$) and transport workers (10%, $n=43$). A total of 12 cases have been reported to date among female sex workers (3% of total cases). Notably, although at a low level, the epidemic appears to be spread across all sections of Bhutanese society with no discernible socio-economic differentials (Table 3).

Place of diagnosis

HIV cases have been reported from 18 of Bhutan’s 20 districts. There is a clear geographical pattern with 70% of PLHIVs living in the capital, Thimphu, and two other border districts – Chukha and Samdrupjongkhar. The capital, which is the most populated district, alone accounts for 49% of cases detected so far. The other two districts share a border with India and both have frequent movement of adjacent populations between the two countries (Figure 2).

Mode of transmission

In terms of mode of transmission, 92% of infections are attributed to unsafe sex (all reported as heterosexual), 7% to vertical transmission and 1% to others means (Table 4). Only three reported cases so far have had a history of injecting drug use. None of the traditional most at-risk populations, for example people who inject drugs (PWIDs), commercial sex workers (CSWs) and men who have sex with men/transgender (MSM/TG) feature prominently in the epidemiological profile of HIV in Bhutan.

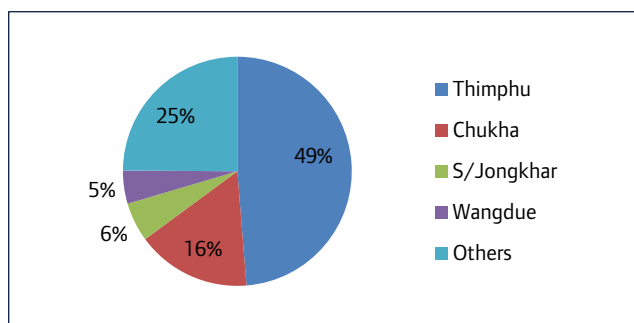


Figure 2. HIV cases reported by location in Bhutan

Table 4. Transmission routes for HIV infection

Transmission route	HIV cases (%)
Heterosexual sex	92
Vertical transmission	7
Others	1

The first mother-to-child transmission (MTCT) was reported in Bhutan in 2002. Routine HIV screening of pregnant women has been integrated into the mother and child clinic for over a decade now. So far, 32 cases of MTCT have been recorded within the PLHIV database. In 2014, a total of 11,281 pregnant women were tested for HIV [11]. In 2014, three cases of MTCT were reported and two cases in 2015. The National Programme has records of 69 children born to HIV-positive mothers who have been put on the prevention of mother-to-child transmission (PMTCT) programme. Of these 69 children, the HIV status of 17 of them is unknown, three died before being tested and 49 are confirmed HIV negative. Currently, early infant diagnosis facilities are not available in the country.

Discussion

The main aim of this article was to document the epidemiological profile of HIV infection in Bhutan. The HIV scenario in the country is still in its early stages, although there is a slow but steady upward trend of the number of cases reported annually. However, it might not necessarily reflect an increasing prevalence but is rather a function of the expansion of testing services. Bhutan has had HIV testing and counselling services in all its health facilities as well as at the level of the basic health units since the end of 2013. HIV prevalence among pregnant mothers as per the 2006 sentinel surveillance was 0.02%. With the general acceptance of the use of HIV prevalence among pregnant women as a proxy for that of the general population [12, 13], Bhutan indeed has a low prevalence, confirmed by the number of HIV infections among pregnant women based on routine VCT reports. The prevalence has been consistently low at 0.06%, 0.09% and 0.01% for 2012, 2013 and 2014, respectively (Table 1). The Routine Programme Data can be considered fairly reliable given that the coverage of antenatal clinics in the country is 81.7% for four visits [14]. Recently the UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance has issued guidelines for the use of routine data from antenatal clinics for HIV surveillance [15].

However, with only approximately 47% ($n=470$) of reported cases from among the estimated 1100 PLHIVs living in the country, there is a gap in detection that needs to be addressed. UNAIDS estimates that more than half of the people currently living with HIV do not know their status [6]. The Annual Health Bulletin Report from the Ministry of Health shows that 45,808 HIV tests were performed

in the country in 2014 [16]. This means that 789 tests had to be performed to detect a single HIV case that year. (This figure does not include testing performed during health events and testing camps.) Testing strategies might need to be revised to focus on locations and groups that will give a maximum return to close the gap in diagnosis.

The epidemiological profiles of PLHIV suggest that HIV infection is not concentrated in any key population. The majority of infections occur in those in the young and economically productive age group of 20–39 years. Bhutan is also displaying the tendency for more females being affected at a younger age. Evidence from around the world points to the high vulnerability of young girls with reports of there being as high as eight times more infections in this population than their male peers in Africa [17–19]. The review of the epidemiological profile also reveals that there are geographical patterns of HIV with more than half of the cases being detected in three districts. While appreciating the principle of universal equity and access to healthcare services, the return from interventions can be optimised by focusing on these priority districts.

Although Bhutan has a low prevalence and none of the traditional high-risk group features at this point in time, there are vulnerabilities and risk factors that might fuel a larger HIV epidemic if appropriate interventions are not put into place. The risk factors, especially among the general population, are discussed below.

Multiple and concurrent sexual relationships

One major issue related to HIV risk in Bhutan across the entire population relates to multiple and concurrent sexual partnerships. The HIV/AIDS Behaviour Survey among the General Population in Bhutan, 2006 reported that extramarital sex and premarital sex were not uncommon. In fact the proportion of women engaged in extramarital or premarital sex was high compared to other countries in the region. The same survey reported that the average number of sex partners in the last six months among those who had extra- or premarital sex, was 2.7 [20]. Another more recent study in 2012 reported that 60% of men and 36% of women interviewed reported multiple sexual partners [20]. Furthermore, the knowledge level about HIV/AIDS is quite low in the general population with only 23.2% of individuals between the ages of 15 and 24 years reporting a comprehensive knowledge of the infection [14]. This partly explains the fact that 92% of the cases occur through heterosexual transmission. This high level of multiple and concurrent sexual partners coupled with a low knowledge about transmission routes can potentially fuel an explosive HIV epidemic if not addressed adequately.

High levels of sexually transmitted infections (STIs)

Another critical factor contributing to HIV vulnerability in Bhutan is the high levels of STIs. Rates are perceived to be increasing, although this may be a function of improvement in case reporting. Irrespective of the cause of this increase, the burden of STIs in 2014 (5814 cases) is nearly 12 times higher than that of reported HIV cases. A rapid assessment in 2012 in Thimphu showed that 20% of the male and 29% of the female population reported having an STI symptom in the past 12 months [21]. Interventions towards STI control will be a crucial input for reducing the HIV incidence in Bhutan.

Key populations

There is very limited information available about the traditional key population such as PWIDs, MSM/TG and CSW. A study among

drug users found only 11% of this group ($n=991$) to have ever injected and only 31 admitted to have injected in the past month [22]. There are no estimates for sex workers and MSM/TG in Bhutan. With no networks or formal establishment for sex work, there are no self-identified sex workers. Most of the sex happens as transactional sex. At the bordering towns some form of formal sex work exists with limited number of girls both from Bhutan and India operating through hotels and bars. A formative assessment was carried out to see the feasibility of conducting an integrated biological and behavioural survey (IBBS) among these key populations; however, given the small size and the hidden nature of these populations, an IBBS was not found feasible [23]. This has not deterred the government from initiating prevention programmes despite the limited evidence of HIV among these key populations in Bhutan. A pilot study for oral substitution is currently under way in the capital city for PWIDs. For MSM and TGs, a peer-based programme has been initiated alongside advocacy to create a supportive environment. Venue-based interventions for potential sex workers and their clients have been put into place in major towns. All of these initiatives support the creation of informal networks and help to gather strategic information.

Conclusions

The main aim of this article was to document the epidemiological profile of HIV in Bhutan as well as to describe the progress made. Based on the available data we can conclude that the country has a low HIV prevalence. A timely intervention by the Government and its partners has ensured the persistence of this low prevalence over the last two decades.

However, the increasing number of cases being detected remains a cause for concern. The present low prevalence does not mean that the status quo in the country will be maintained. Major HIV epidemics often transition from an initial low prevalence with a slow growth. Existing risk factors such as high STI rates and multiple sexual partners, if not rapidly addressed, can fuel a large HIV epidemic. Furthermore, the limited data and information available, especially among key populations at risk of acquiring HIV infection, is a major limitation. Building evidence would be key to inform the future strategic direction of the national response. Efforts to gather and use data to advocate, mobilise resources and design evidence-based programmes relevant to the country's specific needs and epidemiological pattern are of crucial importance to attempt to maintain the present low HIV prevalence status of the country.

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Disclaimer

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