The HIV epidemic in Heilongjiang province of China

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Content

- ✓ **The HIV epidemic in the world and China**
- ✓ **The HIV epidemic in Heilongjiang province of China**
- ✓ **Subtype and sequence analysis of HIV-1 strains in Heilongjiang Province**

The HIV epidemic in the world

Global estimates for adults and children □ 2012

People living with HIV	35.3 million [32.2 million – 38.8 million]
New HIV infections in 2012	2.3 million [1.9 million – 2.7 million]
Deaths due to AIDS in 2012	1.6 million [1.4 million – 1.9 million]

The HIV epidemic in China

✓ At the end of 2011, the cumulative number of reported people living with HIV(PLHIV) stood at close to 445,000 cases.

✓ Epidemic estimates show that at the end of 2011, a total of 780,000 people were living with HIV in China, accounting for 0.058% of the total population. China therefore remains a low-prevalence country.

Fig 1.Geographical distribution of cumulative reported HIV/AIDS cases (as of 31st December 2011)

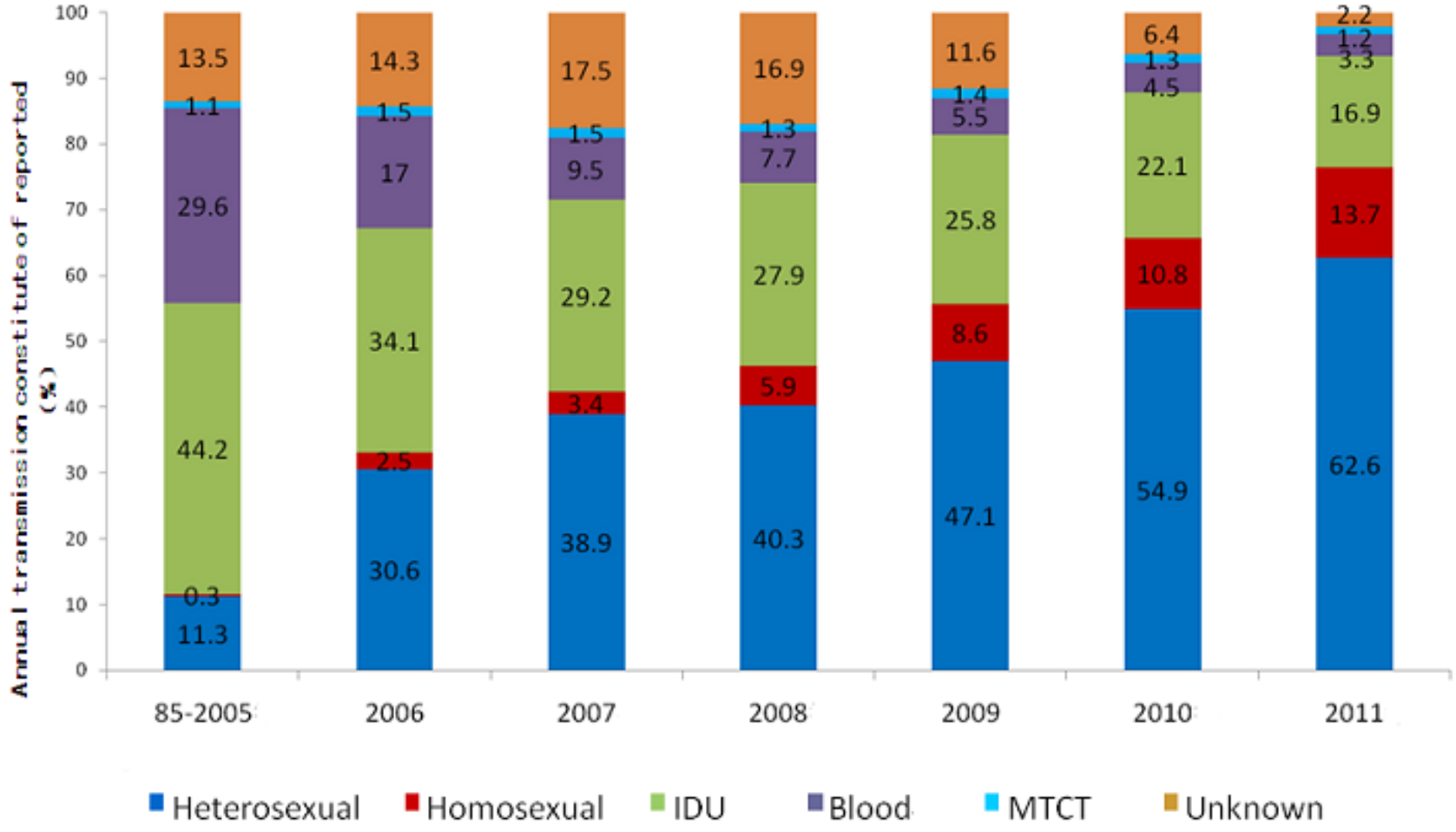

Fig 2.Breakdown of newly reported cases of HIV in past years

The HIV epidemic in Heilongjiang province of China

Fig 3.Geographical distribution of cumulative reported HIV/AIDS cases (as of 31st December 2011)

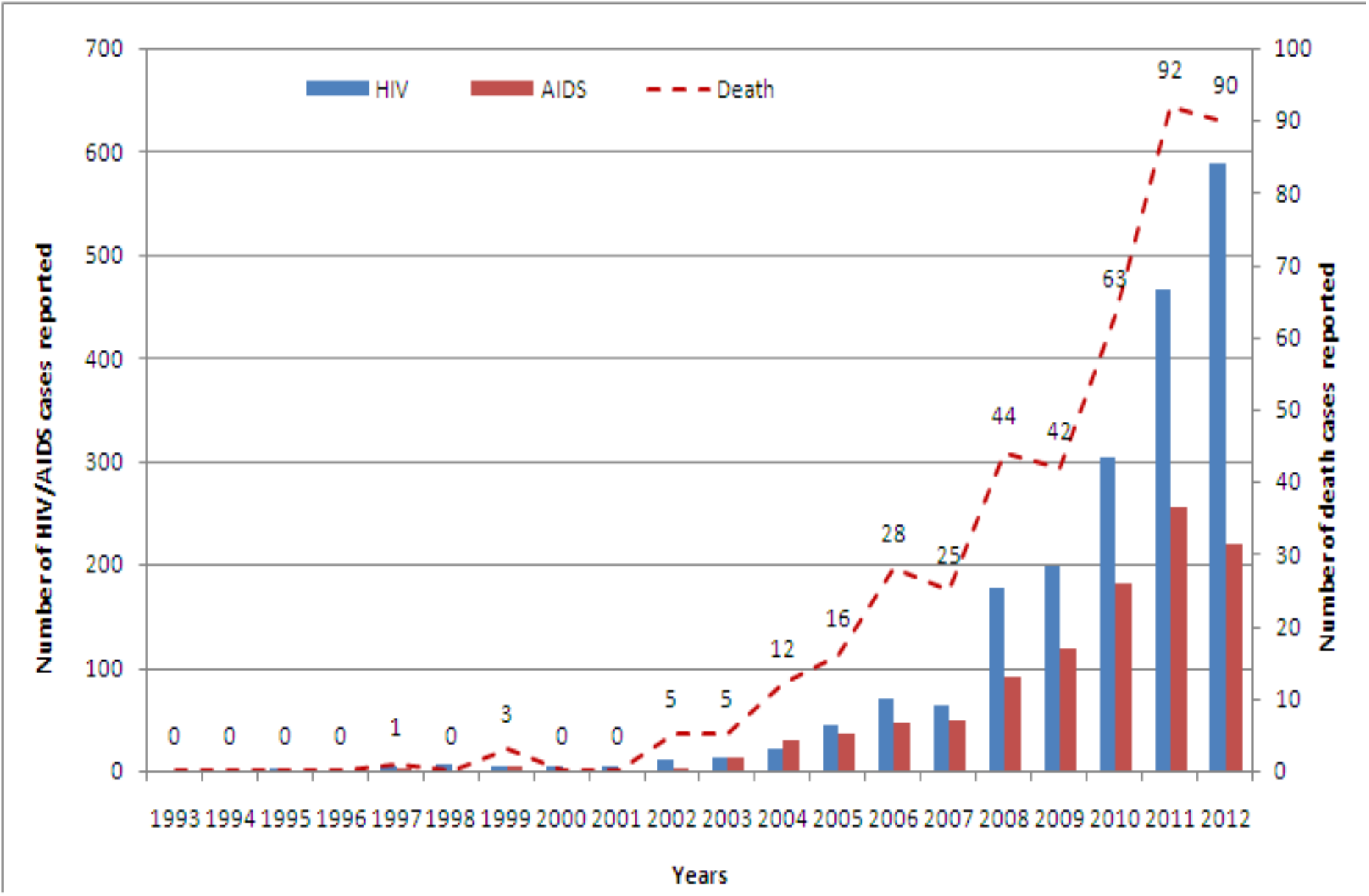

Figure 3. The number of reported HIV/AIDS and deaths annually in Heilongjiang province from 1993 when the first HIV was detected to 2012

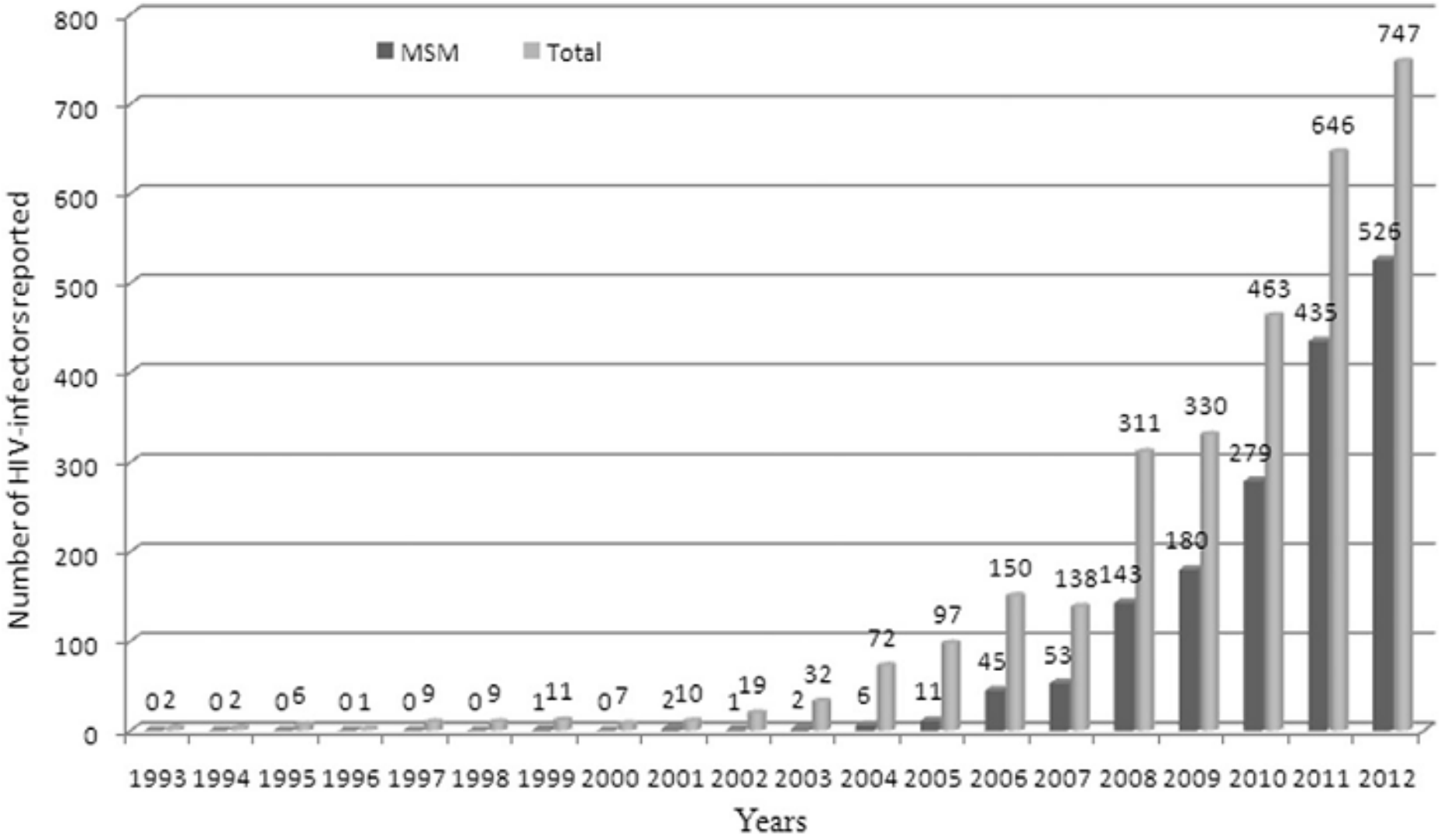

Figure 4. The number of HIV-infections through homosexual contact and the total number of reported HIV cases annually in Heilongjiang province (1993-2012).

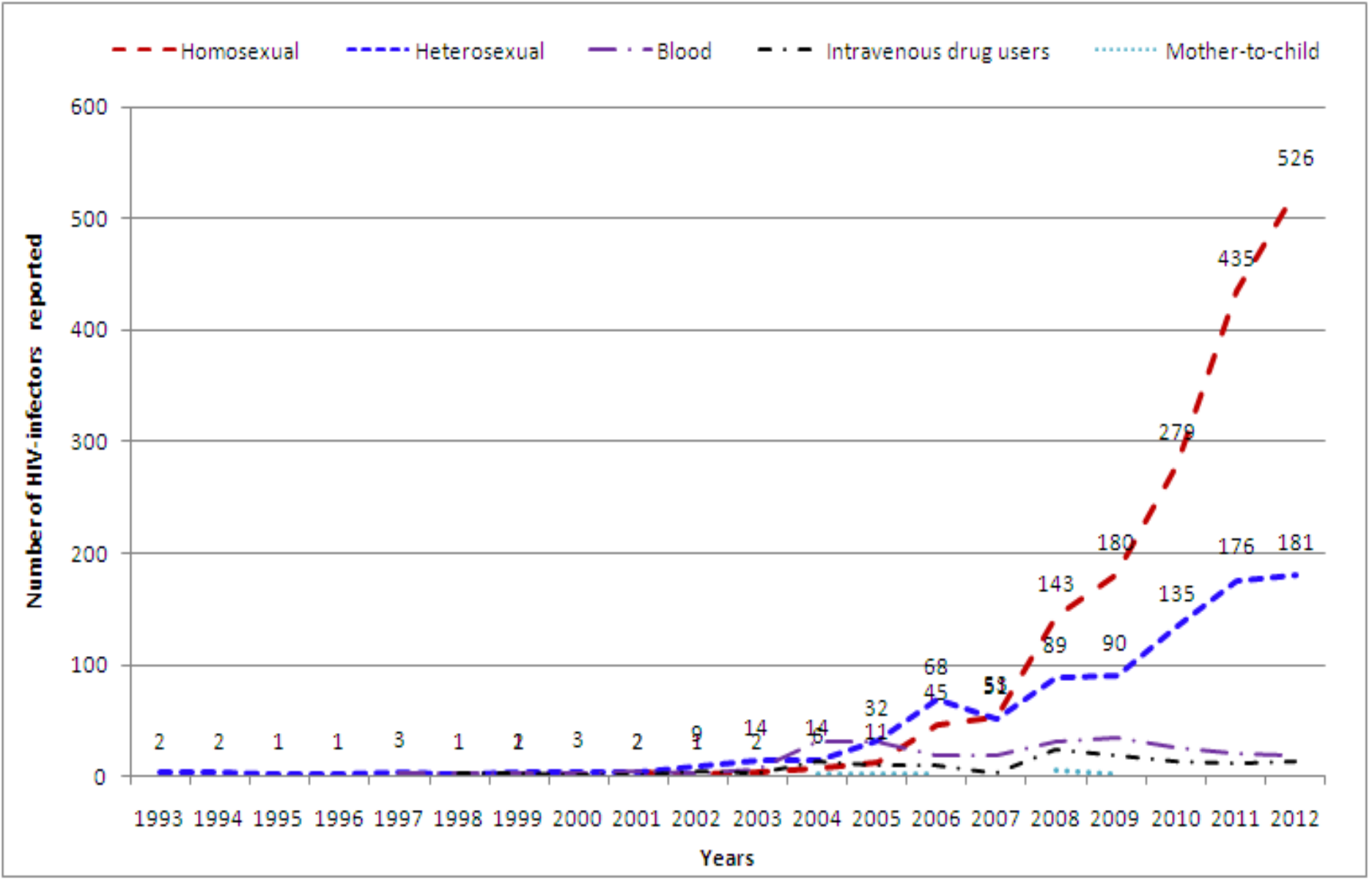

Figure 5. The distribution of HIV transmitted routes in Heilongjiang province (1993-2012).

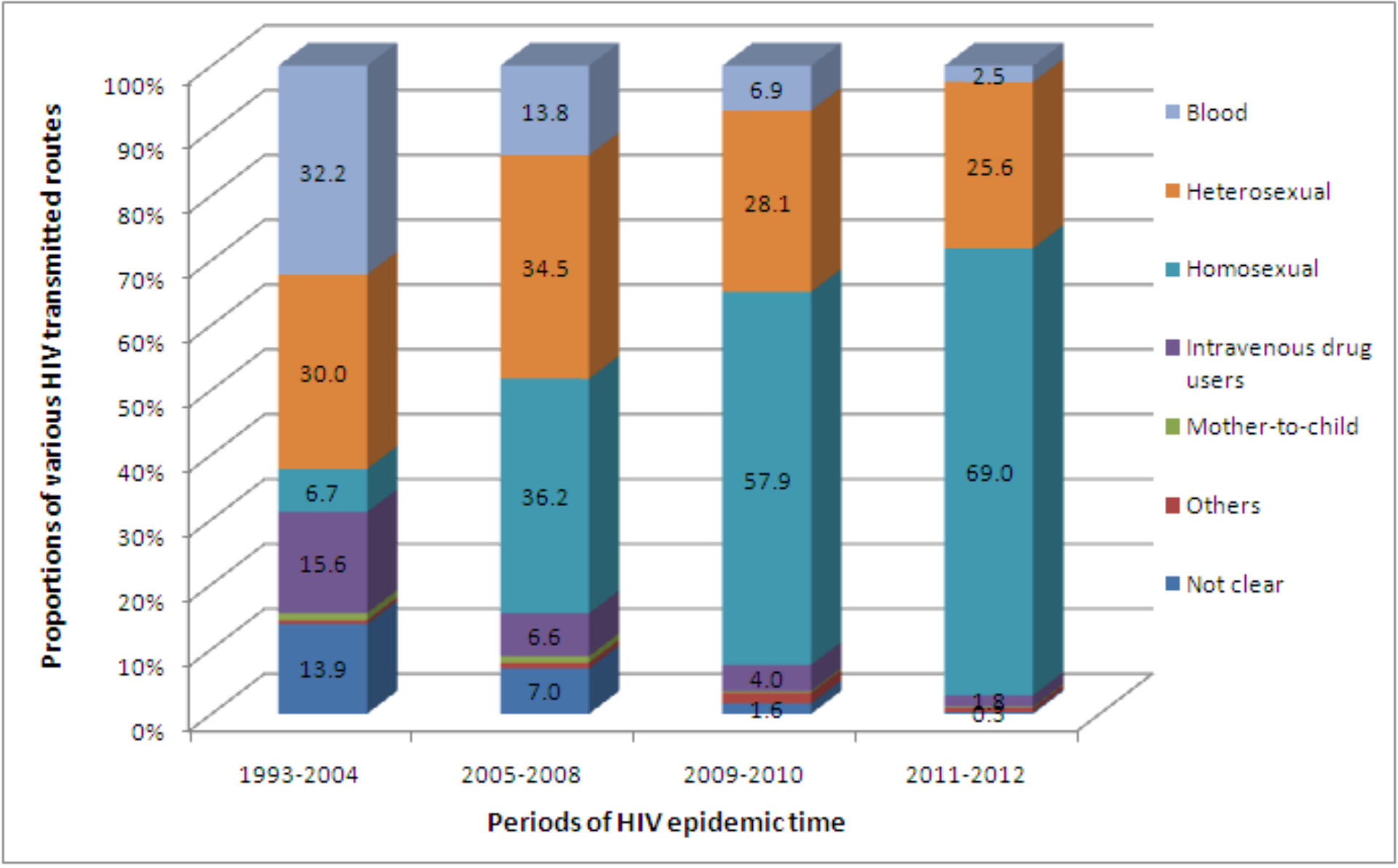

Figure 6. The proportion of various routes of HIV transmission in Heilongjiang province during four time periods:1993-2004; 2005-2008; 2009-2010; and 2011-2012.

Table 1. Demographic characteristics and changes in trend of the HIV epidemic among MSM stratified by the time period of the HIV epidemic in Heilongjiang province, China (1993-2012)

Periods#		Total (n=1684)		1993-2004 (n=12)		2005-2008 (n=252)		2009-2010 (n=459)		2011-2012 (n=961)	
		N	%	N	%	N	%	N	%	N	%
Age groups *											
	≤20	134	8.0	1	8.3	19	7.5	33	7.2	81	8.4
	21-30	714	42.4	2	16.7	104	41.3	196	42.7	412	42.9
	31-40	439	26.1	7	58.3	74	29.4	113	24.6	245	25.5
	41-50	275	16.3	2	16.7	30	11.9	83	18.1	160	16.7
	≥51	122	7.2	—	—	25	9.9	34	7.4	63	6.6
Disease status $											
	HIV	1151	68.4	5	71.4	126	67.7	279	61.6	741	71.4
	AIDS	533	31.7	2	28.6	60	32.3	174	38.4	297	28.6
Census register											
	Rural	554	32.9	1	8.3	53	20.0	115	25.1	385	40.1
	Urban	786	46.7	11	91.7	146	57.9	183	39.9	446	46.4
	Not clear	344	20.4	—	—	53	21.0	161	35.1	130	13.5
Ethnicity											
	Others	56	3.3	1	8.3	8	3.2	14	3.1	33	3.4
	Han	1628	96.7	11	91.7	244	96.8	445	97.0	928	96.6
Education level											
	Primary school or below	84	5.0	2	16.7	22	8.7	20	4.4	40	4.2
	Junior high school	498	29.6	4	33.3	59	23.4	108	23.5	327	34.0
	Senior high school	479	28.4	3	25.0	76	30.2	151	32.9	249	25.9
	College or higher	620	36.8	3	25.0	92	36.5	180	39.2	345	35.9
	Not clear	3	0.2	—	—	3	1.2	—	—	—	—
Marital status$											
	Unmarried	1037	61.6	3	25.0	156	61.9	292	63.6	586	61.0
	Divorced or widowed	460	27.3	5	41.7	68	27.0	131	28.5	256	26.6
	Married or cohabiting	179	10.6	3	25.0	25	9.9	32	7.0	119	12.4
	Not clear	8	0.5	1	8.3	3	1.2	4	0.9	—	—
Floating population											
	No	1512	89.8	12	100.0	223	88.5	423	92.2	854	88.9
	Yes	172	10.2	—	—	29	11.5	36	7.8	107	11.1
Death&											
	No	1433	92.6	4	44.4	174	87.9	355	88.5	900	95.7
	Yes	115	7.4	5	55.6	24	12.1	46	11.5	40	4.3
Treatment											
	No	1101	65.4	7	58.3	137	54.4	280	61.0	677	70.5
	Yes	583	34.6	5	41.7	115	45.6	179	39.0	284	29.6
CD4+ detection											
	No	198	11.8	5	41.7	42	16.7	64	13.9	87	9.1
	Yes	1486	88.2	7	58.3	210	83.3	395	86.1	874	91.0

#Periods and *age groups were determined based on the age when MSM first had HIV detected

$Disease status was determined based on the time when MSM first had HIV detected or the time of AIDS diagnosis.

&136 MSM were lost to follow-up. Disease status, floating population, treatment status, and CD4+ detection were counted based on the observational information during the follow-up period.

Table 2. Demographic characteristics stratified by the age when MSM first had HIV detected in Heilongjiang provinces, China (1993-2012)

Age groups #		≤20 (n=134)		21-30 (n=714)		31-40 (n=439)		41-50 (n=275)		>51 (n=122)	
		N	%	N	%	N	%	N	%	N	%
Disease status *											
	HIV	136	90.7	530	75.4	277	60.0	154	56.4	54	45.8
	AIDS	14	9.3	173	24.6	163	37.1	119	43.6	64	54.2
Census register											
	Rural	47	35.1	257	36.0	153	34.9	72	26.2	25	20.5
	Urban	62	46.3	288	40.3	208	47.4	148	53.2	80	65.6
	Not clear	25	18.7	169	23.7	78	17.8	55	20.0	17	13.9
Ethnicity											
	Others	3	2.2	30	4.2	10	2.3	8	2.9	5	4.1
	Han	131	97.8	684	95.8	429	97.7	267	97.1	117	95.9
Education level											
	Primary school or below	3	2.2	15	2.1	30	6.8	17	6.2	19	15.6
	Junior high school	44	32.8	170	23.8	147	33.5	96	34.9	41	33.6
	Senior high school	50	37.3	173	24.2	130	29.6	91	33.1	35	28.7
	College or higher	37	27.6	355	49.7	131	29.8	71	25.8	26	21.3
	Not clear	—	—	1	0.1	1	0.2	—	—	1	0.8
Marital status											
	Unmarried	133	99.3	659	92.3	198	45.1	41	14.9	6	4.9
	Divorced or widowed	—	—	30	4.2	167	38.0	171	62.2	92	75.4
	Married or cohabiting	—	—	21	2.9	72	16.4	63	22.9	23	18.9
	Not clear	1	0.8	4	0.6	2	0.5	—	—	1	0.8
Floating population											
	No	119	88.8	633	88.7	391	89.1	252	91.6	117	95.0
	Yes	15	11.2	81	11.3	48	10.9	23	8.4	5	4.1
Death&											
	No	117	97.5	620	95.7	384	94.4	223	87.1	89	76.1
	Yes	3	2.5	28	4.3	23	5.6	33	12.9	28	23.9
Treatment											
	No	103	76.9	508	71.2	266	60.6	150	54.6	74	60.7
	Yes	31	23.1	206	28.9	173	39.4	125	45.5	48	39.3
CD4+ detection											
	No	18	13.4	77	10.8	46	10.5	33	12.0	24	19.7
	Yes	116	86.6	637	89.2	393	89.5	242	88.0	98	80.3

#Number in each age group was determined based on the age when MSM first had HIV detected.

*Disease status was determined based on the age when MSM first had HIV detected or the age of AIDS diagnosis.

&136 MSM were lost to follow-up. Disease status, floating population, treatment status, and CD4+ detection were counted based on the observational information during the follow-up period.

Subtype and sequence analysis of HIV-1 strains in Heilongjiang Province

- The subtype of 19 HIV-1 seropositive individuals in Heilongjiang Province is B', and it is introduced from He'nan Province.

(WANG Fu-xiang, ZHOU Hui, LING Hong, etc. Subtype and sequence analysis of HIV-1 strains in Heilongjiang Province . Chin Med J 2007;120(22):2006-2010.)

- ✓ There are 12 B subtypes, 3 CRF07_BC subtypes,1 CRF01_AE subtype among16 HIV-1-positive inmates from prisons in Heilongjiang Province.

(Sheng-Yuan Liu,Fang-Fang Zeng,Guo-Feng Huang,Hui Zhou,Yan-Mei Shi,Hong Ling,Fu-Xiang Wang,Bin-You Wang,and Jin Zhou. Analysis of Human Immunodeficiency Virus Type 1 nef Gene Sequences among Inmates from Prisons in China. AIDS Res Hum Retroviruses. 2009 ;25(5):525-9.)

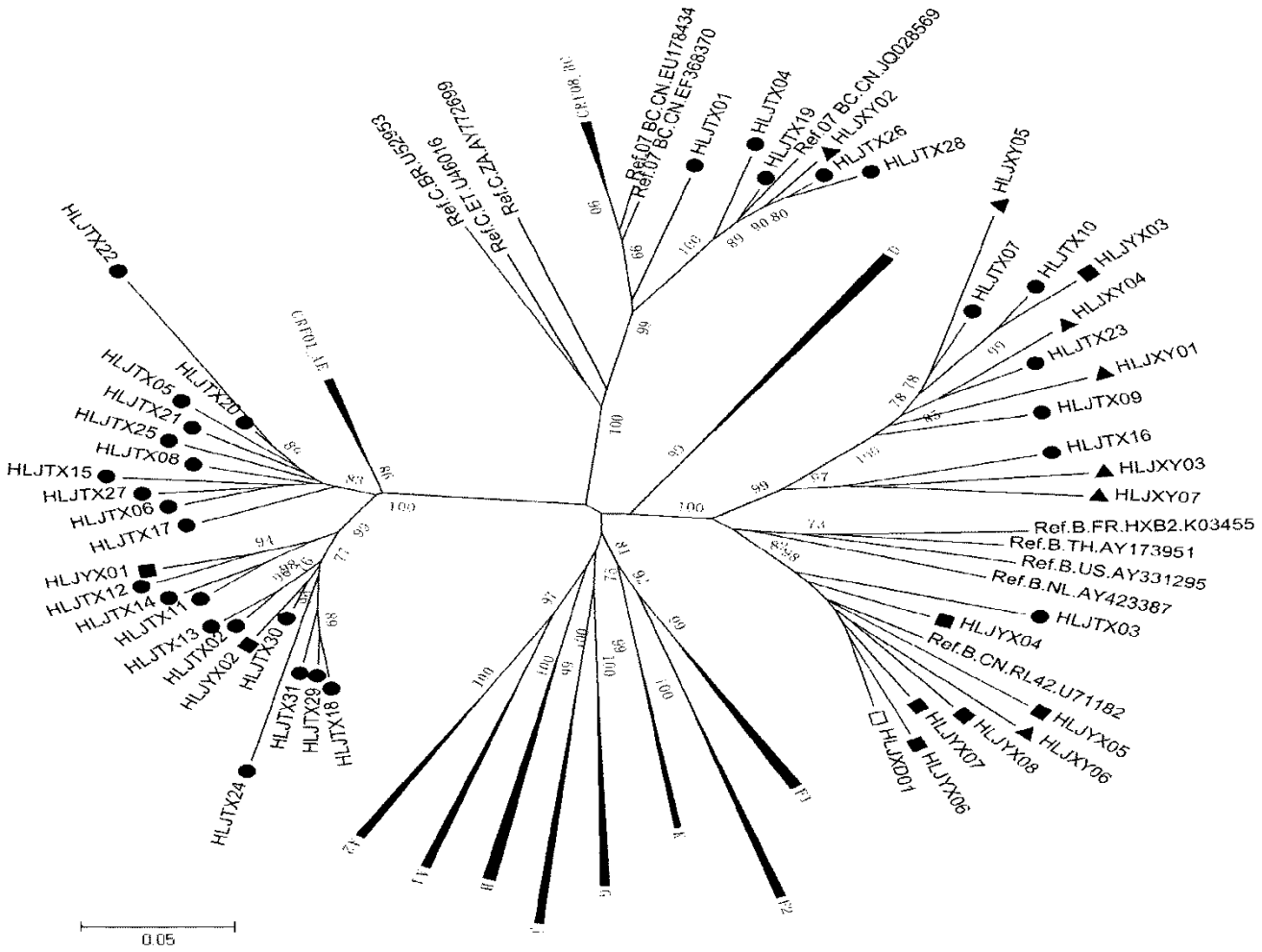

FIG 8 . Phylogenetic analysis of the V3-V4 region of the env gene in HIV-1 strains from infections in Harbin city.

Table 3. Distribution of HIV-1 Subtypes Identified Based on the V3-V4 Region of the env Gene in Each Risk Group

	CRF01_AE	*CRF07_BC*	*B*	*Total*
Homosexuals	20	5	6	31
Heterosexuals	2	—	6	8
Former plasma donors/blood transfusion recipients	—	1	6	7
Injection drug users	—	—	1	1
Total	22	6	19	47

Conclusion

✓The HIV/AIDS epidemic has been continuing to increase in Heilongjiang province, and has shown explosive growth after 2008;MSM have made a tremendous contribution to the incidence of HIV infections. Homosexual contact has become the dominant route of HIV transmission. Urgent intervention needs to target this population, especially those ≤30 years of age, unmarried, a high educational background, and urban MSM.

Conclusion

✓Our study showed that CRF01_AE was the dominant strain circulating in MSM. However, other than the MSM population, subtypes of B were the principal strains in Heilongjiang province


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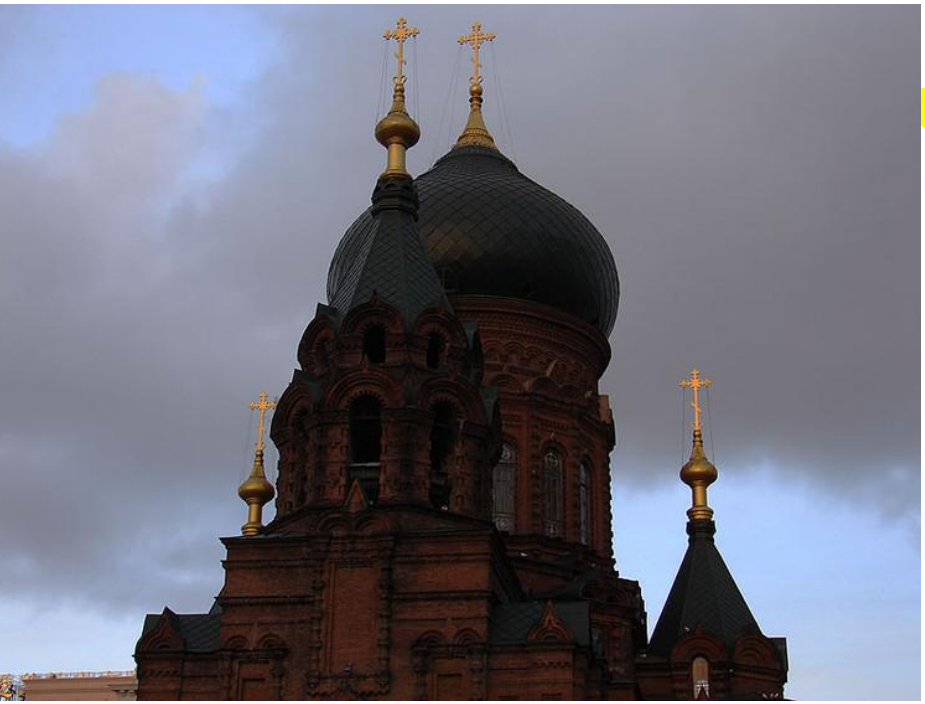


Thank you !