Trends in AIDS incidence and AIDS-related mortality in British Columbia between 1981-2013

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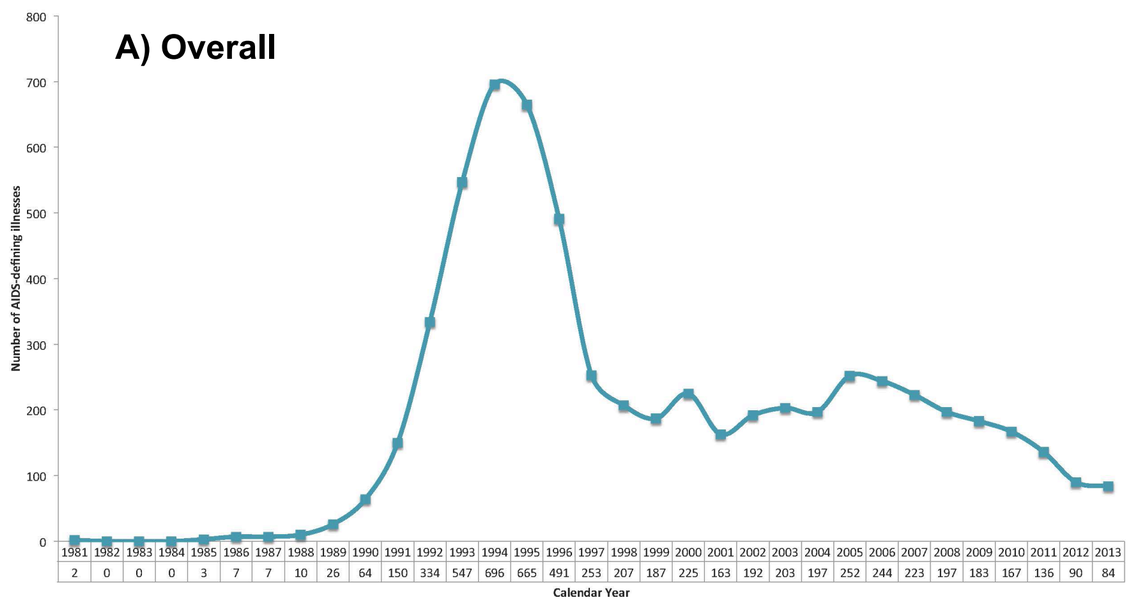
Background

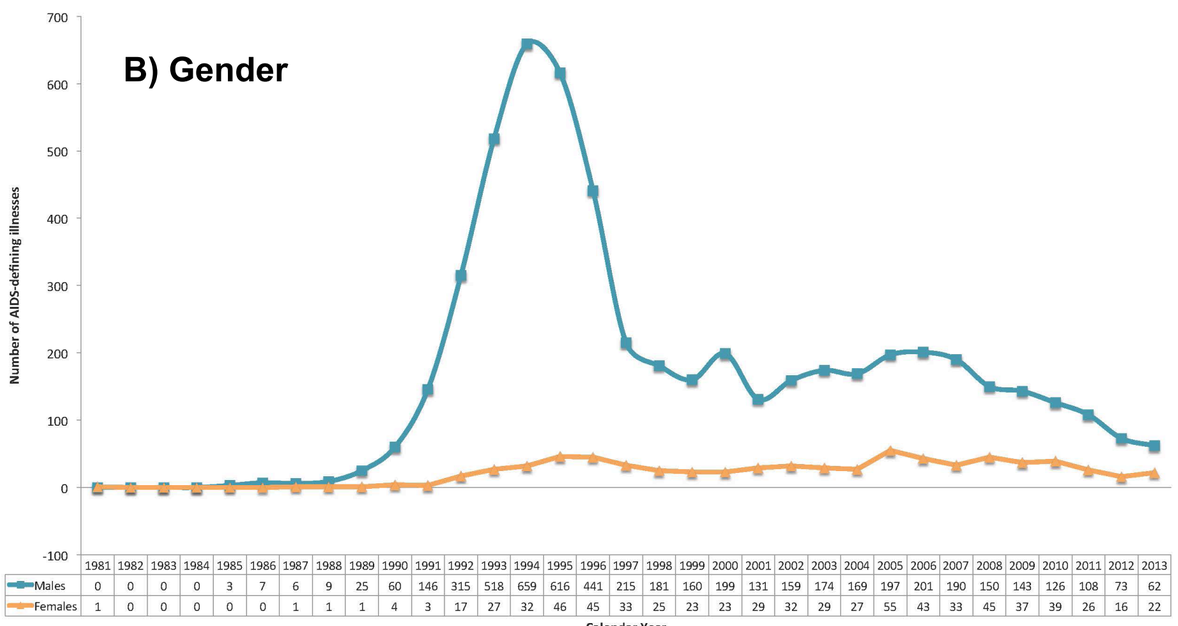
- The appropriate use of highly active antiretroviral therapy (HAART) can markedly decrease the risk of progression to acquired immunodeficiency syndrome (AIDS) and of premature mortality.
- We aimed to characterize the trends between 1981 and 2013 in AIDS-defining illnesses (ADIs) and in the number AIDS-related deaths in British Columbia (BC), Canada.

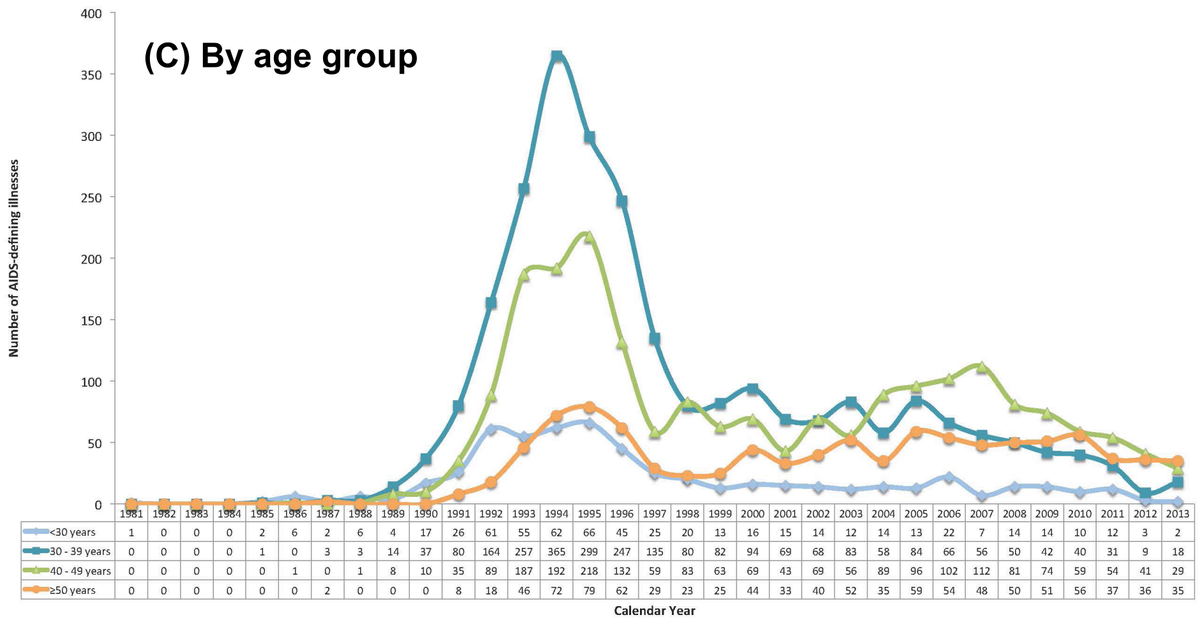
Results

- The number of ADIs has decreased dramatically to its lowest level in 2013. The peak of the AIDS epidemic in BC happened in 1994 with 696 ADIs being reported (rate 42 ADIs per 100 person-years) (Figure 1).
- Since 1997, the number of ADIs decreased from 253 (rate 7 per 100 person-years) to 84 cases in 2013 (rate 1 per 100 person-years) (p-value <0.001 for trend).
- We have also shown that out of 22 ADIs considered, only PCP maintained its prominent ranking (albeit with much reduced overall prevalence).
- We also observed that over time very few deaths were related to AIDS-related causes, especially in the most recent years (Figure 2).

Figure 1. Overall trend in the number of AIDS-defining illnesses from January 1st, 1981 to December 31st, 2013 in BC







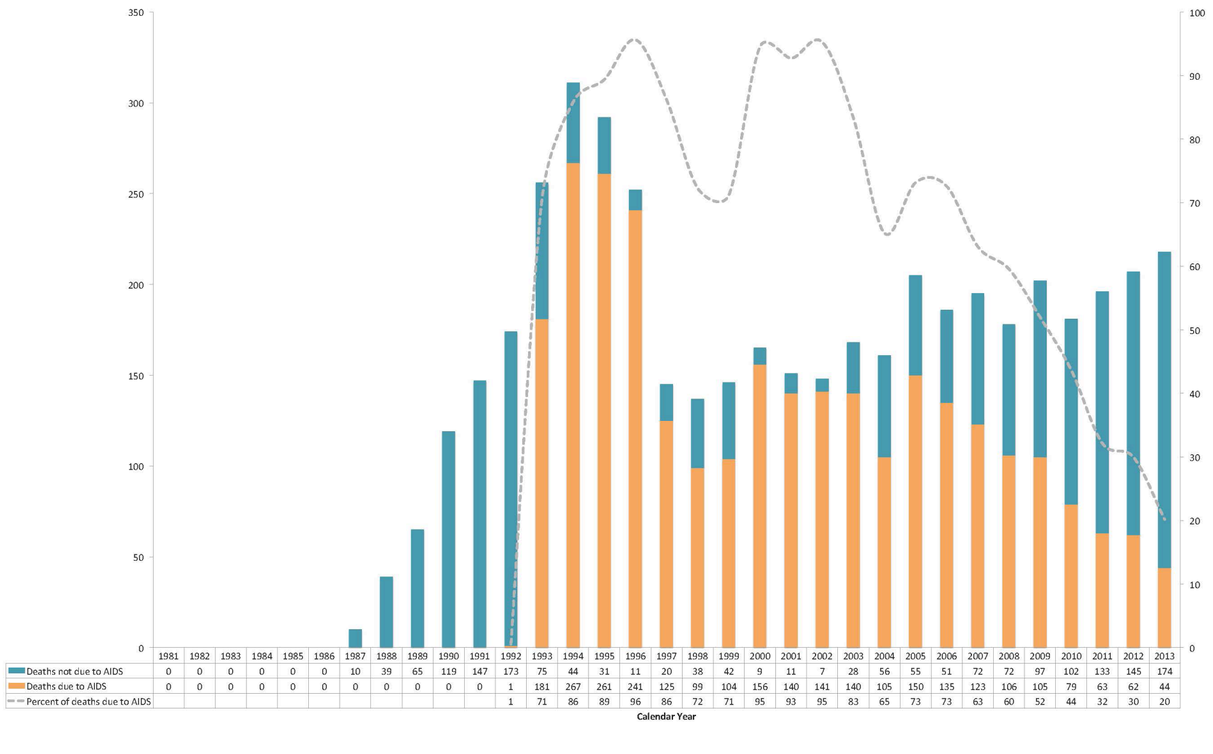
Methods

- We included data of 3550 HIV-positive individuals, aged ≥19 years, from different administrative databases in BC.
- We obtained data for the number and type of ADIs and for the number of people followed in the pre-HAART and post-HAART era. In addition, ADI case-reports were allocated according to the calendar year when an individual was diagnosed with the first episode for each type of ADI.
- These individuals were followed from January 1st, 1981 until December 31st, 2013, the last contact date, or until they died, whichever came first.
- We estimated the relative risk of developing an ADI over time using a Negative Binomial model, and we investigated trends in the percentage of all deaths associated with AIDS using generalized additive models.

Table 2. Negative Binomial regression multivariable results for the effect of gender and age group on the number of AIDS-defining illnesses

Explanatory Variables	Relative Risk (95% Confidence Interval)			
	Period			
	1981 -1996	1997 - 1999	2000 - 2003	2004 - 2013
	(N = 77)	(N = 31)	(N = 23)	(N = 77)
Gender				
Male	1 (–)	1 (–)	1 (–)	1 (–)
Female	0.10 (0.07 - 0.14)	0.15 (0.09 - 0.24)	0.21 (0.13 - 0.33)	0.27 (0.22 - 0.33)
Age Group				
< 30 years	0.25 (0.15 - 0.42)	0.19 (0.09 - 0.38)	0.19 (0.10 - 0.35)	0.29 (0.20 - 0.41)
30 - 39 years	1 (–)	1 (–)	1 (–)	1 (–)
40 - 49 years	0.62 (0.34 - 1.14)	0.71 (0.33 - 1.53)	0.76 (0.34 - 1.72)	1.47 (1.11 - 1.94)
≥ 50 years	0.27 (0.15 - 0.47)	0.35 (0.16 - 0.80)	0.68 (0.30 - 1.55)	0.87 (0.67 - 1.13)

Figure 2. Deaths from AIDS and other causes in British Columbia from January 1st, 1981 to December 31st, 2013



Conclusion

- We showed that the number of new ADIs and AIDS-related mortality have been decreasing rapidly over time in BC.
- These results provide further evidence that integrated comprehensive free programs that facilitate testing, and deliver treatment and care to this population can be effective in markedly decreasing AIDS-related morbidity and mortality, thus suggesting that controlling and eventually ending AIDS is possible.

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