Chapter 16
The Use of Public Health Surveillance Data for Preventive Control of Diseases that Depend on Individual Risky Behavior:
The Case of HIV Infection in Japan

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ABSTRACT

E-health systems can be used to communicate the risk of significant infectious diseases such as HIV infection to individuals who contemplate taking the risk of the personal behavioral choices they make. Access to an on-line system which communicates this data in a user-friendly format, can help avoid high-risk behavior by informed individuals who live in different areas with various levels of risk. We present the case of HIV infection in Japan where many individuals have voluntarily continued a high-risk behavior because apparently they consider the overall risk of infection too low to forgo the personal benefits of risky behavior such as more pleasure, less inconvenience, etc. We discuss how a user friendly e-health system can provide geographical risk data that are extracted from HIV epidemiological surveillance. This can provide individuals with a rational incentive for behavior change in high-risk areas. It is hoped that such a system helps with the control of not only HIV, but also other agents of disease in situations where individual choices play a significant role in the risk of exposure/disease.

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Table 1. The numbers of all new (2005 & 2006) HIV cases in Japan by route of exposure, gender, & Japanese/non-Japanese citizenship. The significant number of infected men and of sexually transmitted route of infection (including both homo & heterosexual contact) is worth consideration

Route of exposure	Japanese citizens (88%)		Non-Japanese citizens (12%)		Total	
	2005	*2006*	*2005*	*2006*	*2005*	*2006*
Heterosexual	161	173	42	50	203	223
Homosexual	514	571	15	33	529	604
Drug abuse	2	1	1	3	3	4
Mother-newborn	0	1	1	0	1	1
Other routes	9	29	2	11	11	40
Unknown	55	61	30	19	85	80
Total (Men/Women)	741 (709/32)	836 (787/49)	91 (60/31)	116 (76/40)	832 *(769/63)*	952 *(863/89)*

INTRODUCTION

The first cases of HIV infection/AIDS in Japan were discovered in 1985, and were related to the use of contaminated blood products imported to Japan in the 1980s. This exposed many hemophiliacs to the infection so that as of August 1995, 1,803 of the estimated 5,000 hemophiliacs in Japan were discovered to be HIV infected. These constituted the majority of the total number of HIV $^{+}$ cases (62% of 2,893 cases), and AIDS patients (52% of 1,026 cases) in Japan at the time. Subsequently, screening of all donated blood and blood products for HIV infection has changed the situation significantly so that the most common route of infection in Japan is now through unprotected sexual contact. Table 1, extracted from data released by the Japanese Ministry of Health, Labor & Welfare shows the shares of different routes of exposure to HIV infection in Japan in 2005 & 2006.

Although biologically the risk for sexual transmission of HIV infection is higher from men to women than women to men, the number of infected males is significantly higher (about 10 times). This discrepancy is mainly attributed to the higher frequency of high-risk sexual behavior among men, such as anal sex among homosexuals and lower adherence to condom use even among heterosexuals. On the other hand, Japanese women rarely engage in very high-risk behaviors such as intravenous drug use and receptive anal sex; more importantly, they are more prone to insist on using condoms to avoid the risk of pregnancy which can at the same time protect them against infection with the HIV virus.

Female workers at 'snack pubs' may be sometimes compelled to have sex and not to use condoms by the clients. However, professional 'soap-land' sex-workers are periodically self-tested for HIV and fired if positive. Apparently, a disclosure of HIV infected sex-workers in any premises would discourage potential customers from visiting the area and severely damage the sex business in the whole neighborhood, as has occasionally happened and been reported by the mass media in the past. Such instances show that even the relatively risk prone customers of these businesses are sensitive to risk data and although they may seem to be less concerned with preventive efforts at low-risk situations, they may respond to higher levels of risk they perceive from the media.