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New HIV Prevention Technologies and the Potential Role of Public Health Survey: Canada

*A Report of the **Preparing the Canadian Public Health
Community for New HIV Prevention Technologies:
Understanding the Knowledge, Information Needs and
Potential Role of Public Health Workers in Canada and
Learning from the Experiences in Southeast Europe
Project***

Survey Analysis Report

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Canadian Public Health Association

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Abbreviations:

ASO: AIDS service organization

C.I: Confidence interval

O.R.: Odds ratio

PHU: Public Health Unit

All confidence intervals and tests are made at 95% certitude.

Introduction

A Knowledge, Attitude and Practice survey of public health workers from across Canada, entitled “New HIV Prevention Technologies and the Potential Role of Public Health”, was conducted between April 1st and June 15th, 2011 to develop a better understanding of the knowledge, information needs, challenges, and potential role of public health workers and civil society with respect to the introduction of an HIV vaccine and other new HIV prevention technologies in Canada.

The survey was distributed electronically through mailing lists, membership lists, and electronic digests, targeting those with experience working in HIV prevention in AIDS service, community-based, and other non-governmental organizations; community health centers and infectious disease clinics; provincial/territorial ministries of health; and public health units/regional health authorities.

While not considered part of the formal health care system, non-governmental and community organizations have continued to play a key role in mounting a strong and sustained response to HIV and AIDS since its emergence. Because of their important public health role in HIV prevention, access to treatment, care and support, they are included in the surveys description of public health.

The survey analysis is based on the questionnaire that was completed online by 473 respondents. This analysis compares three categories of respondents: *All respondents*, *Public health Unit (PHU) respondents*, and *Other respondents*. Of particular interest were differences between *PHU respondents'* answers compared to *other respondents'* answers.

The *All respondents* category includes the responses from all completed surveys, totalling 473 respondents. The *Public Health Unit respondents* category includes the responses of only those who specified “Public Health Unit (Health Authority)” as the organization they work for (Question 2), totalling 135 respondents. The category *Other respondents* includes the responses of workers who specified another type of organization (AIDS service organization, community based organization, community health center, infectious disease clinic, ministry of health (provincial), other non-governmental organization, professional association), including those answering “other: please specify” to Question 2: “What type of organization do you work for?” (338 respondents).

Section 1: Organizational Characteristics

Organization and geographic focus:

Among the 473 respondents, 135 (28.5%) are public health unit workers. The 338 (71.5%) other respondents work at different types of organizations, including AIDS service organizations, community based organizations, community health centers, infectious disease clinics, ministries of health (provincial), other non-governmental organizations, or professional associations, in addition to others as specified by participants.

Table 1. What type of organization do you work for?

N=473	N	%	C.I.
AIDS Service Organization (ASO)	103	21.8	18-25.5
Community Based Organization (CBO)	50	10.6	7.8-13.4
Community Health Center	45	9.5	6.9-12.2
Infectious Disease Clinic	12	2.5	1.1-4
Ministry of Health (provincial)	28	5.9	3.8-8.1
Other non governmental organization (NGO)	15	3.2	1.6-4.8
Public Health Unit (Health Authority)	135	28.5	24.5-32.6
Professional Associations	3	0.6	0-1.4
Other: please specify	82	17.3	13.9-20.8

Table 2. Where is your organization located?

N=473	N	%
Alberta	96	20.3
British Columbia	72	15.2
Manitoba	24	5.1
New Brunswick	8	1.7
Newfoundland and Labrador	17	3.6
Northwest territories	6	1.3
Nova Scotia	45	9.5
Nunavut	0	0.0
Ontario	127	26.9
Prince Edward Island	2	0.4
Quebec	38	8.0
Saskatchewan	36	7.6
Yukon	2	0.4

Organizations serve mostly urban (86.1%) and rural (61.7%) populations. Only 30.0% serve remote populations. PHU respondents indicated that their organizations serve significantly less remote (14.1%) and urban (80.0%) populations, compared to other respondents' organizations (36.4% and 88.5%, respectively)

Table 3. Which geographic populations does your organization serve?

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Urban	86.0	82.9-89.2	80.0	73.2-86.8	0.52*	88.5	85-91.9	ref.
Rural	61.7	57.3-66.1	67.4	59.5-75.4	n.s.	59.5	54.2-64.7	ref.
Remote	30.0	25.9-34.2	14.1	8.2-20	0.29***	36.4	31.2-41.5	ref.

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Respondents indicated that their organization partners the most with community based organizations (79.1%) and public health units (74.4%), and the least with professional associations (44.8%) and other non-governmental organizations (51.4%).

Client contacts:

When asked, 18.2% of respondents said that their organization did not deal with any HIV-related client contacts each month. For the organizations that did, Table 4 shows that a vast majority (72.6%) had between 0 and 250 HIV-related clients on a monthly basis. No significant difference was found between PHU respondents and other organization respondents.

Table 4. How many HIV-related client contacts does your organization deal with on a monthly basis?

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
0-250	72.6	68.1-77.1	80.7	73.4-88	69.2	63.7-74.7	n.s.
251-500	15.8	12.1-19.4	12.3	6.2-18.4	17.2	12.7-21.7	
501-1000	6.7	4.2-9.2	3.5	0.1-6.9	8.1	4.8-11.3	
1000 and more	4.9	2.7-7.1	3.5	0.1-6.9	5.5	2.8-8.2	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Organizational focus:

The most common areas of work respondents said that their organization engages in are awareness raising (85.9%), followed by HIV support and counselling (62.8%). HIV policy, research, and care are the three least common areas of work. Numerous differences were found between PHU respondents and other respondents. Compared to other respondents, PHU respondents said their organizations work significantly more in awareness raising (91.1% vs 79.6%), HIV/STI testing (80.0% vs 42.9%), and needle exchange (54.1% vs 33.7%), and significantly less in community outreach, other harm reduction programs, HIV advocacy, policy, research, and care.

Table 5. My organization works in the following areas

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Awareness raising, including general information on HIV and AIDS	85.9	76.9-86.3	91.1	86.2-96	2.63**	79.6	75.3-83.9	ref.
HIV support and counseling	62.8	58.4-67.2	65.2	57-73.3	n.s.	61.8	56.6-67	ref.
HIV community outreach	54.1	49.6-58.6	44.4	36-52.9	0.58**	58.0	52.7-63.3	ref.
HIV testing / STI testing	53.5	49.0-58.0	80.0	73.2-86.8	5.32***	42.9	37.6-48.2	ref.
Other harm reduction program	52.9	48.3-57.4	54.1	45.6-62.6	n.s.	52.4	47-57.7	ref.
HIV and AIDS treatment information	52.2	47.7-56.7	40.7	32.3-49.1	0.52**	56.8	51.5-62.1	ref.
HIV advocacy	43.6	39.1-48	34.8	26.7-43	0.6*	47.0	41.7-52.4	ref.
Needle exchange	39.5	35.1-44.0	54.1	45.6-62.6	2.31***	33.7	28.7-38.8	ref.
HIV policy	29.8	25.7-33.9	22.2	15.1-29.3	0.58*	32.8	27.8-37.9	ref.
HIV research	29.2	25.1-33.3	14.8	8.7-20.9	0.32***	34.9	29.8-40	ref.
HIV care (medical treatment)	24.1	20.2-28	17.0	10.6-23.5	0.56*	26.9	22.2-31.7	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The vast majority of respondents (87.1%) said that their organization works in more than one area. 4.4% of respondents said that their organization works in all 11 different areas listed. Among respondents whose organizations were working in awareness raising, including general information on HIV and AIDS, almost all (95%) said that their organization works in at least one other area.

Section 2: Knowledge and Beliefs about HIV Prevention Technologies

Understanding of HIV prevention technologies and approaches:

Respondents' self-identified knowledge of HIV prevention technologies and approaches varied greatly. Respondents said they were most knowledgeable about male condoms (98.9%) and harm reduction strategies (95.5%), and least knowledgeable about HIV vaccines (46.1%).

Table 6. I am knowledgeable about the following types of HIV prevention technologies / approaches

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Male condoms	98.9	98-99.9	98.5	96.5-99.9	n.s.	99.1	98.1-99.9	ref.
Harm reduction strategies	95.6	93.7-97.4	95.6	92.1-99.1	n.s.	95.6	93.4-97.8	ref.
Health promotion messaging	92.6	90.2-95	90.4	85.4-95.4	n.s.	93.5	90.9-96.1	ref.
Female/Internal condoms	91.1	88.5-93.7	86.7	80.9-92.4	0.5*	92.9	90.2-95.6	ref.
Voluntary confidential counseling and testing	90.9	88.3-93.5	87.4	81.8-93	n.s.	92.3	89.5-95.2	ref.
Prevention mother-child transmission	85.8	82.7-89	83.0	76.6-89.3	n.s.	87.0	83.4-90.6	ref.
Partner notification	85.2	81.99-88.4	87.4	81.8-93	n.s.	84.3	80.4-88.2	ref.
Post-exposure prophylaxis	81.0	77.4-84.5	79.3	72.4-86.1	n.s.	81.7	77.5-85.8	ref.
Treatment as prevention	74.4	70.5-78.4	65.2	57.1-73.3	0.52**	78.1	73.7-82.5	ref.
Medical male circumcision	67.4	63.2-71.7	60.7	52.5-69.0	0.66*	70.1	65.2-75.0	ref.
Microbicides	56.2	51.7-60.7	35.6	27.4-43.7	0.3***	64.5	59.4-69.6	ref.
Pre-exposure prophylaxis	51.4	46.9-55.9	36.3	28.1-44.5	0.42***	57.4	52.1-62.7	ref.
HIV vaccine	46.1	41.6-50.6	30.4	22.6-38.2	0.4***	52.4	47-57.7	ref.

Significance levels *p<0.05 **p<0.01 ***p<0.001 n.s.: non significant

The percentages represents the respondents answering agree or strongly agree to the question

There are small but mostly insignificant differences in respondents' reported knowledge of HIV prevention technologies between those who work in PHUs compared to those working in all other organizations. There are distinct differences in reported knowledge of treatment as prevention, microbicides, pre-exposure prophylaxis, and HIV vaccine. For each of these technologies, PHU respondents reported significantly less knowledge.

Accuracy of beliefs:

The vast majority (91.5%) of respondents knew the correct answer to the statement regarding microbicides, but only 73.4% of them were correct about the HIV oral pre-exposure prophylaxis. The following table presents small significant differences between PHU and other organization workers concerning the accuracy of beliefs. PHU workers could identify the correct statement concerning microbicides less often and the pre-exposure prophylaxis answer more.

Table 7. True statement regarding:

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Accuracy of beliefs								
Microbicides	91.5	89-94.1	87.4	81.8-93	0.51*	93.2	90.5-95.9	ref.
Pre-exposure prophylaxis	73.4	69.4-77.4	80.0	73.2-86.8	1.63*	70.7	65.8-75.6	ref.

Significance levels *p<0.05 **p<0.01 ***p<0.001 n.s.: non significant

Importance of HIV prevention:

The vast majority (93.0%) of respondents reported that new HIV prevention technologies will play an important role in reducing the spread of HIV. There is a small significant difference between PHU respondents and other respondents (97.8% vs 91.1%). It is not possible to compare PHU respondents with other respondents any further because there are very few observations in the strongly disagree and disagree categories, making any statistical test results unreliable.

Table 8. I believe new HIV prevention technologies will play an important role in reducing the spread of HIV

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	7.0	4.7-9.3	2.2	0.1-4.7	8.9	5.8-11.9	6.58**
Agree / strongly agree	93.0	90.7-95.3	97.8	95.3-99.9	91.1	88.1-94.2	

Significance levels *p<.05 **p<.01 ***p<.001

The vast majority (91.8%) of respondents reported that HIV is an important public health issue for their region (55.0% agree strongly and 36.8% agree to the statement). PHU respondents agreed/strongly agreed significantly less than other respondents (85.2% vs 94.4%).

Table 9. HIV is an important public health issue for your region

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	8.3	5.8-10.7	14.8	8.8-20.8	5.6	3.2-8.1	10.78**
Agree / strongly agree	91.8	89.3-94.2	85.2	79.2-91.2	94.4	91.9-96.8	

Significance levels *p<.05 **p<.01 ***p<.001

Overall, only half (49.9%) of respondents agreed/strongly agreed that HIV prevention is sufficiently prioritized within their provincial or territorial HIV policy documents.

Table 10. HIV prevention is sufficiently prioritized within your provincial/territorial HIV policy documents

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	50.1	45.6-54.6	48.9	40.4-57.4	50.6	45.2-55.9	n.s.
Agree / strongly agree	49.9	45.4-54.4	51.1	42.6-59.6	49.4	44.1-54.8	

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

There were no significant differences in beliefs between PHU respondents and other respondents. There was also no significant difference between respondents based on population served (urban/rural/remote). Respondents from British Columbia (69.4%) and Ontario (60.6%) reported most often that their HIV policy documents are sufficiently prioritized, while respondents from Alberta (40.6%) and Nova Scotia (26.7%) reported that their HIV policy documents are the least sufficiently prioritized. Reported odds ratios in Table 11 compare each individual province to the rest of the Canada.

Table 11. HIV prevention is sufficiently prioritized within your provincial/territorial HIV policy documents

	%	C.I.	OR
Canada (N=473)	49.9	45.4-54.4	---
British Columbia (N=72)	69.4	58.7-80.2	2.63***
Ontario (N=127)	60.6	52.1-69.2	1.81**
Saskatchewan (N=36)	55.6	39.1-72.1	n.s.
Quebec (N=38)	44.7	28.7-60.9	n.s.
Alberta (N=96)	40.6	30.7-50.5	0.63*
Manitoba (N=24)	37.5	17.7-57.3	n.s.
Nova Scotia (N=45)	26.7	13.6-39.8	0.33**

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

The percentages represent the respondents answering agree or strongly agree to the question

New Brunswick, Newfoundland and Labrador, Northwest Territories, P.E.I and Yukon were excluded due to lack of observations

The vast majority of respondents reported that their work is guided by standards, policies, practices, and guidelines from the organizational level and the provincial/territorial level (answered agree or strongly agree at those levels). Among respondents, 46.3% reported that their work is guided by all the levels mentioned, and only 1.7% of respondents answered negatively to all categories. PHU respondents reported that their work is less guided at the international, cultural appropriateness, and professional association level than the other respondents.

Table 12. My work in HIV prevention is guided by standards, policies, practices and guidelines at the:

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
International level	64.7	60-69.4	52.1	43-61.3	0.47**	68.9	64.5-75.2	ref.
National level	77.3	73.3-81.3	72.2	64.3-80.1	n.s.	79.4	74.8-84	ref.
Provincial / territorial level	87.5	84.4-90.6	87.5	81.7-93.3	n.s.	87.5	83.8-91.2	ref.
Organizational level	88.2	85.2-91.2	83.7	77.3-90.1	n.s.	90.0	86.7-93.4	ref.
Professional association level	69.4	64.8-74	61.8	53.1-70.4	0.62*	72.9	67.5-78.2	ref.
Cultural appropriateness	73.6	64.8-74	56.5	47.7-65.2	0.31***	80.6	76.1-85.1	ref.

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

The percentages represent the respondents answering agree or strongly agree to the question

Among all the respondents, 42.9% reported participating in HIV policy development and 59.8% reported participating in HIV program development. PHU respondents reported participating less in HIV program development in general, but the difference is not statistically significant.

Table 13. I have participated in developing HIV prevention

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Policies	42.9	38.4-47.4	37.0	28.8-45.2	n.s.	45.3	39.9-50.6	ref.
Programs	59.8	55.4-64.3	50.4	41.9-58.9	0.58**	63.6	58.5-68.8	ref.

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Section 3: Training and Information needs

Education and training regarding HIV prevention:

Over two-thirds (69.3%) of respondents agree/strongly agree that their organization stays current on new HIV prevention technology research. PHU respondents reported that their organization stays current on new HIV prevention technology research significantly less than other respondents (57.6% vs 74.1%, respectively).

Table 14. My organization stays current on the new HIV prevention technology research

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	30.7	26.4-34.9	42.4	69.3-79	25.9	21-30.7	12.07**
Agree / strongly agree	69.3	65.1-73.6	57.6	49.1-66.1	74.1	69.3-79	

Significance levels * p≤.05 ** p≤.01 *** p≤.001 n.s.: non significant

Also, the belief that new HIV prevention technologies will play an important role in reducing the spread of HIV differs depending on whether they reported that their organization stays current on new HIV prevention technology research. The difference lies between the portion of respondents either agreeing or strongly agreeing. Even though the percentage of workers that disagree or strongly disagree that the new HIV prevention technologies will play an important role in reducing the spread of HIV does not vary (6.5% vs 6.4%, respectively), the workers reporting that their organization stays current on new HIV prevention technology research more often report strongly agreeing that the new technologies will play an important role in reducing the spread of HIV compared to those who disagree/strongly disagree that their organization stays current on new HIV prevention technology research (42.7% vs 28.8%).¹

Table 15. I believe new HIV prevention technologies will play an important role in reducing the spread of HIV

	My organization stays current on new HIV prevention technology research				Chi 2
	Strongly disagree / disagree (N=139)		Agree / strongly agree (N=314)		
	%	C.I.	%	C.I.	
Disagree / strongly disagree	6.5	2.4-10.6	6.4	3.7-9.1	8.17*
Agree	64.8	56.8-72.7	51.0	45.4-56.5	
Strongly agree	28.8	21.2-36.4	42.7	37.2-48.2	

Significance levels * p≤.05 ** p≤.01 *** p≤.001 n.s.: non significant

Nearly two-thirds (61.5%) of respondents agree/strongly agree that their organization is responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved. There is also a very strong correlation between staying current on new HIV technology research and the ability to deliver the new HIV prevention technologies in a timely and equitable manner once approved, as shown in Table 16. The organizations that stay current on research (agree/strongly agree) are almost three times more likely to be responsive enough to deliver new HIV prevention technologies than the organizations that do not stay current on new HIV research (disagree/strongly disagree).

¹ Disagree and strongly disagree were joined together because there are too few observations in each categories individually

Table 16. My organization is responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved

	All respondents (N=408)		Do not stay current on new HIV research		Stay current on new HIV research		Chi2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	38.6	33.9-43.2	71.4	63.7-79.2	23.4	20.8-36.3	8.2***
Agree / strongly agree	61.5	56.8-66.1	28.6	18.5-28.3	76.6	71.7-81.5	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Training:

Over half (52.0%) of respondents reported receiving training or education in HIV prevention in the past year. One quarter (25.4%) of respondents reported either that their last training or education was over five years ago, or that they never received any.

Table 17. When was the last time you received training / education in HIV prevention?

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
In the past year	52.0	47.5 - 56.5	40.7	32.4-49.1	56.5	51.2-61.8	11.75**
2 to 5 years ago	22.6	18.8 - 26.4	31.1	23.3-39	19.2	15-23.4	
Over 5 years ago	15.2	12 - 18.5	15.6	9.4-21.7	15.1	11.3-18.9	
Never	10.2	7.4 - 12.9	12.6	6.96-18.2	9.2	6.1-12.3	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Comparing training between PHU respondents and other respondents, only 40.7% of PHU respondents reported receiving training or education in the past year (56.5% for other respondents). On the other hand, over three quarters (80%) of AIDS service organization respondents, specifically, received training or education in the past year.

Over two-thirds of respondents who reported participating in developing either HIV prevention programs (67.5%) or policies (68.5%) also reported receiving training or education in the past year, which is significantly higher than the general prevalence of those having received training or education in the past year (52.0%).

Table 18. Last training / education of workers participating in developing HIV prevention programs and policies

	Overall (N=473)		Developed HIV programs (N= 283)		Chi 2	Developed HIV policies (N= 203)		Chi 2
	%	C.I.	%	C.I.		%	C.I.	
In the past year	52.0	47.5-56.5	67.5	62-73	95.52***	68.5	62-74.9	47.44***
2 to 5 years ago	22.6	18.8-26.4	21.9	17.1-26.8		19.7	14.2-25.2	
Over 5 years ago	15.2	12-18.5	7.8	4.6-10.9		8.9	4.9-12.8	
Never	10.2	7.4-12.9	2.8	0.9-4.8		2.9	0.6-5.3	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

In general, only 51.5% (C.I.: 47.1%-56.1%) of the HIV prevention training / education curriculum discussed new HIV prevention technologies. There is a significant difference for the respondents who reported receiving training

in the past year; 72.7% of them reported discussing new HIV prevention technologies, compared to only 27.3% of people who reported receiving training 2 years ago or more.

Almost all (95%) workers believe that the knowledge and skills they gained during those training and education sessions were valuable to their practice.

When asked, respondents said they most preferred receiving education or training regarding HIV prevention by presentations/workshops (82.0%), followed by in-person courses (72.1%). Fewer than half of the respondents said they preferred each of the other three methods: webinars, online courses, and multimedia.

Table 19. What is your preferred way of receiving training / education regarding HIV prevention

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Presentations / workshops	82.0	78.6-85.5	79.3	72.4-86.1	n.s.	83.1	79.1-87.1	ref.
In-person courses	72.1	68-76.1	71.9	64.2-79.5	n.s.	72.2	67.4-77	ref.
Webinars	41.4	37-45.9	49.6	41.1-58.1	1.6*	38.2	33-43.4	ref.
Online courses	40.4	35.9-44.8	43.0	34.6-51.4	n.s.	39.4	34.1-44.6	ref.
Multimedia	31.3	27.1-35.5	29.6	21.9-37.4	n.s.	32.0	27-36.9	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the prevalence of each element individually

In general, respondents believed that education and training regarding HIV prevention is needed in their organization for all the types of prevention technologies and approaches asked about and shown in Table 20. No significant differences exist between PHU respondents, AIDS service organization respondents, and other respondents for any of the technologies, with the exception of microbicides. For those, more PHU respondents (94.8% [OR: 2.68*]) and fewer AIDS service organization respondents (78.6% [OR: 0.54*]) reported that training is needed at a higher rate than other respondents (87.2%).

Table 20. In my organization I believe education / training regarding HIV prevention is needed for:

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Male condoms	57.1	52.6-81.6	53.3	44.8-61.8	n.s.	56.6	53.3-63.9	ref.
Harm reduction strategies	79.5	75.8-83.1	82.2	75.7-88.7	n.s.	78.4	74-82.8	ref.
Health promotion messaging	78.2	74.5-82	80.0	73.2-86.8	n.s.	77.5	73-82	ref.
Female/Internal condoms	71.7	67.6-75.7	69.6	61.8-77.4	n.s.	72.5	67.7-77.3	ref.
Voluntary confidential counseling and testing	70.6	66.5-74.7	70.4	62.6-78.1	n.s.	70.7	65.8-75.6	ref.
Prevention mother-child transmission	73.6	69.6-77.6	77.8	70.7-84.8	n.s.	71.9	67.1-76.7	ref.
Partner notification	71.9	67.8-75.9	71.9	64.2-79.5	n.s.	71.9	67.1-76.7	ref.
Post-exposure prophylaxis	81.4	77.9-84.9	82.2	75.7-88.7	n.s.	81.1	76.9-85.3	ref.
Treatment as prevention	86.1	82.9-89.1	91.9	87.2-96.5	2.19*	83.7	78.8-87.7	ref.
Medical male circumcision	74.2	70.3-78.2	79.3	72.4-86.1	n.s.	72.2	67.4-77	ref.
Microbicides	87.5	84.5-90.5	94.8	91.1-98.6	3.32**	84.6	80.7-88.5	ref.
Pre-exposure prophylaxis	87.7	84.8-90.7	94.8	91.1-98.6	3.25**	84.9	81.1-88.7	ref.
HIV vaccine	83.7	80.4-87.1	90.4	85.4-95.4	2.19*	81.1	76.9-85.3	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the respondents answering agree or strongly agree to the question

Despite reporting that they are knowledgeable about some of the technologies and approaches (at least 80% agreed/strongly agreed), the percentages of workers reporting that education or training² is needed in their organization for those technologies is still high, varying between 70% and 80%, with the exception of male condoms (57.1%).

Comment [k1]: Comparison is misspelled

Table 21. Comparison between knowledge and need for education or training in the organization

	I am knowledgeable about the technology		Education / training needed in my organization	
	%	C.I.	%	C.I.
Male condoms	98.9	98-99.9	57.1	52.6-61.6
Harm reduction strategies	95.6	93.7-97.4	79.5	75.8-83.1
Health promotion messaging	92.6	90.2-95.0	78.2	74.5-82.0
Female/Internal condoms	91.1	88.5-93.7	71.7	67.6-75.7
Voluntary confidential counseling and testing	90.9	88.3-93.5	70.6	66.5-74.7
Partner notification	85.2	82.0-88.4	71.9	67.8-76.0
Prevention mother-child transmission	85.8	82.7-89.0	73.6	69.6-77.6
Post-exposure prophylaxis	81.0	77.4-84.5	81.4	77.9-84.9
Treatment as prevention	74.4	70.5-78.4	86.1	82.9-89.2
Medical male circumcision	67.4	63.2-71.7	74.2	70.3-78.2
Microbicides	56.2	51.8-60.7	87.5	84.5-90.5
Pre-exposure prophylaxis	51.4	46.9-55.9	87.7	84.8-90.7
HIV vaccine	46.1	41.6-50.6	83.7	80.4-87.1

The percentages represent the respondents answering agree or strongly agree to the question

Information systems regarding HIV prevention:

Presentations and workshops are the preferred way of getting information on HIV prevention. This concurs with the most accessible means of getting information, as shown in Tables 22 and 23.

Table 22. How do you get your information on HIV prevention?

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Presentations / workshops	78.4	74.7-82.2	73.3	65.8-80.8	n.s.	80.5	76.2-84.7	ref.
Websites	77.8	74-81.6	79.3	72.4-86.1	n.s.	77.2	72.7-81.7	ref.
Published reports	71.3	67.2-75.3	66.7	58.7-74.7	n.s.	73.1	68.3-77.8	ref.
Peer to peer	68.3	64.1-72.5	68.9	61-76.7	n.s.	68.1	63-73	ref.
Scientific literature	67.0	62.8-71.3	68.9	61-76.7	n.s.	66.3	61.2-71.3	ref.
Interact with researchers	34.9	30.6-39.2	17.8	11.3-24.3	0.3***	41.7	36.4-47	ref.
Media	32.4	28.1-36.6	23.0	15.8-30.1	0.53**	36.1	30.95-41.2	ref.
Grey literature	22.0	18.2-25.7	14.1	8.2-20	0.48**	25.2	20.5-29.8	ref.
Databases	20.3	16.7-23.9	14.9	8.8-20.8	n.s.	22.5	18-26.95	ref.
Listserv or blog	20.3	16.7-23.9	11.1	5.8-16.4	0.4**	24.0	19.4-28.5	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the prevalence of each element individually

² answered agree or strongly agree to the question

Table 23. What is your preferred ways of receiving information regarding HIV prevention?

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Presentations / workshops	88.4	85.5-91.3	89.6	84.5-94.8	n.s.	87.9	84.4-91.4	ref.
Websites	63.4	59.1-67.8	67.4	59.5-73.4	n.s.	61.8	56.6-67	ref.
Published reports	57.5	53-62	55.6	47.1-64	n.s.	58.3	53-63.6	ref.
Peer to peer	56.7	52.2-61.1	57.0	48.6-65.4	n.s.	56.5	51.2-61.8	ref.
Scientific literature	50.5	46-55.1	53.3	44.9-61.8	n.s.	49.4	44.1-54.8	ref.
Interact with researchers	31.7	27.5-35.9	28.2	20.5-35.8	n.s.	33.1	28.1-38.2	ref.
Media	18.8	15.3-22.4	14.8	8.8-20.8	n.s.	20.4	16.1-24.7	ref.
Listserv or blog	15.2	12-18.5	11.9	6.4-17.3	n.s.	16.6	12.6-20.5	ref.
Databases	14.8	11.6-18	9.6	4.6-14.6	0.53*	16.9	12.9-20.9	ref.
Grey literature	11.6	8.7-14.5	7.4	2.96-11.9	n.s.	13.3	9.7-17	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the prevalence of each element individually

Section 4: Role and Capacity to Deliver HIV Prevention

HIV prevention intervention promotion and delivery:

A little over 68% of respondents reported that their organization is providing HIV prevention interventions in a timely and equitable manner. PHU respondents reported that their organization provides significantly less HIV prevention interventions than other respondents (60.2% vs 72.1%).

Table 24. My organization is providing HIV prevention interventions in a timely and equitable manner

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	31.5	27.1-35.9	39.8	31.3-48.4	27.9	22.8-33	5.93*
Agree / strongly agree	68.5	64.1-72.9	60.2	51.6-68.7	72.1	67-77.2	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

A little over 61% of respondents reported that their organization is responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved.

Table 25. My organization is responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	38.6	33.9-43.2	52.7	44.1-61.3	32.3	27-37.7	15.89***
Agree / strongly agree	61.5	56.8-66.1	47.3	38.7-55.9	67.7	62.3-73	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

There is a positive correlation between the reported ability of an organization to provide HIV prevention interventions in a timely and equitable manner and the reported responsiveness of the organization in delivering new HIV prevention technologies in a timely and equitable manner once they are approved. For organizations reported to be providing HIV prevention interventions in a timely and equitable manner, 76.3% are also reported to be responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved.

Table 26. My organization is responsive enough to deliver new HIV prevention technologies in a timely and equitable manner once they are approved

	All respondents (N=408)		Organization unable to provide HIV prevention in timely manner		Organization provides HIV prevention in timely manner		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	38.6	33.9-43.2	69.0	61-77	31.0	23-39	76.97***
Agree / strongly agree	61.5	56.8-66.1	23.7	18.6-28.7	76.3	71.3-81.4	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

Promotion:

The respondents reported that the technologies being promoted the most effectively are male condoms, harm reduction, and voluntary confidential counselling and testing. PHU respondents reported that the partner notification approach is being promoted significantly more effectively than other respondents (87.7% vs 71.9%)

Table 27. HIV prevention technologies / approaches are being promoted effectively by my organization

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Male condoms	87.7	84.2-91.3	88.6	83.1-94	n.s.	91.1	87.9-94.3	ref.
Harm reduction	81.4	77.2-85.6	83.0	76.4-89.5	n.s.	85.9	82.1-89.8	ref.
Voluntary confidential counseling and testing	80.5	76.3-84.8	84.6	78.4-90.9	n.s.	82.6	78.2-86.9	ref.
Health promotion messaging	81.4	77.2-85.6	74.2	66.7-81.8	0.46**	86.3	82.4-90.1	ref.
Partner notification	74.9	71.2-79.5	87.7	82-93.4	2.79**	71.9	66.6-77.2	ref.
Preventing mother-to-child transmission	74.0	69.2-78.7	74.0	66.3-81.7	n.s.	75.3	70.2-80.3	ref.
Female condoms	57.2	51.9-62.5	59.2	50.7-67.7	n.s.	58.1	52.4-63.8	ref.
Post-exposure prophylaxis	48.8	43.4-54.2	53.4	44.3-62.5	n.s.	52.1	46.3-58	ref.
Medical male circumcision	19.2	14.9-23.4	10.8	4.99-16.6	0.42*	22.3	17.1-27.4	ref.

Significance levels *ps.05 **ps.01 ***ps.001 n.s.: non significant

The percentages represent the respondents answering agree or strongly agree to the question

Public health evidence and experience:

Respondents report that the biggest constraints and barriers to implementing HIV prevention effectively in their everyday practice is lack of funding (69.1%) and lack of human resource capacity (67.2%), followed by stigma and discrimination (50.7%). Only 3.8% of respondents reported that there are no constraints or barriers. PHU respondents identified the lack of program development capacity (49.6%) and lack of public health guidance (37.8%) as more important barriers than other respondents report (39.1% and 25.7%, respectively). On the other end, stigma and discrimination, criminalization, and no anonymous testing are reported to be less important barriers and constraints by public health unit respondents.

Table 28. What are constraints and barriers to implementing HIV prevention effectively in your everyday practice?

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Lack of funding	69.1	65-73.3	65.9	57.9-74	n.s.	70.4	65.5-75.3	ref.
Lack of human resource capacity	67.2	63-71.5	66.7	58.7-74.7	n.s.	67.5	62.4-72.5	ref.
Stigma and discrimination	50.7	46.2-55.3	34.8	26.7-42.9	0.4***	57.1	51.8-62.4	ref.
Community and cultural norms	43.1	38.6-47.6	39.3	31-47.5	n.s.	44.7	39.4-50	ref.
Lack of program development capacity	42.1	37.6-46.5	49.6	41.1-58.1	1.54*	39.1	33.8-44.3	ref.
Lack of information / training among staff	37.0	32.6-41.4	43.7	35.3-52.1	n.s.	34.3	29.2-39.4	ref.
Geographic location of target populations	33.0	28.7-37.2	30.4	22.6-38.2	n.s.	34.0	29-39.1	ref.
Lack of understanding of importance	31.3	27.1-35.5	36.3	28.1-44.5	n.s.	29.3	24.4-34.2	ref.
Poor information, education and communication campaigns	30.9	26.7-35	35.6	27.4-43.7	n.s.	29.0	24.1-33.9	ref.
Lack of / restrictive policies	29.2	25.1-33.3	34.8	26.7-42.9	n.s.	26.9	22.2-31.7	ref.
Lack of public health guidance	29.2	25.1-33.3	37.8	29.5-46	1.76**	25.7	21.1-30.4	ref.
Lack of leadership	29.2	25.1-33.3	35.6	27.4-43.7	n.s.	26.6	21.9-31.4	ref.
Criminalization	27.1	23.-31.1	12.6	7-18.2	0.29***	32.8	27.8-37.9	ref.
Lack of partnership	20.5	16.9-24.2	22.2	15.2-29.3	n.s.	19.8	15.6-24.1	ref.
No anonymous testing	12.3	9.3-15.2	5.2	1.4-8.9	0.31**	15.1	11.3-18.9	ref.
No constraints / barriers	3.8	2.1-5.5	0.7	0.01-2.2	n.s.	5.0	2.7-7.4	ref.

Significance levels *ps.05 **ps.01 ***ps.001 n.s.: non significant

The percentages represent the prevalence of each constraint or barrier individually

A well informed staff with appropriate training and understanding of importance [of HIV prevention] are the biggest enablers reported by all respondents (60.9% and 57.3% respectively). Only 7.0% believe that there are no enablers for the implementation of effective HIV prevention in their everyday practice.

Table 29. What enables the implementation of effective HIV prevention in your everyday practice?

	All respondents		Public health unit			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Well informed staff with appropriate training	60.9	56.5-65.3	60.7	52.5-69	n.s.	61.0	55.7-66.2	ref.
Understanding of importance	57.3	52.8-61.8	60.0	51.7-68.3	n.s.	56.2	50.9-61.5	ref.
Leadership	54.8	50.3-59.3	45.9	37.5-54.4	0.61*	58.3	53-63.6	ref.
Funding	54.3	49.8-58.8	45.2	36.7-53.6	0.6*	58.0	52.7-63.3	ref.
Partnership	53.1	48.6-57.6	45.9	37.5-54.4	0.67*	55.9	50.6-61.2	ref.
Good information, education and communication campaigns	53.1	48.6-57.6	43.7	35.3-52.1	0.59**	56.8	51.5-62.1	ref.
Tolerance and acceptance	50.5	46-55.1	46.7	38.2-55.1	n.s.	52.1	46.7-57.4	ref.
Public health guidance	45.2	40.7-49.7	54.8	46.4-83.3	1.72**	41.4	36.1-46.7	ref.
Human resources capacity	44.0	39.5-48.5	35.6	27.4-43.7	0.61*	47.3	42-52.7	ref.
Policies	42.9	38.4-47.4	48.2	39.7-56.6	n.s.	40.8	35.6-46.1	ref.
Program development capacity	42.7	38.2-47.2	34.1	26-42.1	0.6*	46.2	40.8-51.5	ref.
Anonymous testing	34.5	30.2-38.8	39.3	31-47.5	n.s.	32.5	27.5-37.6	ref.
Community and cultural norms	29.0	24.9-33.1	20.0	13.2-26.8	0.52**	32.5	27.5-37.6	ref.
No enablers	7.0	4.7-9.3	7.4	3-11.9	n.s.	6.8	4.1-9.5	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the prevalence of each enablers individually

Respondents were asked if they believed they can influence eight different aspects of HIV prevention in their organization. Only 5.1% (C.I. 3.09-7.06 %) of respondents answered negatively to all eight categories (strongly disagree or disagree). Overall, awareness is the aspect respondents believe they can influence the most. The only significant difference between other organizations and PHU workers is equity (81.7% vs 72.6%)

Table 30. Within my organization I believe I can influence the following regarding HIV prevention:

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
Awareness	91.5	89-94.1	90.4	85.4-95.4	n.s.	92.0	89.1-94.9	ref.
Messaging	86.1	82.9-89.2	81.5	74.9-88.1	n.s.	87.9	84.4-81.4	ref.
Acceptability	84.8	81.5-88	83.0	76.6-89.3	n.s.	85.5	81.7-89.3	ref.
Quality	82.5	79-85.9	80.7	74-87.4	n.s.	83.1	79.1-87.1	ref.
Accessibility	79.9	76.3-83.5	77.8	70.7-84.8	n.s.	80.8	76.6-85	ref.
Equity	79.1	75.4-82.7	72.6	65-80.2	0.59*	81.7	77.5-85.8	ref.
Delivery	78.7	74.9-82.4	77.8	70.7-84.8	n.s.	79.0	74.6-83.4	ref.
Adherence	65.8	61.5-70	60.0	51.7-68.3	n.s.	68.1	63.1-73	ref.

Significance levels *p<.05 **p<.01 ***p<.001 n.s.: non significant

The percentages represent the prevalence of each element individually

Key populations at high risk:

There are 22.6 % of organizations that do not have any programs or projects that target key populations at higher risk of HIV exposure. The highest rate is found in Nova Scotia (40%), and the lowest in Ontario (11%).

For the other organizations that have specific programs or projects, the two most targeted key populations at higher risk of HIV exposure are people who inject drugs and at risk youth (50.5 and 47.4%). On the other hand,

prison inmates and people from countries where HIV is endemic are the lowest. Also, public health units have significantly less programs or projects targeting women, aboriginal people, people from countries where HIV is endemic and gay, bisexual, and other men who have sex with men. There is also a higher percentage of PHU workers who do not have any programs or projects.

Table 31. Do you have any specific programs or projects that target key populations at higher risk of HIV exposure?

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
People who inject drugs	50.5	46-55.1	51.9	43.4-60.3	n.s.	50.0	44.6-55.4	ref.
At risk youth	47.4	42.8-51.9	44.4	39-52.9	n.s.	48.5	43.2-53.9	ref.
Gay, bisexual and other men who have sex with men	46.9	42.4-51.4	36.3	28.1-44.5	0.54**	51.2	45.8-56.5	ref.
Women	39.8	35.3-44.2	22.2	15.2-29.3	0.33***	46.8	41.4-52.1	ref.
Aboriginal people	38.5	34.1-42.9	28.2	20.5-35.8	0.53**	42.6	37.3-47.9	ref.
Sex workers and their clients	34.3	30-38.5	32.6	24.6-40.5	n.s.	34.9	29.8-40	ref.
Prison inmates	28.5	24.5-32.6	28.1	20.5-35.8	n.s.	28.7	23.9-33.5	ref.
People from countries where HIV is endemic	27.5	23.4-31.5	20.0	13.2-26.8	0.57*	30.5	25.5-35.4	ref.
No programs or projects that target key populations at higher risk of HIV exposure	22.6	18.8-26.4	30.4	22.6-38.2	1.8*	19.5	15.3-23.8	ref.

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

The percentages represent the prevalence of each element individually

Key populations at higher risk that are reported to be best reached at present by organizations' HIV prevention interventions are women and people who inject drugs (68.5% and 70.7%, respectively). Aboriginal people, prison inmates, and people from countries where HIV is endemic are reported to be reached the least, all under 50%.

Comment [k2]: If these should not reflect Table 32 – please change back

Table 32. In my organization HIV prevention interventions are reaching key populations at high risk of exposure to HIV

	All respondents (N=473)		Public health unit respondents (N=135)			Other respondents (N=338)		
	%	C.I.	%	C.I.	O.R.	%	C.I.	O.R.
People who inject drugs	70.7	65.7-75.8	66.2	58-74.3	n.s.	70.7	65.4-76	ref.
At risk youth	62.1	56.6-67.5	55.0	46.4-63.5	0.58*	67.7	62.3-73.1	ref.
Gay, bisexual and other men who have sex with men	61.7	56.3-67.2	49.6	41-58.2	0.42***	70.3	65.1-75.5	ref.
Women	68.5	63.3-73.7	54.6	46-63.1	0.33***	78.7	74-83.3	ref.
Aboriginal people	46.0	40.4-51.6	32.5	24.2-40.9	0.37***	56.8	51-62.6	ref.
Sex workers and their clients	53.7	48.1-59.3	42.3	33.8-50.9	0.51**	59.0	53.1-64.8	ref.
Prison inmates	43.7	38.2-49.3	39.0	30.1-47.9	n.s.	49.6	43.3-55.9	ref.
People from countries where HIV is endemic	43.4	37.9-48.9	28.1	20.3-36	0.32***	54.7	48.5-60.8	ref.

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant

The percentages represent the respondents answering agree or strongly agree to the question

In general, the majority (62.9%) of respondents reported that HIV prevention messaging is appropriate and reaching key populations. AIDS service organization respondents, specifically, reported significantly more often (86.4%) that the messaging is appropriate, compared to PHU respondents (50.4%) and other respondents (59.4%).

Table 33. I feel that HIV prevention messaging is appropriate and reaching key populations at high risk of exposure to HIV with which I work.

	All respondents (N=473)		Public health unit respondents (N=135)		Other respondents (N=338)		Chi 2
	%	C.I.	%	C.I.	%	C.I.	
Strongly disagree / disagree	37.1	32.7-41.6	49.6	41.1-58.2	32.0	26.9-37.1	12.54***
Agree / strongly agree	62.9	58.4-67.3	50.4	41.8-58.9	68.0	62.9-73.1	

Significance levels *p≤.05 **p≤.01 ***p≤.001 n.s.: non significant