

Influenza Immunization Rates of Healthcare Workers in Toronto Healthcare Facilities

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To:	Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

SUMMARY

Influenza is an acute viral infection of the respiratory tract. Influenza can result in widespread illness, including outbreaks and pandemics, and it is associated with complications such as bacterial pneumonia and death. Annual immunization of persons at high risk, and of health care workers (HCWs) and others who are capable of transmitting influenza to those at high risk, is the most effective measure for reducing the impact of influenza. Annual influenza immunization of HCWs is recommended by the National Advisory Committee on Immunization (NACI) ¹.

In order for immunization programs to be successful, high rates of coverage are required. However, influenza immunization coverage among HCWs in Toronto and Ontario remains low. During the 2008/2009 influenza season in Toronto, the median coverage rate for influenza immunization among HCWs working in institutional settings in Toronto was 42% for Acute Care Facilities, 55% for Complex Continuing Care hospitals, and 70% for Long Term Care Homes (Table 1). These rates are comparable to those reported for the previous two seasons (2006/2007 and 2007/2008) and with the exception of many LTCHs, lower than the annual influenza immunization coverage rate of 70% recommended by the Ontario Ministry of Health and Long Term Care (MOHLTC). Moreover, the median rates of immunization coverage among HCWs in Toronto institutions have been consistently lower than the provincial median rates over the last three years.

This report reviews the evidence supporting the public health importance of influenza immunization among HCWs, provides influenza immunization coverage rates for HCWs in Toronto hospitals (acute and complex continuing care) and long-term care homes

(LTCHs), makes recommendations on how to improve the uptake of influenza immunization by HCWs, and provides an update on provincial recommendations for influenza immunization for the 2009/2010 influenza season. While this report focuses on the coverage rates, programs and surveillance activities for influenza immunization in Toronto healthcare institutions, the importance of influenza immunization applies to all HCWs, regardless of their place of employment.

RECOMMENDATIONS

The Medical Officer of Health recommends:

1. That the Board of Health urge the CEOs of acute care hospitals, complex continuing care hospitals, long term care homes and nursing agencies to provide a comprehensive program to promote annual influenza immunization of health care workers.
2. That the Ontario Ministry of Health and Long Term Care include annual institutional HCW influenza immunization rates as an indicator within the publicly reported Ontario Patient Safety Initiatives.
3. That the Medical Officer of Health report annually on influenza immunization coverage rates among HCWs in Toronto healthcare facilities for the next three years.
4. That the Board of Health urge the Ontario Minister of Health and Long Term Care to explore options to make annual influenza immunization mandatory for HCWs if coverage rates for healthcare institutions do not improve over the next three years.
5. That this report be forwarded to the Chief Medical Officer of Health for Ontario, the CEOs of all Toronto acute care and complex continuing care hospitals, and long term care homes, the CEOs of all Toronto-area Local Health Integration Networks (LHINs) and Regional Infection Control Networks (RICNs), the General Manager of City of Toronto Long-Term Care Homes and Services, the Chief and General Manager of Toronto Emergency Medical Services (EMS), Toronto Practitioners of Infection Control (TPIC), the Ontario Agency for Health Protection and Promotion (OAHP), all Ontario Boards of Health, the Association of Local Public Health Agencies (ALPHA), and the Ontario Public Health Association (OPHA).

Financial Impact

There are no financial implications arising from this report.

ISSUE BACKGROUND

Influenza is a highly contagious acute viral infection of the respiratory tract characterized by fever, muscle aches, headache, malaise, non-productive cough, sore throat, and runny nose. During seasonal epidemics of influenza, which occur almost every winter in North America, an average of 5% to 20% of the population becomes ill. Influenza viruses can also cause pandemics, during which rates of illness and death from influenza-related complications can increase dramatically worldwide.

Influenza transmission and outbreaks in hospitals²⁻⁶ and LTCHs⁷⁻⁹ are well documented and can result in significant patient, resident and staff morbidity and mortality. In Toronto, an average of 38 influenza outbreaks are reported each year from acute care hospitals, complex continuing care hospitals, and LTCHs. These institutional outbreaks involve an average of 664 cases of influenza each year in Toronto, with respective averages of 61 cases requiring hospitalization and 29 deaths annually. The increased risk of influenza to residents and patients in these facilities is related not only to age and underlying health problems, but also because residents and patients are cared for in close proximity and because they have close contact with a range of healthcare providers.

Health care workers can acquire influenza from patients and can readily transmit influenza to other patients, other HCWs, and their family members. Studies have shown that HCWs often continue to work when ill with influenza and other respiratory infections. In two studies, HCWs reported four to ten times as many days during which they recalled having respiratory symptoms, compared to the number of days they reported staying absent from work due to illness¹⁰⁻¹¹. Furthermore, many HCWs may be unaware they are experiencing an influenza illness when they report to work. For example, in one study of HCWs with laboratory evidence of a recent influenza infection, only 59% could recall having influenza, suggesting the presence of mild infections during which the influenza virus could still be passed on to vulnerable patients¹².

Influenza immunization is effective, preventing influenza illness in 70-90% of immunized healthy adults^{20,21} and serious adverse reactions associated with the influenza vaccine are rare²². Annual influenza immunization of HCWs is recommended by the National Advisory Committee on Immunization (NACI)¹. NACI's position is that HCWs who have direct patient contact should consider it their responsibility to provide the highest standard of care, which includes as an essential component annual influenza vaccination. In the absence of contraindications, the refusal of HCWs to be immunized against influenza implies failure in their duty of care to patients¹.

Evidence from several studies, including randomized controlled trials (RCTs), demonstrates that vaccinating HCWs against influenza reduces patient morbidity¹³⁻¹⁵ and mortality,¹³⁻¹⁷ decreases HCW absenteeism^{10,11,18} and reduces medical visits¹⁵. For example, an RCT of influenza immunization of HCWs in 12 geriatric long term care facilities in Scotland found that an influenza immunization rate of 61% for HCWs was associated with a significant reduction in total patient mortality from 17% to 10% and a significant reduction in rates of influenza-like illness (ILI) among residents¹⁶. Moreover,

a Canadian study has reported that the risk of influenza outbreaks in LTCHs is inversely related to influenza vaccination rates among staff, meaning that the risk of an outbreak is lower if a greater proportion of staff is immunized against influenza¹⁹.

The finding that HCW influenza immunization results in reduced mortality rates has not been replicated in studies of acute care facilities. However, studies of HCWs in acute care hospitals have shown that influenza immunization reduces absenteeism related to respiratory infections by 28%¹⁰, and febrile respiratory illnesses in HCWs¹⁸. Additional studies have found that influenza immunization of HCWs results in improved patient safety, improved worker safety, fewer physician visits, decreased antibiotic use and an overall decrease in health-care expenditures^{3,17,23-25}. Several studies have concluded that immunizing healthy working adults, including HCWs, against influenza is a highly cost-effective intervention.^{13,14,23-25}

Influenza vaccine is provided to the staff of hospitals and LTCHs in Ontario through the Universal Influenza Immunization Program which, since 2000, has provided publicly funded influenza vaccine to the Ontario population, aged 6 months and older. To promote improved influenza immunization coverage among HCWs, on November 1, 1999, the Ontario Ministry of Health and Long-Term Care (MOHLTC) issued the “Influenza Prevention and Surveillance Protocol for Ontario Long-Term Care Facilities”²⁶ which emphasizes staff immunization and other prevention activities. In July 2000, the MOHLTC approved the “Influenza Surveillance Protocol for Public Hospitals”²⁷, developed jointly by the Ontario Medical Association, Ontario Hospital Association and MOHLTC. The protocols require each facility to have a policy in place to address influenza surveillance, prevention (including annual immunization), and outbreak control.

Under both protocols, influenza vaccine coverage rates from LTCHs and public hospitals are to be reported to the local Medical Officer of Health by December 1st of each year. The rates are then reported to the MOHLTC by individual health units. Vaccine coverage rates are calculated for HCWs, defined as all persons who carry out patient care activities in the institution including all employees, students, medical trainees, physicians, volunteers, and contract staff such as staff from nursing agencies. HCWs are considered immunized if they are immunized through their institution program or with proof of immunization from other sources (e.g. other facility or from a health care provider). Exemptions are recognized by the MOHLTC but only for documented medical reasons, such as allergy to the vaccine or its constituents. However, exempt staff are considered un-immunized for the purposes of coverage rates calculation and reporting. The number of exemptions among Toronto HCWs is small, comprising less than 1% of all HCWs across institutions for the 2008/2009 influenza season. .

Despite these protocols, immunization levels among HCWs in most Toronto institutions remain below the target levels set by the MOHLTC of 70%. Specific immunization coverage rates for each of Toronto’s acute care and continuing complex care hospitals and LTCHs are summarized in the comments section below.

COMMENTS

Influenza immunization recommendations for the 2009-2010 flu season

This year's flu season is a different flu season as the potential exists for both pandemic H1N1 and seasonal influenza strains to circulate and cause infection. The novel H1N1 strain emerged too late to be included in this season's annual influenza vaccine, and a separate H1N1 vaccine has been developed and produced. The Ontario Ministry of Health and Long Term Care issued advice on the sequencing of the H1N1 and seasonal influenza vaccines for Ontarians on September 24, 2009. The recommended vaccine sequence is as follows:

1. Seasonal influenza vaccine for individuals aged 65 and older including LTCH residents.
2. H1N1 influenza vaccine, with groups such as HCWs recommended to be among the first to be immunized against H1N1.
3. Seasonal influenza vaccine for those not yet vaccinated against seasonal flu.

Pandemic H1N1 is expected to be the predominant strain circulating this season. The rationale for the recommended vaccine sequence is that seniors are at highest risk of serious complications, hospitalizations and even death resulting from infections with seasonal flu viruses. On the other hand, data show that infections from the H1N1 virus occur less frequently in persons born before 1957, probably as a result of residual immunity from prior exposure to an H1N1 strain. Other population groups (such as those under 65 years of age) are being encouraged by provincial officials to delay immunization with the seasonal flu vaccine in part because preliminary Canadian studies suggest a potential association between prior seasonal influenza vaccination and the risk of acquiring infection with H1N1, and also because pandemic H1N1 is expected to be the predominant influenza strain circulating this flu season. The studies are undergoing review and have not yet been published.

Factors associated with HCW uptake of influenza immunization

Despite strong evidence supporting annual influenza immunization for HCWs, plus the availability of publicly funded influenza vaccine and influenza prevention protocols for hospitals and LTCHs, HCW vaccine coverage rates for seasonal influenza remain low and below the MOHLTC targets. A Canadian study found a number of factors significantly associated with higher influenza vaccination rates among LTCH staff: having an infection control practitioner in the facility, having a smaller than average number of beds, offering the vaccine to staff hired in the winter, and offering the vaccine to those active in the facility who were not employees, such as nursing agency-employed healthcare workers¹⁹. Reasons cited in the literature for the low uptake of influenza vaccine among HCWs include: the perception that influenza is a trivial illness, concerns about side effects, beliefs that the vaccine is ineffective, fear of injections and lack of time and motivation^{11,28,29}.

Components of effective HCW influenza immunization programs

To overcome barriers and to improve immunization rates, public health agencies encourage institution-based influenza immunization programs targeting HCWs to use a combination of educational and social marketing strategies that emphasize protection of vulnerable patients and residents, as well as the expected health benefits to HCWs and their families²⁸. Other program components may include: quality assurance processes to regularly assess the effectiveness of the immunization program²⁸, requiring HCWs who decline influenza vaccination for reasons other than medical contraindications to sign a form²⁸, developing policy statements affirming institutional commitments to increasing HCWs influenza immunization coverage rates, and providing compensation for HCWs for time off due to vaccine adverse effects. Some health care institutions have been able to achieve coverage rates as high as 98% with the implementation of extensive educational campaigns and, in some cases, the introduction of mandatory immunization as a condition of employment³⁰.

Mandatory requirements for HCW influenza immunization

Mandating influenza immunization is a strategy that can be used to achieve high rates of HCW immunization through legislation or by institutional policy requiring immunization as a condition of employment. This was attempted in Ontario in 2000, when the Ontario Ambulance Act was amended to require Ontario Emergency Medical Services (EMS) workers to undergo annual influenza immunization. The Canadian Union of Public Employees (CUPE) launched a legal challenge on behalf of 50 paramedics who were suspended after they refused to comply with mandatory influenza immunization. On January 25, 2001, an application was filed with the Ontario Superior Court of Justice to have the provisions of the Ambulance Act pertaining to the mandatory requirement for influenza immunization declared contrary to the Canadian Charter of Rights and Freedoms. In October 2002, the Ambulance Act was changed, dropping the clause requiring mandatory influenza immunization. Based on this change, CUPE withdrew their constitutional challenge to the Act.

At this time, there is no provincial legislation in Ontario requiring mandatory immunization for HCWs. However, concerns surrounding transmission of the pandemic H1N1 strain have led to the introduction of mandatory vaccination regulations in some states in the United States. For example, the state of New York passed an emergency regulation on August 13, 2009 requiring all personnel of healthcare institutions to receive annual immunization against seasonal influenza by November 30 of each year, including immunization against H1N1 influenza once available³¹. In 2005, the Association of Local Public Health Agencies (alPHA) approved the Mandatory Influenza Immunization for Health Care Workers Resolution (Resolution A05-02), which urged the Minister of Health and Long-Term Care, in consultation with the Chief Medical Officer of Health and the Provincial Infectious Diseases Advisory Committee (PIDAC), to introduce legislation to require mandatory annual vaccination against influenza for all health care workers.

Influenza immunization coverage rates in Toronto healthcare facilities

In Toronto, institutional rates of HCW influenza immunization range are extremely variable and range from rates as high as 98% to as low as 19% (Tables 2a, 2b, 2c). The lowest rates fall below the influenza immunization rate estimated for the general population of Ontario over the age of 12, which is 37%³². With the exception of CCC rates for the 2008/09 season, Toronto HCW vaccination rates have been consistently lower than the median rates for institutions from all of Ontario (Table 1). The highest coverage rates are observed among LTCHs (Table 2c). Analysis of coverage rates among LTCHs over the last three years revealed that only two institutions were consistently among the top five institutions with the highest immunization rates. Some of the strategies employed by these institutions that might account for the high rates include human resources policies that make vaccination mandatory, follow-up with unvaccinated staff by senior management, and annual education sessions. In 2008-2009, no single acute care hospital in Toronto achieved the MOHLTC target of 70%.

For the 2008/2009 influenza season, the median influenza immunization rate among acute care facilities was 42%, with a range of 24% to 63%. The three acute care hospitals with the highest immunization coverage rates are all part of the University Health Network which uses a multi-faceted campaign including the use of incentives, supplying annual stickers for staff ID badges to indicate influenza immunization, the use of mobile carts which visit each nursing unit at least twice, access to vaccination in the evenings and on weekends, and strong support and championing of the program by senior leadership.

The median rate of influenza immunization for HCWs employed within complex continuing care (CCC) facilities in Toronto for the 2008/2009 influenza season was slightly higher than that of the acute care sector, at 55%, with a range of 20% to 80% across the sixteen CCC institutions in Toronto.

The LTCH sector has the highest median coverage rate for HCW influenza immunization in Toronto. In the 2008/2009 influenza season, the median rate for Toronto LTCHs was 70%, with a range of 19% to 98% across facilities. In the 2008/2009 influenza season, the median coverage rate for influenza immunization among HCWs employed at LTCHs operated by the City of Toronto was 71% (range of 43% to 84%).

Toronto Public Health (TPH) strongly recommends the influenza vaccine to all of its staff and will promote H1N1 influenza vaccine this fall. TPH staff immunization rates are routinely collected for staff who enter health care facilities as part of their work, including staff in the Dental and Oral Health Program, the Communicable Disease Liaison Unit (CDLU), and Control of Infectious Diseases and Infection Control (CID/IC) programs. In the 2008/2009 influenza season, 79% of staff in the areas of CDLU and CID/IC, and 59% of staff in the Dental program who enter institutions as part of their work, were immunized against influenza.

Table 1: Institutional Health Care Worker Influenza Immunization Coverage Rates by Health Care Setting and Flu Season, Toronto and Ontario, 2006/2007 – 2008/2009

			Toronto		Ontario
Flu Season	Health Care Setting	N	Overall* Rate	Median Rate (Range)	Median Rate
2006/2007	Acute Care Facilities (ACF)	20	NA	38% (20%-74%)	57%
	Complex Continuing Care Hospitals (CCC)	11	NA	41% (26%-77%)	
	Long Term Care Homes (LTCH)	80	NA	75% (17%-98%)	83%
2007/2008	Acute Care Facilities (ACF)	17	42%	40% (17%-62%)	50%
	Complex Continuing Care Hospitals (CCC)	17	48%	38% (23%-80%)	
	Long Term Care Homes (LTCH)	77	67%	66% (19%-98%)	77%
2008/2009	Acute Care Facilities (ACF)	18	44%	42% (24%-63%)	51%
	Complex Continuing Care Hospitals (CCC)	16	54%	55% (20%-80%)	
	Long Term Care Homes (LTCH)	84	66%	70% (19%-98%)	77%

NA: Data not available (Numerator and Denominator data not provided)

*Overall rate calculations were based on the number of health care workers immunized for influenza for each season divided by the total number of health care workers in each health care setting, multiplied by 100.

Table 2a: Health Care Worker Influenza Immunization Coverage Rates by Acute Care Hospital, Toronto, 2008/2009 Season

Acute Care Hospital	Total Staff	# Staff Immunized	Staff Coverage Rate (Percent)
University Health Network Toronto Western Hospital	3072	1945	63
University Health Network Toronto General Hospital	6882	4006	58
University Health Network Princess Margaret Hospital	2995	1670	56
St. Michael's Hospital	5015	2300	46
Sunnybrook Health Sciences Centre	5236	2331	45
Mount Sinai Hospital	5273	2332	44
North York General Hospital - Branson Division	178	77	43
The Hospital for Sick Children	7188	3104	43
William Osler Health Centre, Etobicoke General Hospital	1167	499	43
St Joseph's Health Centre	2525	1047	41
North York General Hospital - General Division	2611	1038	40
Women's College Hospital	648	229	35
Humber River Regional Hospital	2800	952	34
Trillium Health Centre - Queensway Site	4352	1429	33
Toronto East General Hospital	2654	850	32
The Scarborough Hospital - General Division	2265	664	29
Rouge Valley Centenary Hospital	1982	552	28
The Scarborough Hospital - Grace Division	1163	280	24

Table 2b: Health Care Worker Influenza Immunization Coverage Rates by Complex and Continuing Care Hospital, Toronto, 2008/2009 Season

Complex and Continuing Care Hospital (CCC)	Total Staff	# Staff Immunized	Staff Coverage Rate (Percent)
McCall Centre for Continuing Care	158	126	80
Bridgepoint Hospital	925	702	76
Providence Healthcare Hospital	948	691	73
West Park Healthcare Centre	787	486	62
Salvation Army Toronto Grace Health Centre	230	140	61
Runnymede Healthcare Centre	205	123	60
Centre for Addiction and Mental Health – Owen & Brentwood Site	1350	774	57
Centre for Addiction and Mental Health - College & Russell Site	1110	628	57
Bloorview Kids Rehab	1022	556	54
Baycrest Hospital C.C.C. and Apotex Centre	2834	1511	53
Toronto Rehabilitation Institute - Bickle Centre (Queen Elizabeth Centre)	529	190	36
St. John's Rehabilitation Hospital	400	137	34
Toronto Rehabilitation Institute - University Site	665	212	32
Toronto Rehabilitation Institute - Rumsey Centre	126	34	27
Toronto Rehabilitation Institute - Hillcrest Site	194	48	25
Toronto Rehabilitation Institute - Lyndhurst Centre	292	57	20

Table 2c: Health Care Worker Influenza Immunization Coverage Rates by Long Term Care Home, Toronto, 2008/2009 Season

Long Term Care Home (LTCH)	Total Staff	# Staff Immunized	Staff Coverage Rate (Percent)
Yee Hong Centre for Geriatric Care - Scarborough Finch Site	256	252	98
Garden Court Nursing Home	44	42	95
Vermont Square	163	153	94
Elm Grove Living Centre Inc	110	103	94
The Westbury	200	187	94
Mon Sheong Scarborough Longterm Care Centre	171	158	92
Leisureworld Caregiving Centre - Rockcliffe	189	174	92
Yee Hong Centre for Geriatric Care - McNicoll Site	208	189	91
Mon Sheong Home for the Aged (Downtown)	140	127	91
Lakeside Longterm Care Centre	155	140	90
The Wexford	275	245	89
Ina Grafton Gage Home	140	122	87
Thompson House	117	102	87
Leisureworld Caregiving Centre - O'Connor Court	155	133	86
North York General Hospital - Senior's Health Centre	190	164	86
Highbourne Lifecare Centre	302	256	85
Suomi Koti Nursing Home Toronto	67	57	85
Ehatare Nursing Home	32	27	84
Lakeshore Lodge	188	157	84
Drs. Paul and John Reikai Centre	130	109	84
Tony Stacey Centre for Veteran's Care Home for the Aged	139	115	83
Christie Gardens	205	170	83
Fudger House	262	216	82
Trilogy Long Term Care Centre	260	213	82
Maynard Nursing Home	92	75	82
Kensington Gardens	354	289	82
Leisureworld Caregiving Centre - St. George	212	173	82
Fairview Nursing Home	91	73	80

Table 2c: Health Care Worker Influenza Immunization Coverage Rates by Long Term Care Home, Toronto, 2008/2009 Season (Continued from previous page)

Long Term Care Home (LTCH)	Total Staff	# Staff Immunized	Staff Coverage Rate (Percent)
Extendicare - Scarborough	189	152	80
Chester Village	220	174	79
Extendicare - Bayview	190	150	79
Belmont House	201	158	79
Leisureworld Caregiving Centre - Norfinch	197	154	78
Wesburn Manor	198	150	76
Cedarvale Terrace Long Term Care Home	240	180	75
The Heritage Nursing Home	208	152	73
Isabel & Arthur Meighen Health Centre	208	152	73
True Davidson Acres	241	175	73
Kennedy Lodge Nursing Home	314	226	72
Carefree Lodge	153	109	71
Seven Oaks	262	186	71
West Park Long Term Care	226	160	71
Extendicare - Guildwood	185	130	70
Tendercare Living Centre	274	192	70
House of Providence	265	180	68
The O'Neill Centre	198	135	68
Hellenic Home for the Aged - Scarborough	138	91	66
The Village of Humber Heights	203	134	66
Extendicare - Rouge Valley Nursing Home	262	170	65
Central Park Lodge Westside	225	145	64
Norwood Nursing Home	64	41	64
Villa Colombo	450	286	64
Castleview Wychwood Towers	464	286	62
Sunnybrook Health Sciences Long Term Care	605	375	62
Leisureworld Care Giving Centre - Cheltenham	164	99	60
Harold and Grace Baker Centre	204	122	60
Leisureworld Caregiving Centre - Ellesmere	250	150	60
Cummer Lodge	386	226	59
Leisureworld Caregiving Centre - Lawrence	243	144	59
Leisureworld Caregiving Centre - Scarborough	254	142	56
Wellesley Central Place	185	103	56
White Eagle Nursing Home	69	38	55
Dom Lipa Nursing Home	155	83	54

Table 2c: Health Care Worker Influenza Immunization Coverage Rates by Long Term Care Home, Toronto, 2008/2009 Season (Continued from previous page)

Long Term Care Home (LTCH)	Total Staff	# Staff Immunized	Staff Coverage Rate (Percent)
Nisbet Lodge	138	74	54
St. Clair O'Connor Community Nursing Home	85	45	53
Casa Verde Retirement Home	275	140	51
Leisureworld Caregiving Centre - Altamont	180	85	47
Kipling Acres	345	161	47
Gibson Long Term Care	210	97	46
Versa Care Centre Toronto	135	62	46
Ivan Franko Home	90	41	46
Shepherd Lodge Nursing Home	380	171	45
Bendale Acres Homes for the Aged	350	150	43
Versa Care Centre - Rexdale	152	58	38
Leisureworld Caregiving Centre - O'Connor Gate	158	55	35
Yorkview Lifecare Centre	250	88	35
North Park Nursing Home	82	28	34
Leisureworld Caregiving Centre - Etobicoke	198	65	33
Valley View Residence	186	57	31
Labdara Lithuanian Nursing Home	120	34	28
Ukrainian Canadian Care Centre	180	48	27
Craiglee Nursing Home	170	40	24
Copernicus Lodge	350	71	20
Hellenic Home for the Aged - Toronto	63	12	19

CONCLUSIONS

Despite strong evidence to support the benefits to patients and HCWs, the existence of provincial protocols to increase HCW influenza immunization and the availability of influenza vaccine at no cost, influenza immunization rates among HCWs in Toronto remain low. Perceived barriers that may explain this include: a misperception of the risk of influenza, a lack of knowledge of the potential role HCWs play in influenza transmission, concerns about side effects, a belief that the vaccine is ineffective, fear of injections and lack of time and motivation to receive the vaccine.

The uptake of influenza immunization among HCWs can be improved with increased education of HCWs on their role in influenza-transmission and prevention, reduced barriers to undergoing immunization, strong commitment and championing of influenza immunization by senior institutional leadership and with the introduction of transparency through the public disclosure of institutional coverage rates. In light of the upcoming influenza season where H1N1 influenza is expected to represent the predominant

circulating strain of influenza in Toronto, a concerted effort to improve HCW immunization against influenza is both timely and required.

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None

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