

Influenza vaccination coverage for staff of acute care facilities British Columbia, 2017/18

Background

Immunization coverage assessment is an important part of a quality immunization program and serves three main functions:

- i) Identifying populations with low levels of immunization coverage
- ii) Evaluating the delivery of immunization programs
- iii) Informing program planning

Targets for coverage among staff of acute care facilities at the provincial and national levels are 60% and 80%, respectively.^{1,2}

From the 2007/08 to 2011/12 influenza seasons, influenza vaccination coverage for staff of acute care facilities in BC ranged from 35% to 46%. Coverage increased following implementation of the new BC Influenza Prevention Policy, ranging from 74% to 76% for seasons 2012/13 through 2016/17.

The BC Influenza Prevention Policy requires healthcare workers in all health authorities to be vaccinated against influenza or to wear a surgical mask while in patient care areas during the influenza season. The policy covers all health authority staff who work in patient care areas: unionized and excluded staff, volunteers, paramedics, students, contractors, and physicians. The policy was widely communicated and its implementation was accompanied by strategies such as the use of peer immunizers. Staff reporting of their influenza immunization was enabled through an online immunization self-reporting website. Disciplinary measures for staff who do not comply with the Policy which were enacted beginning 2013/14 include loss of privileges and termination of employment.

Objective

To quantify the percentage of staff in acute care facilities in British Columbia who were vaccinated against influenza during the 2017/18 influenza season.

Methods

Influenza immunization coverage for healthcare workers in acute care facilities was calculated at the facility level, health service delivery area level, health authority level, and for BC. There are five regional health authorities, which are comprised of 16 health service delivery areas, and a Provincial Health Services Authority (PHSA) which is responsible for select acute care province-wide healthcare programs and services.

1. Immunize BC: a strategic framework for immunization in B.C. 2007. Victoria, BC: British Columbia Ministry of Health. Available at:

<http://www.health.gov.bc.ca/library/publications/year/2007/immunizebc.pdf>

2. Public Health Agency of Canada. Vaccination Coverage Goals and Vaccine Preventable Disease Reduction Targets by 2025. Available at: <https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html>

Acute care facilities were defined as non-profit institutions that are designated as a hospital by the Minister and are operated primarily for the reception and treatment of persons

- suffering from the acute phase of illness or disability;
- convalescing from or being rehabilitated after acute illness or injury; or
- requiring extended care at a higher level than that generally provided in a private hospital.

An administrative dataset of occupational health records, the Workplace Health Indicator Tracking and Evaluation (WHITE) database, was used to calculate vaccination coverage results. The WHITE data were an anonymized individual healthcare worker level dataset which included influenza vaccination status. All acute care facilities reported employee data through the WHITE database.

This was the sixth season of influenza coverage reporting using WHITE data. Staff whose records were included in the analysis must have been employed by a health authority and have worked for a minimum of 8 hours from December 1, 2017 to February 28, 2018. Staff who were not on a health authority's payroll (contracted staff, trainees, etc.) were not included in the WHITE database. Physicians and medical residents were not included in the WHITE database for most facilities.

Staff were defined as all persons who work or train on a full time, part time or casual basis in a facility or hospital who have direct or indirect contact with patients or residents, regardless of whether they are health care providers. This includes administrative and non-patient care staff (e.g., medical records, housekeeping and dietary) and excludes volunteers. This definition of staff is unchanged since the 2013/14 season and is based on the Ministry's Performance Agreements.

Healthcare workers were counted in the facility and region where they work, rather than by their health authority employer. Some healthcare workers worked at multiple facilities during the influenza season. For coverage statistics at the provincial, health authority or health service delivery area level, each healthcare worker was included only in the facility where they worked the most hours. For facility level coverage statistics, healthcare workers were included in each facility where they worked for at least 8 hours during the influenza season. This is the same method that was used for the last two seasons' (2015/16 and 2016/17) coverage reports.

Changes in coverage rates over time should be interpreted with caution as the data collection methods have changed from aggregate facility level reporting of immunization coverage as of February 28th each year prior to the 2012/13 season to individual healthcare worker level reporting using WHITE data, and there have been incremental methodological changes in use of WHITE data.

Results

Reporting of facilities (Table 1)

- All 91 acute care facilities in BC are included in this report
- All 91 facilities used data from the WHITE database

2017/18 influenza vaccination coverage (Tables 2 and 3; Figures 1 to 5)

- 75% (50,546/67,055) of staff in acute care facilities in BC were vaccinated against influenza, same to the 75% (50,435/67,456) in 2016/17
- 65% to 82% coverage was the range across the six health authorities
- 62% to 85% coverage was the range across the sixteen health service delivery areas and PHSA
- 53% to 100% coverage was the range across all acute care facilities in BC
- 61% to 88% coverage was the range across the 33 facilities with 500 or more staff
- 87/91 (96%) facilities met the Immunize BC coverage target of 60%
- 32/91 (40%) facilities met the national coverage target of 80%

The total number of healthcare workers included in this acute care facility coverage report has fluctuated over the past several years; this year's total 67,055 is similar to two of the three previous seasons: 67,456 in 2016/17, and 67,580 in 2014/15.

Summary

Influenza immunization coverage data were available for all 91 acute care facilities in BC. Influenza vaccination coverage for staff of acute care facilities in BC was 75%, which is below the national target of 80%, but exceeds the Immunize BC target of 60%.

Within most health authorities, there was a wide range of influenza vaccination coverage for acute care facilities. More variation in coverage was observed in facilities with <500 staff. Coverage in facilities with ≥500 staff ranged from 61 to 88%. The reasons behind the variation in vaccination coverage between facilities were not assessed.

The total number of healthcare workers included in the acute care facility coverage reports has varied since 2010/11; the reasons for this variation are unknown but the numbers have shown less variation in the years 2014/5 to 2017/8.

Influenza immunization coverage for acute care healthcare workers in BC has ranged from 74% to 76% in the five seasons since implementation of the policy. Coverage rates during these seasons were about 35% higher than prior to implementation of the BC Influenza Prevention Policy. After the substantial increase in coverage during the first year of the Policy in 2012/3, immunization coverage for healthcare workers in acute care facilities has remained stable.

Tables and Figures

Table 1: Acute care facilities included by health authority, 2017/18

Health authority	Reported	Acute care facilities	
		Total	% reported
Interior	27	27	100
Fraser	13	13	100
Vancouver Coastal	14	14	100
Vancouver Island	15	15	100
Northern	18	18	100
Provincial Health Services	6	6	100
British Columbia	91	91	100

Table 2: Influenza vaccination coverage for staff of acute care facilities by health authority and health service delivery area, 2017/18

Health authority	Acute care facility staff		
	Immunized	Total	%
Interior	8,958	11,060	81
East Kootenay	822	995	83
Kootenay Boundary	950	1,224	78
Okanagan	4,359	5,529	79
Thompson/Cariboo/Shuswap	2,827	3,312	85
Fraser	14,213	18,032	79
Fraser East	2,491	3,318	75
Fraser North	5,641	6,931	81
Fraser South	6,081	7,783	78
Vancouver Coastal	11,417	15,615	73
Richmond	1,002	1,252	80
Vancouver	8,508	11,876	72
N Shore/Coast Garibaldi	1,907	2,487	77
Vancouver Island	7,432	11,447	65
South Vancouver Island	4,148	6,402	65
Central Vancouver Island	2,023	3,242	62
North Vancouver Island	1,261	1,803	70
Northern	2,956	4,123	72
Northwest	780	1,081	72
Northern Interior	1,666	2,325	72
Northeast	510	717	71
PHSA	5,570	6,778	82
BC	50,546	67,055	75

Table 3: Acute care facility staff influenza vaccination coverage by health authority, 2009/10 to 2017/18

Health authority	Influenza immunization coverage (%) for staff of acute care facilities by influenza season									
	2009/10	2009/10 H1N1	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Interior	45	52	44	44	76	69	77	73	78	81
Fraser	16	46	30	34	74	80	80	79	78	79
Vancouver Coastal	47	53	46	43	71	75	75	76	74	73
Vancouver Island	37	42	39	42	74	73	70	66	66	66
Northern	37	41	42	37	76	73	75	67	74	72
PHSA	32	36	46	43	71	78	79	79	79	82
British Columbia	35	46	40	40	74	75	76	74	75	75

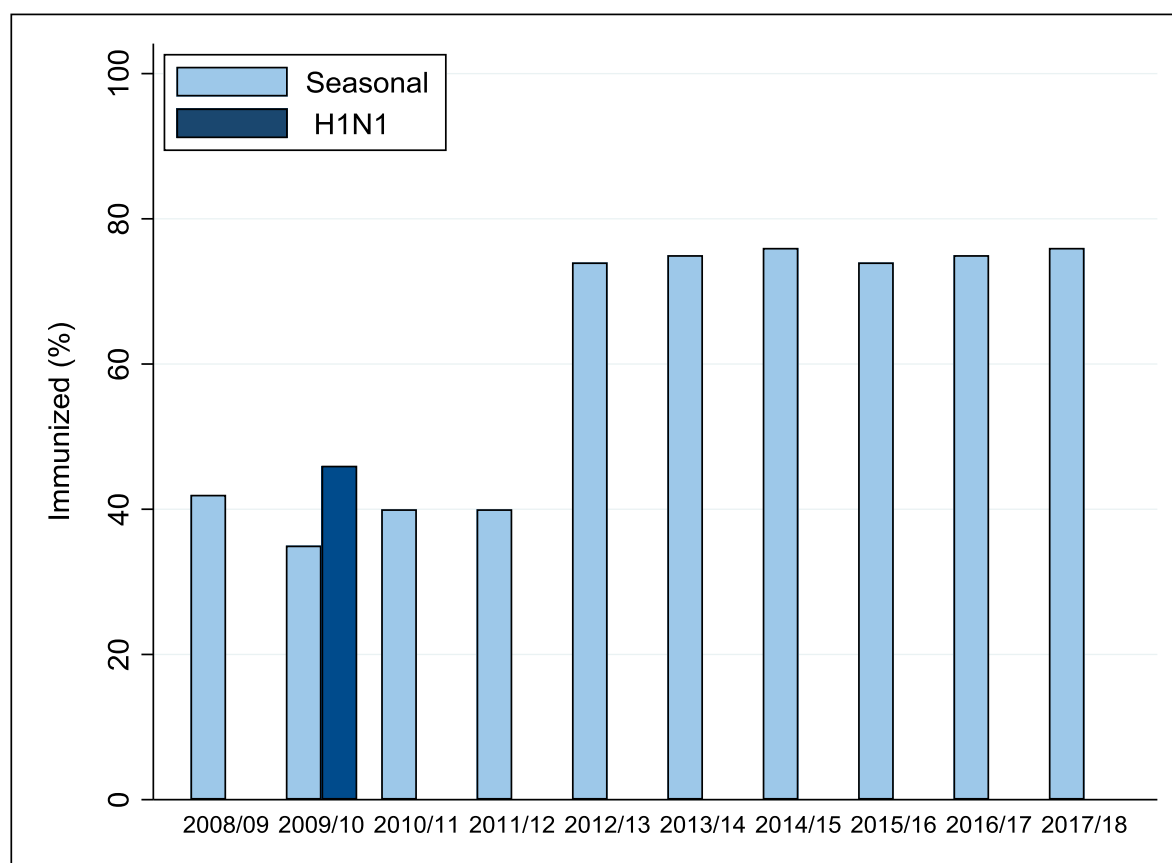


Figure 1: Influenza immunization coverage for staff of acute care facilities, 2008/09 to 2017/18

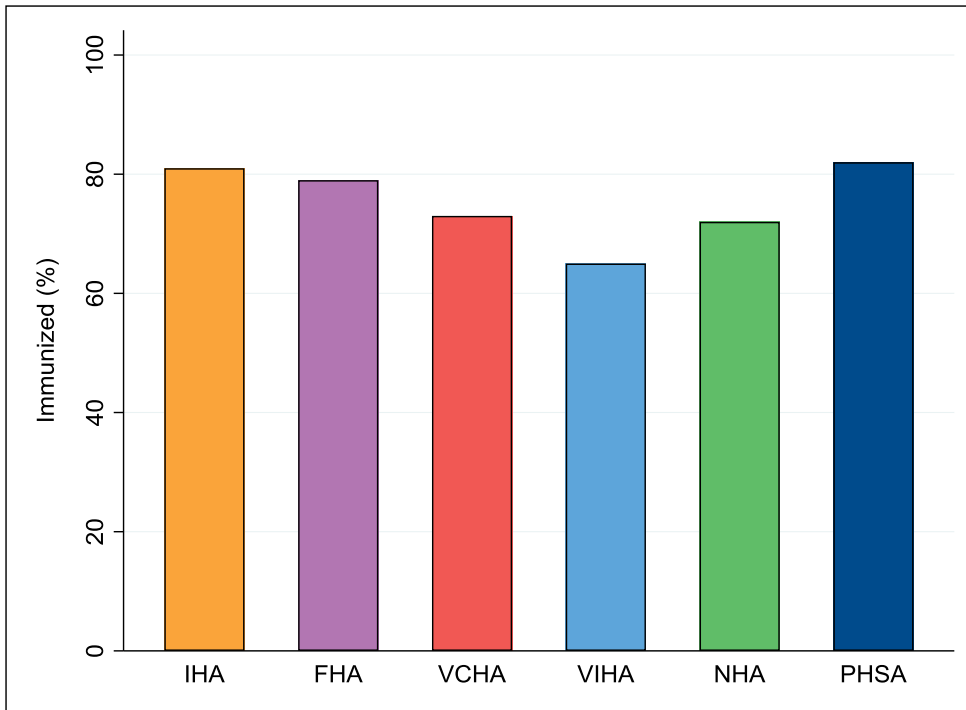


Figure 2: Influenza immunization coverage for staff of acute care facilities by health authority, 2017/18

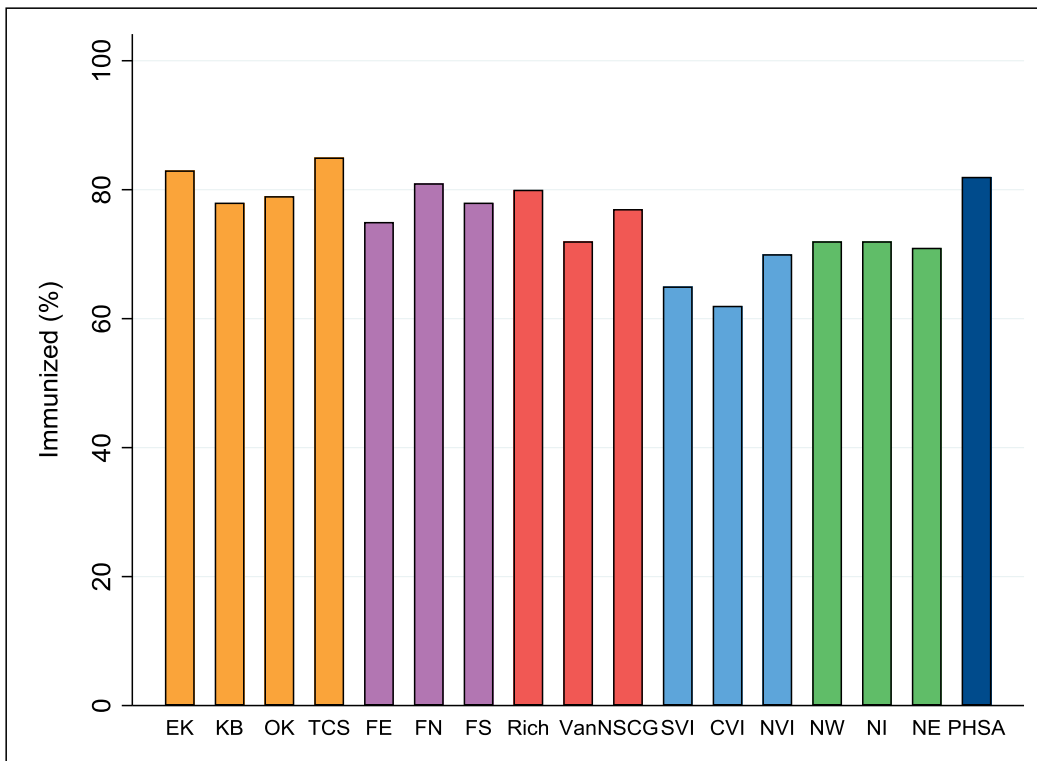


Figure 3: Influenza immunization coverage for staff of acute care facilities by health service delivery area and for PHSA, 2017/18

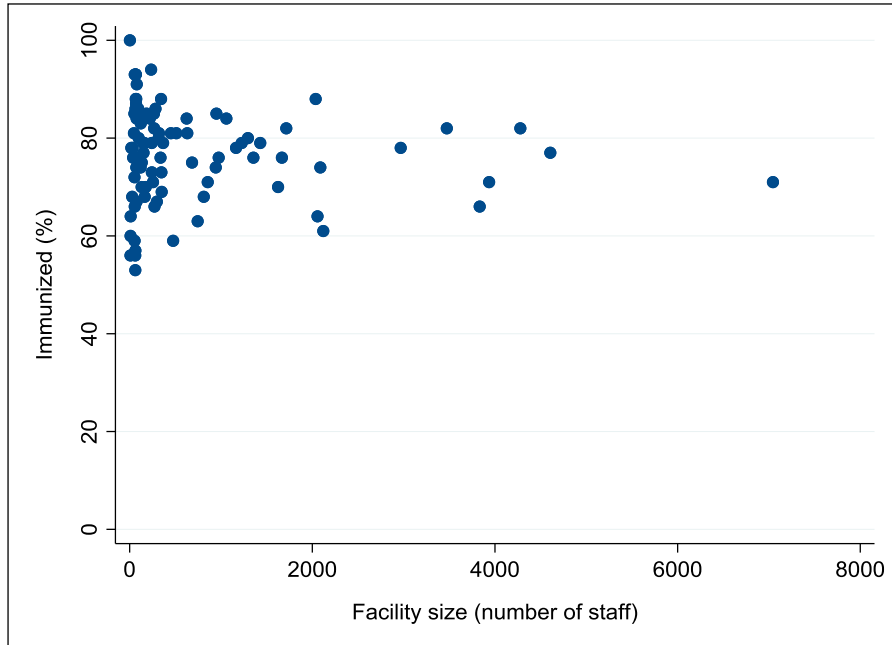


Figure 4: Influenza immunization coverage for staff of acute care facilities by facility size (Number of staff), 2017/18

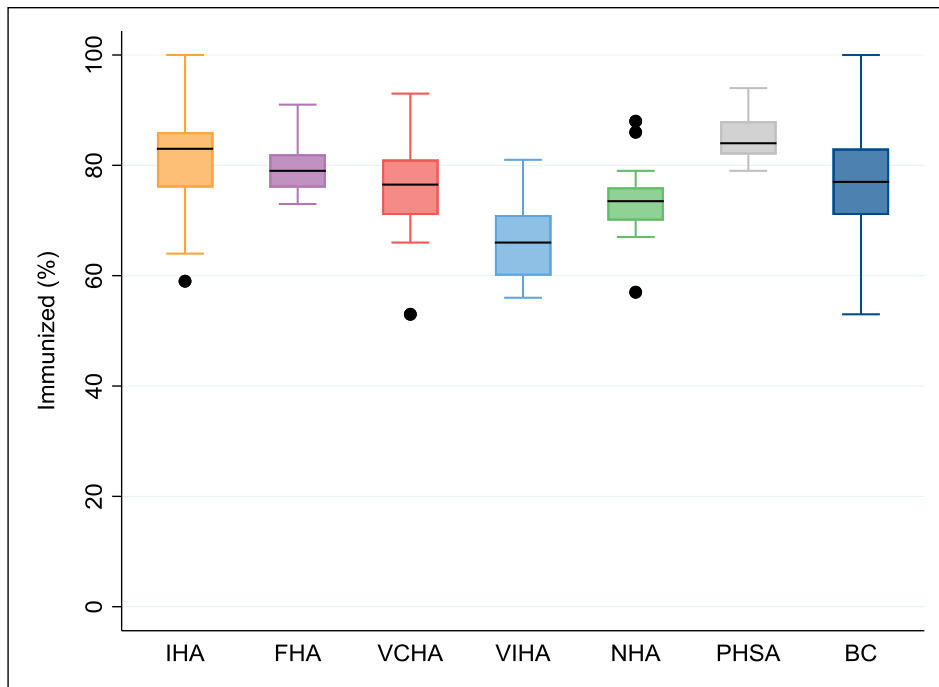


Figure 5: Influenza immunization coverage for staff of acute care facilities by facility within each health authority, 2017/18

Figure 5: The horizontal line below each box represents the lowest observed coverage value that is greater than or equal to the first quartile minus 1.5 times the interquartile range; the lower edge of each box represents the 25th percentile; the solid horizontal line within each box represents the median coverage value; the upper edge of each box represents the 75th percentile; the horizontal line above each box represents the highest observed coverage value that is less than or equal to the third quartile plus 1.5 times the interquartile range, and the dots represent facilities with unusually low or high coverage values which are outliers.

Table 4: Immunization coverage for staff of acute care facilities by health authority and health service delivery area, 2009/10 to 2017/18

		Influenza season									
Health authority		2009/10	2009/10 H1N1	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
INTERIOR	immunized	4,610	5,317	4,490	4,558	6,540	7,419	8,152	7,982	8,482	8,958
	total staff	10,249	10,307	10,132	10,473	8,593	10,726	10,647	10,989	10,936	11,060
	% immunized	45	52	44	44	76	69	77	73	78	80
East Kootenay	immunized	547	620	560	540	684	739	780	758	767	822
	total staff	1,038	999	1,033	1,031	812	970	953	982	966	995
	% immunized	53	62	54	52	84	76	82	77	79	83
Kootenay Boundary	immunized	504	497	422	381	706	817	928	891	915	950
	total staff	1,382	1,382	1,324	1,306	995	1,230	1,197	1,220	1,184	1,224
	% immunized	36	36	32	29	71	66	78	73	77	78
Okanagan	immunized	1,972	2,376	1,793	2,156	3,323	3,901	3,886	3,829	4,134	4,359
	total staff	4,652	4,600	4,635	5,412	4,593	5,845	5,283	5,509	5,520	5,529
	% immunized	42	52	39	40	72	67	74	70	75	79
ThompsCarib Shuswap	immunized	1,587	1,824	1,715	1,481	1,827	1,962	2,558	2,504	2,666	2,827
	total staff	3,177	3,326	3,140	2,724	2,193	2,681	3,214	3,278	3,266	3,312
	% immunized	50	55	55	54	83	73	80	76	82	75
FRASER	immunized	2,586	7,371	5,173	5,446	11,013	15,247	15,399	15,547	14,110	14,213
	total staff	15,867	15,867	16,984	15,881	14,883	19,001	19,262	19,742	18,057	18,032
	% immunized	16	46	30	34	74	80	80	79	78	79
Fraser East	immunized	520	1,318	1,033	1,219	2,053	2,761	2,859	2,745	2,504	2,491
	total staff	2,860	2,860	3,119	3,115	2,781	3,510	3,635	3,655	3,310	3,318
	% immunized	18	46	33	39	74	79	79	75	76	75
Fraser North	immunized	1,158	3,301	2,289	2,110	4,390	5,893	5,790	6,007	5,588	6,081
	total staff	6,612	6,612	7,003	6,228	5,825	7,301	7,167	7,492	7,038	7,783
	% immunized	18	50	33	34	75	81	81	80	79	78
Fraser South	immunized	908	2,752	1,851	2,117	4,570	6,593	6,750	6,795	6,018	6,081
	total staff	6,395	6,395	6,862	6,538	6,277	8,190	8,460	8,595	7,709	7,783
	% immunized	14	43	27	32	73	81	80	79	78	78

Table 4 (continued): Immunization coverage for staff of acute care facilities by health authority and health service delivery area, 2009/10 to 2017/18

		Influenza season										
		2009/10	2009/10 H1N1	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
Health authority												
VANCOUVER COASTAL		immunized	6,841	7,639	5,644	5,541	5,553	12,060	12,274	12,702	12,000	11,471
		total staff	14,506	14,506	12,173	12,897	7,828	15,982	16,312	16,785	16,249	15,615
		% immunized	47	53	46	43	71	75	75	76	74	73
Richmond		immunized	634	716	516	520	792	1,055	1,086	1,119	1,024	1,002
		total staff	1,265	1,265	1,016	1,085	993	1,327	1,285	1,353	1,297	1,252
		% immunized	50	57	51	48	80	80	85	83	79	80
Vancouver		immunized	5,145	5,565	4,193	4,219	3,364	8,994	9,093	9,558	9,091	8,508
		total staff	10,600	10,600	9,026	9,805	4,996	12,003	12,400	12,767	12,430	11,876
		% immunized	49	53	46	43	67	75	73	75	73	72
N Shore/Coast Garibaldi		immunized	1,062	1,358	935	802	1,397	2,011	2,095	2,025	1,885	1,907
		total staff	2,641	2,641	2,131	2,007	1,839	2,652	2,627	2,665	2,522	2,487
		% immunized	40	51	44	40	76	76	80	76	75	77
VANCOUVER ISLAND		immunized	3,727	3,881	3,941	3,844	6,143	8,241	7,811	7,593	7,653	7,432
		total staff	10,175	9,183	10,021	9,166	8,345	11,360	11,119	11,592	11,585	11,447
		% immunized	37	42	39	42	74	73	70	66	66	65
South Van Island		immunized	1,987	2,389	2,035	1,944	3,975	4,722	4,458	4,312	4,345	4,148
		total staff	5,540	5,540	5,405	4,860	5,295	6,402	6,395	6,585	6,487	6,402
		% immunized	36	43	38	40	75	74	70	65	67	65
Central Van Island		immunized	982	1,163	1,184	1,139	1,673	2,070	2,060	1,970	1,967	2,023
		total staff	2,932	2,932	2,982	2,766	2,401	3,119	3,080	3,231	3,247	3,342
		% immunized	33	40	40	41	70	66	67	61	61	62
North Van Island		immunized	758	329	722	761	495	1,449	1,293	1,311	1,341	1,261
		total staff	1,703	711	1,634	1,540	649	1,839	1,644	1,776	1,851	1,803
		% immunized	45	46	44	49	76	79	79	74	72	72

Table 4 (cont'd): Immunization coverage for staff of acute care facilities by health authority and health service delivery area, 2009/10 to 2017/18

		Influenza season									
Health authority		2009/10	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
		H1N1									
NORTHERN	immunized	1,558	1,737	1,832	1,623	2,612	2,913	3,012	2,849	3,035	2,956
	total staff	4,251	4,260	4,396	4,354	3,459	3,992	4,007	4,232	4,117	4,123
	% immunized	37	41	42	37	76	73	75	67	74	72
Northwest	immunized	372	478	498	548	673	732	774	736	786	780
	total staff	1,100	1,108	1,094	1,121	909	1,017	1,035	1,078	1,077	1,081
	% immunized	34	43	46	49	74	72	75	68	73	72
Northern Interior	immunized	875	966	997	785	1,473	1,661	1,695	1,618	1,751	1,666
	total staff	2,444	2,445	2,565	2,467	1,908	2,229	2,228	2,387	2,307	2,325
	% immunized	36	40	39	32	77	75	76	68	76	72
Northeast	immunized	311	293	337	290	466	520	543	495	498	510
	total staff	707	707	737	766	642	746	744	767	733	717
	% immunized	44	41	46	38	73	70	73	65	68	71
PHSA	immunized	2,753	3,093	2,015	2,363	4,038	4,998	4,932	5,215	5,155	5,570
	total staff	8,536	8,536	4,389	5,441	5,710	6,398	6,233	6,622	6,512	6,778
	% immunized	32	36	46	43	71	78	79	79	79	82
BC	immunized	22,075	29,038	23,095	23,375	35,899	50,878	51,580	51,888	50,435	50,456
	total staff	63,584	62,659	58,095	58,212	48,818	67,459	67,580	69,962	67,456	67,055
	% immunized	35	46	40	40	74	75	76	74	75	75

APPENDIX

Additional vaccination and Policy compliance information for staff of acute care facilities British Columbia, 2017/18

Since 2013/14, health authority staff covered by the Influenza Prevention Policy have been required to self-report their influenza vaccination via an online self-reporting website. Starting in the 2015/16 season, all staff were asked to self-report either being vaccinated, or declining vaccination with the commitment to wear a mask in patient care areas throughout the influenza season. Self-reporting was only possible for facilities that used the electronic Workplace Health Indicator Tracking and Evaluation (WHITE) database of occupational health records.

This appendix presents self-reported compliance with the policy for all acute care staff who have records in the WHITE database.

Objectives

- i) To quantify the percentages of staff in acute care facilities in British Columbia who self-reported vaccination or vaccine declinations as per the Influenza Prevention Policy
- ii) To quantify self-reported vaccination and vaccine declinations by job type
- iii) To quantify the source of influenza vaccination among acute care staff by immunizer type

Methods

The only source of data for analyses in this appendix is an anonymized individual healthcare worker level dataset from the electronic Workplace Health Indicator Tracking and Evaluation (WHITE) database of occupational health records.

Staff whose records were included in the analysis must have been employed by a health authority and have worked for a minimum of 8 hours from December 1, 2017 to February 28, 2018. Staff who were not on a health authority's payroll (contracted staff, trainees, etc.) were not included in the WHITE database. Physicians and medical residents were not included in the WHITE database for most facilities.

Staff were defined as all persons who work or train on a full time, part time or casual basis in a facility or hospital who have direct or indirect contact with patients or residents, regardless of whether they are health care providers. This includes administrative and non-patient care staff (e.g., medical records, housekeeping and dietary) and excludes volunteers.

Some healthcare workers (HCWs) worked at multiple facilities or in multiple positions during the influenza season. For coverage statistics at the provincial, health authority or health service delivery area level, each healthcare worker was included only in the facility and the job at which they worked the most hours.

Data on 'policy compliance status' (Table 2) originates from the self-reporting website at which staff have the option to record their vaccination or vaccine declination. The self-reporting website populates each HCW's WHITE database record. Data on HCW's job descriptions (Table 3) is recorded in WHITE using job codes designated by Health Sector Compensation Information Systems (HSCIS). HSCIS codes are grouped into 162 subfamilies, which have been further collapsed into 10 job categories and 1 'other' category for the purposes of this report. Data on the immunizer type (Table 4) is reported by staff on the self-reporting website.

Results

Table 1: Acute care facilities included in WHITE by health authority, 2017/18

Health authority	Acute care facilities		
	Reported	Total	% reported in WHITE
Interior	27	27	100
Fraser	13	13	100
Vancouver Coastal	14	14	100
Vancouver Island	13	13	100
Northern	18	18	100
Provincial Health Services	6	6	100
British Columbia	91	91	100

Table 2: Policy compliance status for staff of the 91 acute care facilities using WHITE by health authority and health service delivery area, 2017/18

Health authority	Acute care facility staff						Total
	Vaccinated	%	Declined	%	Not reported	%	
Interior	8,958	81	1,252	11	860	8	11,060
East Kootenay	822	83	124	12	49	5	995
Kootenay Boundary	950	78	140	11	134	11	1,224
Okanagan	4,359	79	679	12	491	9	5,529
Thompson/Cariboo/Shuswap	2,827	85	309	9	176	5	3,312
Fraser	14,213	79	1,608	9	2,211	12	18,032
Fraser East	2,491	75	321	10	506	15	3,318
Fraser North	5,641	81	564	8	726	10	6,931
Fraser South	6,081	78	564	8	726	10	6,931
Vancouver Coastal	11,417	73	1,097	7	3,101	20	15,615
Richmond	1,002	80	99	8	151	12	1,252
Vancouver	8,508	72	794	7	2,574	22	11,876
N Shore/Coast Garibaldi	1,907	77	204	8	376	15	2,487
Vancouver Island	7,432	65	231	2	3,784	33	11,447
South Vancouver Island	4,148	65	77	1	2,177	34	6,402
Central Vancouver Island	2,023	62	125	4	1,094	34	3,242
North Vancouver Island	1,261	70	29	2	219	2	1,081
Northern	2,956	72	356	9	811	20	4,123
Northwest	780	72	82	8	219	20	1,081
Northern Interior	1,666	72	189	8	470	20	2,325
Northeast	510	71	85	12	122	17	717
PHSA	5,570	82	436	6	772	11	6,678
BC	50,546	75	4,980	7	11,529	17	67,055

Note: For the purposes of analysis and reporting, we assume that HCWs who did not report their status (17% across BC) were unvaccinated; however, a proportion of these HCWs may have been immunized. Therefore, the results presented earlier in this report may underestimate vaccination coverage.

Table 3: Policy compliance status for staff of the 91 acute care facilities using WHITE by job type, 2017/18

	Acute care facility staff						Total
	Vaccinated	%	Declined	%	Not reported	%	
Nurse	20,858	76	1,656	6	4,792	18	27,306
Admin and Support	8,871	74	1,264	11	1,866	16	12,001
Allied health [‡]	4,614	86	253	5	529	10	5,396
Health care assistant	3,754	66	493	9	1,479	26	5,726
Laboratory worker	2,734	78	497	14	257	7	3,488
Non-lab technologists	2,542	79	290	9	395	12	3,227
Management or Leadership	2,333	83	118	4	361	13	2,812
Pharmacy staff	1,809	86	131	6	156	7	2,096
Business	1,079	66	146	9	415	25	1,640
Medical Staff [§]	838	52	5	0	778	48	1,621
Other	149	79	14	7	26	14	189
Total	49,581	76	4,867	7	11,054	17	*65,502

* Missing 1,553/67,055 (2%) acute care staff whose job descriptions were not available in WHITE.

[‡] Allied health refers to professions in health care other than medicine and nursing (e.g., dietitians, occupational/physical/respiratory therapists, social workers, etc.).

[§] Medical staff reporting results should be interpreted with caution. A minority of medical staff are included in WHITE. In 2017/18 the majority of medical staff (e.g., doctors, dentists and midwives) reported their immunization status to Medical Staff Offices at each health authority.

Table 4: Immunizer type for vaccinated staff of the 91 acute care facilities using WHITE by health authority, 2017/18

Health Authority	IHA	FHA	VCHA	VIHA	NHA	PHSA	BC
Flu Clinic Nurse	No. 4,444	4,665	4,757	3,670	1,247	3,286	22,069
	% 50	33	42	49	42	59	44
Peer Nurse Immunizer	No. 1,235	3,266	2,539	2,03	1,075	382	10,530
	% 14	23	22	27	36	7	21
Pharmacist	No. 2,397	4,395	2,623	1,181	290	1,166	12,052
	% 27	31	23	16	10	21	24
Family Physician	No. 159	948	723	222	42	349	2,443
	% 2	7	6	3	1	6	5
Public Health	No. 442	304	259	139	240	114	1,498
	% 5	2	2	2	8	2	3
Other	No. 263	533	319	150	49	129	1,416
	% 3	4	3	2	2	2	3
Unknown	No. 45	102	197	37	13	144	539
	% 1	1	2	0	0	3	1
Total	No. 8,958	14,213	11,417	7,432	2,956	5,570	50,546

Summary

2017/18 is the third season in which WHITE data were analyzed to determine use of the self-reporting system, vaccination rates by job type, and immunizer type. In 2017/18, health authorities required staff to report declining vaccination. Nevertheless, higher non-reporting rates seen in regions of lowest coverage call into question the validity of vaccination coverage reports, as for the purpose of analysis, non-reported status has been considered unvaccinated (Table 2). Efforts should be made to improve self-reporting rates, including for individuals who have chosen not to be immunized.

Similarly to 2015/16 and 2016/17, pharmacy, allied health, and management or leadership employees reported the highest immunization coverage by job type.

Immunizer type varied at the regional level, which may be indicative of the availability of immunizing personnel in the community (e.g., family physicians or pharmacist immunizers) as well as management decisions in how to deliver the influenza vaccine program to HCWs at the workplace.