PICNet
PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA
A program of the Provincial Health Services Authority

Hand Cleaning Compliance in BC Acute Care Facilities

Fiscal year 2013/2014

Prepared by:

Provincial Infection Control Network of British Columbia (PICNet)

June 2014

Provincial Infection Control Network of BC (PICNet)
1001 West Broadway, Suite 504
Vancouver, BC, V6H 4B1
Tel: 604-875-4844 ext 22983
Fax: 604-875-4373
Email: picnet@phsa.ca
www.picnet.ca

Table of Contents

Executive summary **1**

Introduction **2**

Methodology **2**

Results **3**

Overall hand cleaning compliance 3
Hand cleaning compliance by moment 5
Hand cleaning compliance by healthcare provider 6
Hand cleaning compliance by health authority and facility 7

Discussion **19**

Acknowledgements **20**

Appendix **20**

References **21**

Table of Tables and Figures

Table 1. Hand cleaning compliance by health authority and fiscal year **3**

Figure 1. Provincial hand cleaning compliance by quarter and year **4**

Figure 2. Provincial hand cleaning compliance by moment, 2013/2014 .... **5**

Figure 3. Provincial hand cleaning compliance by healthcare provider, 2013/2014 .... **6**

Figure 4. Hand cleaning compliance in Interior Health **7**

Figure 5. Hand cleaning compliance in Fraser Health **9**

Figure 6. Hand cleaning compliance in Vancouver Coastal Health **12**

Figure 7. Hand cleaning compliance in Island Health **14**

Figure 8. Hand cleaning compliance in Northern Health **16**

Figure 9. Hand cleaning compliance in Provincial Health Services Authority **18**

Glossary of Acronyms

BC	British Columbia
FHA	Fraser Health Authority
FY	fiscal year
HA	health authority
HAI	healthcare-associated infection
HCC	hand cleaning compliance
HCP	healthcare provider
HH	hand hygiene
IHA	Interior Health Authority
ICP	infection control practitioner
NHA	Northern Health Authority
PHC	Providence Health Care
PHHWG	Provincial Hand Hygiene Working Group
PHSA	Provincial Health Services Authority
PICNet	Provincial Infection Control Network of British Columbia
VCHA	Vancouver Coastal Health Authority
VIHA	Island Health Authority
WHO	World Health Organization

Executive summary

Hand cleaning has long been considered the most effective and simplest way to prevent healthcare-associated infections (HAIs) in healthcare settings. A Provincial Hand Hygiene Working Group (PHHWG) in British Columbia (BC) was formed in 2010 to develop and implement a provincial hand hygiene program in healthcare facilities across the province.

Every quarter, trained auditors directly observe a sample of healthcare providers working in BC acute care facilities, and evaluate how often they clean their hands before and after contact with a patient or a patient's immediate environment (such as around a patient's bedside). The minimum provincial requirement is 200 observations per quarterly audit cycle for each facility with 25 or more beds. For facilities with fewer than 25 beds, the audit data are aggregated into the respective health authority's data.

The auditing results have been reported by each health authority (HA) to the Provincial Infection Control Network of British Columbia (PICNet) on a quarterly basis since first quarter (Q1) of fiscal year (FY) 2011/2012. This report summarizes the hand cleaning compliance reported in FY 2013/2014 (April 1, 2013–March 31, 2014) and compares it with FY 2011/2012 and FY 2012/2013 data.

The provincial overall hand cleaning compliance (HCC) in FY 2013/2014 was 77%, a statistically significant improvement from 73% in FY 2012/2013 and 70% in FY 2011/2012.

HCC increased gradually in each quarterly audit cycle during the past two fiscal years and reached 79% in Q4 of FY 2013/2014. The trend of quarterly compliance was statistically significant.

The data for the last three fiscal years show that healthcare providers are more likely to perform hand cleaning after contact with the patient or the patient's environment than before contact. In FY 2013/2014, compliance was 81% after contact versus 72% before contact. The compliance rates both before and after contact increased significantly in FY 2013/2014 compared with FY 2011/2012 and FY 2012/2013.

Nursing staff consistently had the highest HCC among the healthcare provider categories, and physicians had the lowest, in each of the last three fiscal years. An improvement in compliance was observed in all healthcare provider categories over the past three years.

A statistically significant improvement in HCC was also observed in all health authorities with the exception of Island Health (VIHA). VIHA reported lower compliance rates in FY 2013/2014 than previous years in most large facilities after modified the audit strategy by employing more dedicated auditors to perform auditing since Q1 of FY 2013/2014; however, the quarterly compliance in VIHA increased significantly during FY 2013/2014.

Due to the variation in audit strategy and methodology between HAs and between facilities, comparing the compliance rates between HAs and facilities is not recommended.

HAs have launched numerous campaigns and educational initiatives to improve hand cleaning compliance in the past three years. The PHHWG and its sub-committees are working hard with each HA and facility towards achieving the target performance of 80% compliance by the end of FY 2014/2015.

Introduction

Healthcare–associated infections (HAIs) are one of the most frequent and severe complications among hospitalized patients, and the fourth leading cause of death in Canada.[1] Transmission of healthcare-associated pathogens most often occurs via the contaminated hands of healthcare providers. Accordingly, hand cleaning (i.e., hand washing with soap and water or the use of alcohol-based hand rub) has long been considered the most effective and simplest way for preventing HAIs in the healthcare setting[2,3]. All healthcare providers should clean their hands properly before and after they come into contact with patients and the patients' environment. However, prior to the formation of the provincial working group, the compliance among healthcare providers using recommended hand cleaning procedures was unacceptable, with the compliance rates generally below 50% of hand cleaning opportunities.[4,5] To improve and sustain HCC in the healthcare facilities across BC, the province established "hand hygiene" as a key result area in 2010, and formed the PHHWG to develop and implement a provincial hand hygiene program. Since April 2011, the auditing results for HCC among healthcare providers in BC acute care facilities have been reported by each HA to the PICNet on a quarterly basis. This report summarizes the compliance reported in the fiscal year (FY) 2013/2014 (April 1, 2013 – March 31, 2014) and compares it with FY 2011/2012 and FY 2012/2013.

Methodology

According to the World Health Organization (WHO), direct observation is considered the "gold standard" method in determining hand cleaning compliance[2]. The WHO's methodology for undertaking hand cleaning observational audits was adapted by PHHWG for auditing the compliance in BC healthcare facilities. Every quarter, trained auditors directly observe a sample of healthcare providers working in acute care facilities across BC. The auditors record the number of hand cleaning *events* they observe (i.e., when healthcare providers clean their hands), as well as the number of hand cleaning *opportunities* (i.e., when a healthcare provider *should* clean their hands). This includes opportunities **before** contact with the patient or the patient's immediate environment (such as around the patient's bedside) and **after** contact with the patient or the patient's immediate environment.

The healthcare providers under observation include:

- Nursing Staff (Registered Nurse/Midwife/Licensed Practical Nurse/Care Aide/Nursing Student)
- Physicians (Medical Doctor/Resident/Fellow/Medical Student)
- Clinical Support Services (Occupational Therapist/Physiotherapist/Respiratory Therapist/Speech Therapist/Social Worker/Dietician/Psychologist/Audiologist/Porter/Pastoral Care/Radiologist/ Technicians (e.g. Electrocardiogram, Electroencephalography, etc)/Laboratory Phlebotomist /Infection Control Practitioner/Patient Safety Staff/Ambulance Services Staff)
- Other (Housekeeping/Food Services/Laundry/Volunteer/Security/Administrative/Clerical)

The minimum provincial auditing requirement is 200 observations per quarterly audit cycle for each facility with 25 or more beds. For facilities with fewer than 25 beds, the audit data are aggregated into the overall health authority data. The audit data are collected and managed by each HA. At the end of each quarter, the HA aggregates the audit data by facility and healthcare provider category, then submits to PICNet for analysis and public reporting.

HCC is defined as a percentage of the number of compliant hand cleaning events over the total number of opportunities. The provincial overall compliance, compliance by moment of contact, and compliance by healthcare provider rates were calculated based on the quarterly audit data from all HAs. Facilities that had 25 or more acute care beds and observed 200 or more opportunities for most audit quarters

during FY 2013/2014 are also presented individually in this report. The compliance rate in the smaller facilities (with less than 25 beds) and those facilities that did not meet the provincial audit requirement were aggregated as “other hospitals” within each HA. However, variation in audit strategy and methodology may exist between HAs, between facilities, or even between auditors. The audit results have not been validated by external auditors from outside the HA. **The comparison of percentage compliance between HAs and facilities in this report or with other published audit results is therefore not recommended**.

Results

Overall hand cleaning compliance

The provincial overall compliance rate in FY 2013/2014 was 77%, a statistically significant improvement from 73% in FY 2012/2013 ($\chi2 = 758.14$, $p < 0.001$) and 70% in FY 2011/2012 ($\chi2 = 1813.59$, $p < 0.001$).

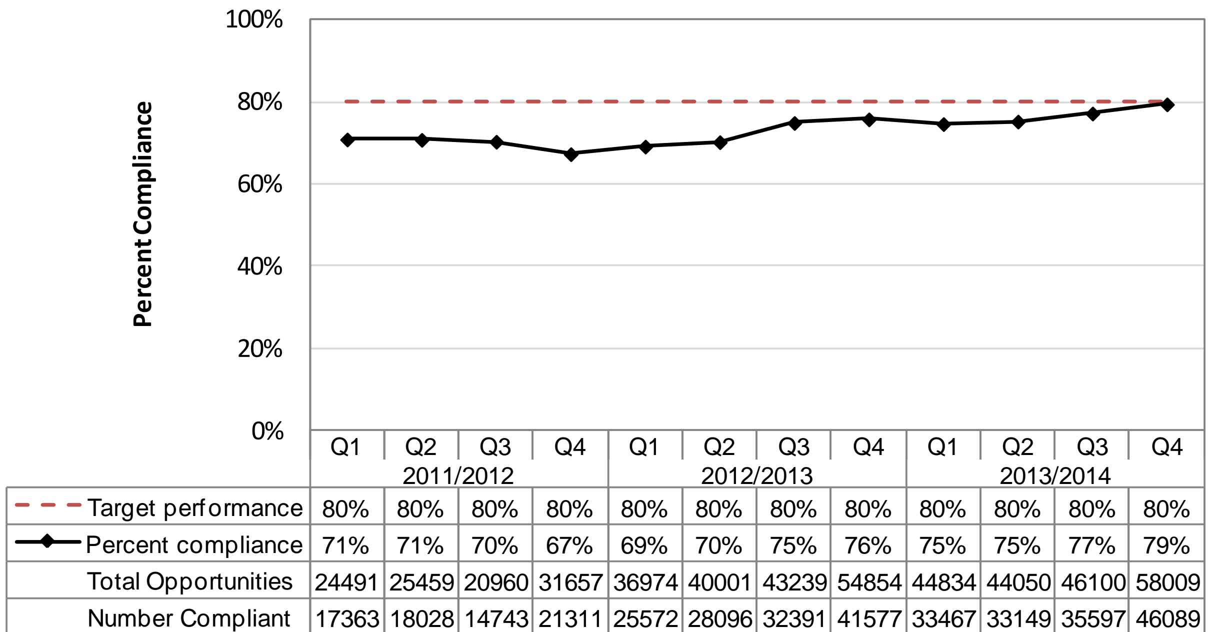
Table 1. Annual hand cleaning compliance by health authority

Health authority	2011/2012		2012/2013		2013/2014	
	Total Opportunities	Percent compliance	Total Opportunities	Percent compliance	Total Opportunities	Percent compliance
IHA	8,799	58%	12,428	69%	12,546	75%
FHA	18,282	61%	87,004	72%	91,240	79%
VCHA	31,847	69%	35,444	71%	35,427	76%
VIHA	28,759	82%	23,357	82%	33,766	71%*
NHA	10,658	61%	12,421	70%	15,663	74%
PHSA	4,222	75%	4,414	79%	4,351	88%
Total	**102,567**	**70%**	**175,068**	**73%**	**192,993**	**77%**

* VIHA modified the audit strategy in FY 2013/2014 by employing more dedicated auditors to perform auditing

As shown in Figure 1, HCC increased gradually in each quarterly audit cycle during the past two fiscal years, and reached at 79% in Q4 of FY 2013/2014, which is very close to the target performance of 80% compliance set by PHHWG to be achieved by the end of FY 2014/2015. The trend of quarterly compliance was statistically significant ($\chi 2$ for trend = 2371.72, $p < 0.001$).

Figure 1. Provincial hand cleaning compliance by quarter * and year



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2011/2012				2012/2013				2013/2014			
Target performance	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Percent compliance	71%	71%	70%	67%	69%	70%	75%	76%	75%	75%	77%	79%
Total Opportunities	24491	25459	20960	31657	36974	40001	43239	54854	44834	44050	46100	58009
Number Compliant	17363	18028	14743	21311	25572	28096	32391	41577	33467	33149	35597	46089

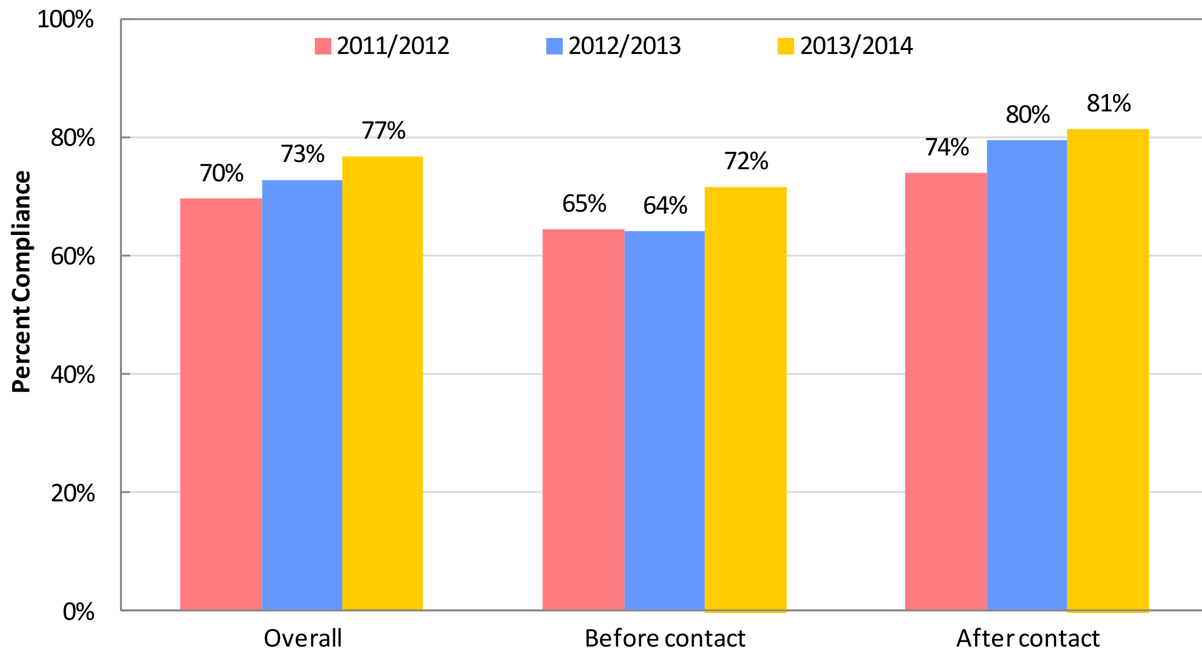
* Data were aggregated by fiscal quarter for FHA, PHC, VIHA, and NHA, and by calendar quarter for IHA, VCHA (except PHC) and PHSA. See Appendix for start and end date of the quarter in each fiscal year.

Hand cleaning compliance by moment

The data show that in the past three fiscal years, healthcare providers were more likely to perform hand cleaning after patient contact than before contact. In FY 2013/2014, the compliance rate after contact was 81%, compared to 72% before contact (Figure 2). This difference was statistically significant ($p < 0.001$).

Compared with the previous two fiscal years, compliance in FY 2013/2014 increased statistically significantly both before contact and after contact.

Figure 2. Provincial hand cleaning compliance by moment, 2013/2014

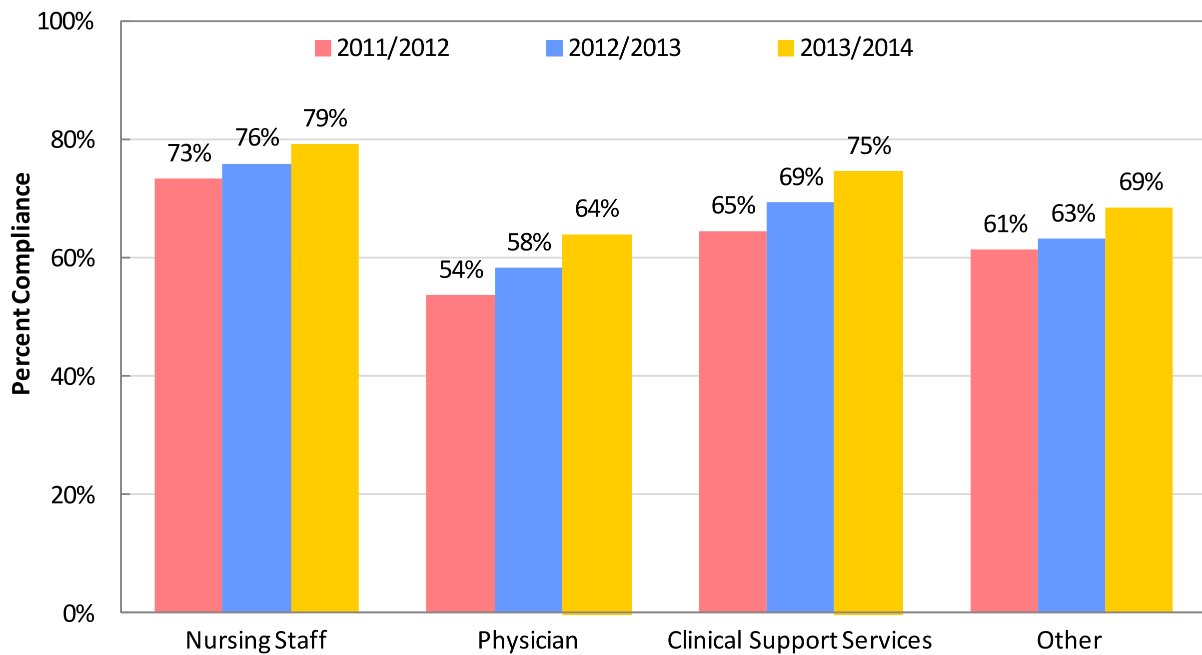


Hand cleaning compliance by healthcare provider

In each of the last three fiscal years, nursing staff consistently had the highest hand cleaning compliance among the healthcare provider categories, and physicians had the lowest compliance (Figure 3). The differences in compliance between each group of healthcare providers were statistically significant ($p < 0.001$ between each group).

Compared with the compliance in the past fiscal years, a statistically significant improvement was observed in FY 2013/2014 in all healthcare provider categories.

Figure 3. Provincial hand cleaning compliance by healthcare provider, 2013/2014

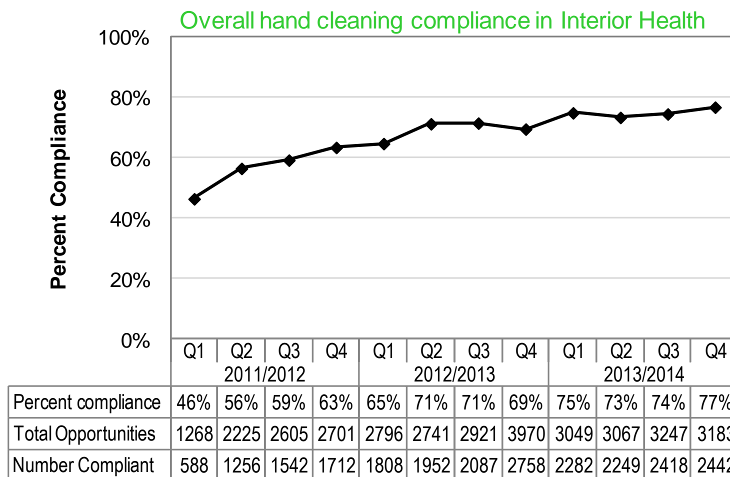


Hand cleaning compliance by health authority and facility

Figures 4–9 present hand cleaning compliance for each HA, and for the facilities that meet the minimum provincial auditing requirement of observed opportunities for most of the audit cycles. Smaller facilities with less than 25 beds and facilities that did not meet the minimum requirement were aggregated together as "other hospitals" within each HA.

A statistically significant improvement in hand cleaning compliance by quarter was observed in all HAs ($p < 0.001$ for trend) with the exception of Island Health (VIHA). VIHA reported lower compliance rates in FY 2013/2014 than previous years in most large facilities after employing more dedicated auditors to perform auditing since Q1 of FY 2013/2014 ($\chi2$ for trend = 126.04, $p < 0.001$). However, the quarterly compliance in VIHA increased statistically significantly during FY 2013/2014. Due to the variation in audit strategy and methodology between HAs and between facilities, comparing the compliance between HAs and facilities is not recommended.

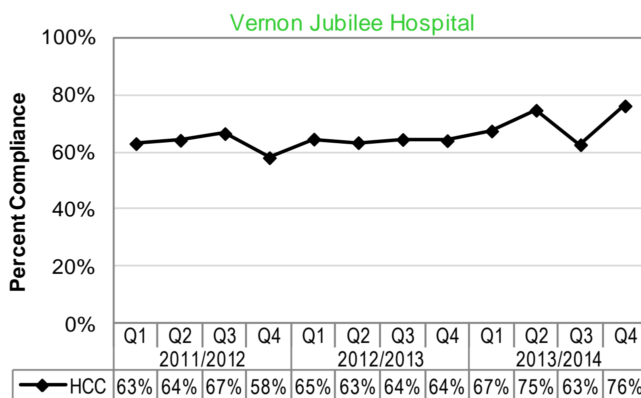
Figure 4. Hand cleaning compliance in Interior Health



Notes:

1. Data were aggregated by fiscal quarter in FY 2011/2012 and by calendar quarter in FY 2012/2013 and FY 2013/2014
2. Includes audits at the emergency departments

* Estimated hand cleaning compliance, which did not meet the minimum provincial requirement of 200 observations in the quarterly audit cycle



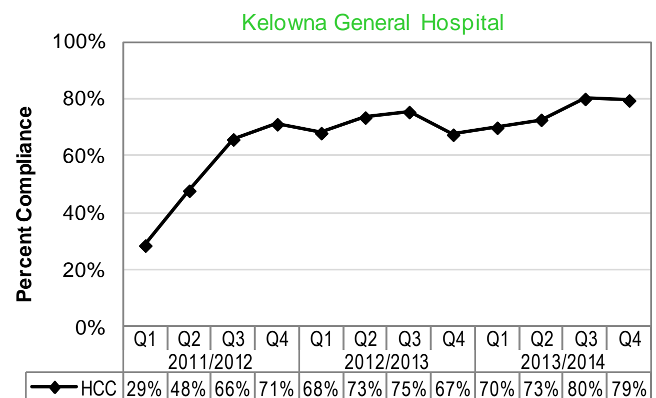
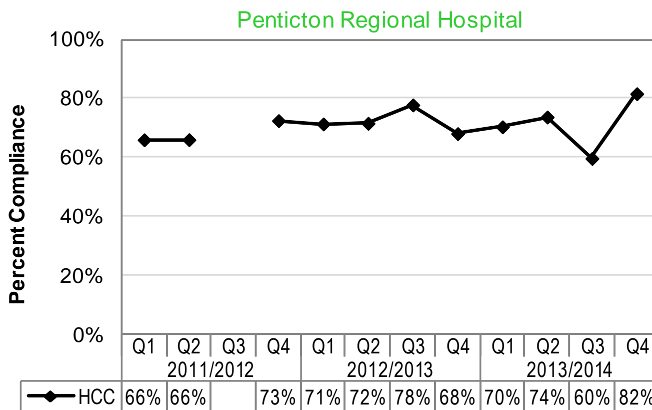
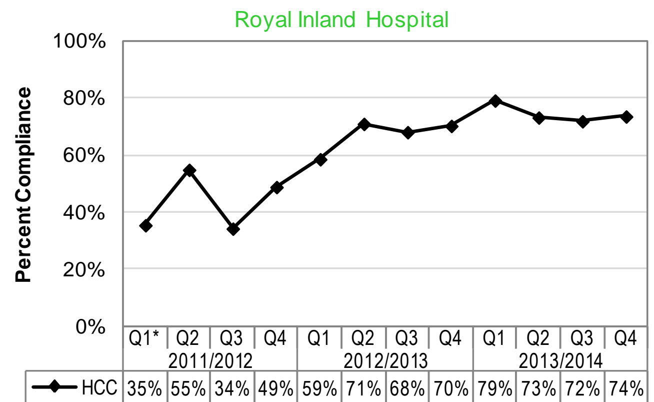
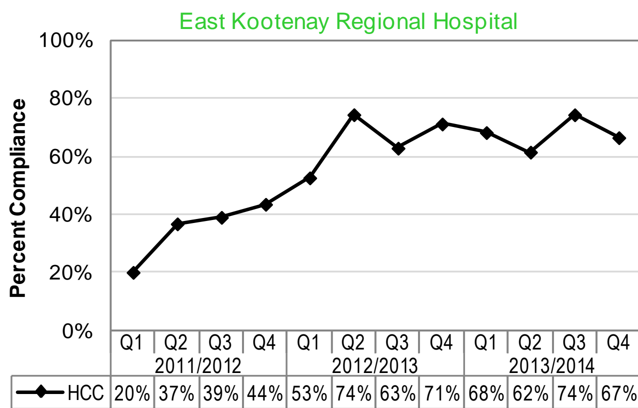
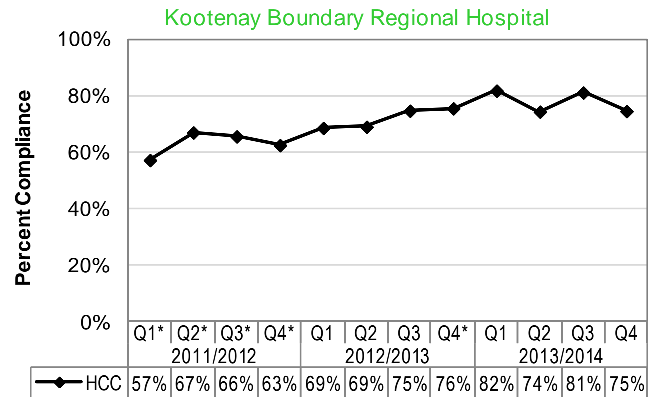


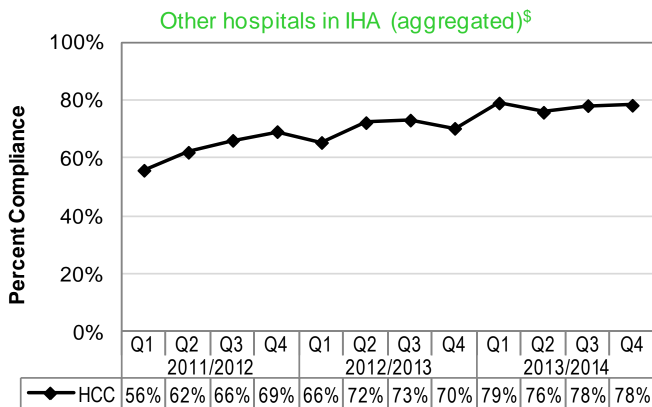
Figure 4 (cont'd). Hand cleaning compliance in Interior Health





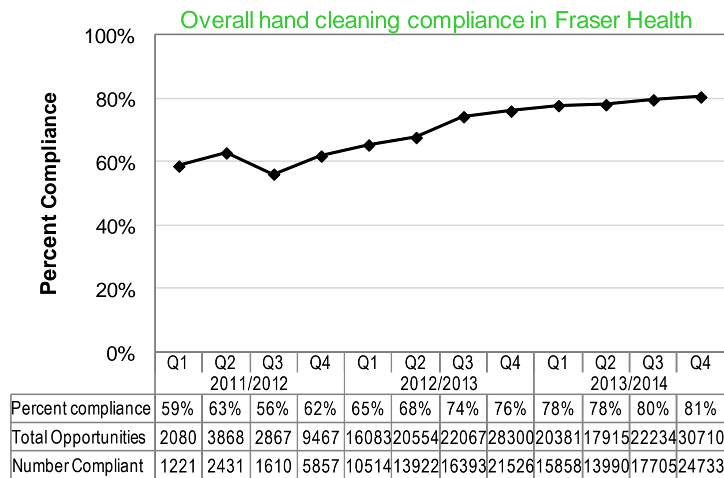






$ includes Shuswap Lake General Hospital, Cariboo Memorial Hospital, Kootenay Lake Hospital, Creston Valley Hospital, and aggregation of other small facilities

Figure 5. Hand cleaning compliance in Fraser Health

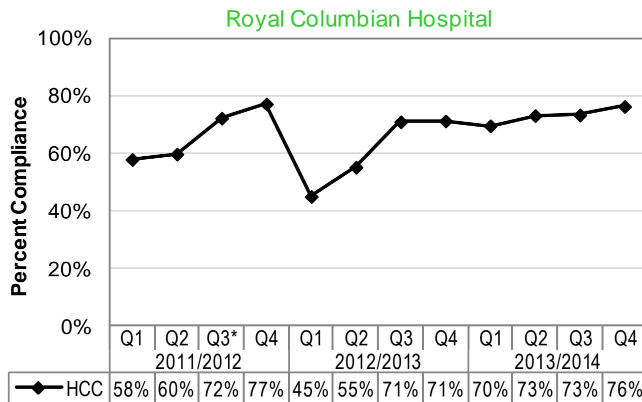


	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
Percent compliance	59%	63%	56%	62%	65%	68%	74%	76%	78%	78%	80%	81%
Total Opportunities	2080	3868	2867	9467	16083	20554	22067	28300	20381	17915	22234	30710
Number Compliant	1221	2431	1610	5857	10514	13922	16393	21526	15858	13990	17705	24733

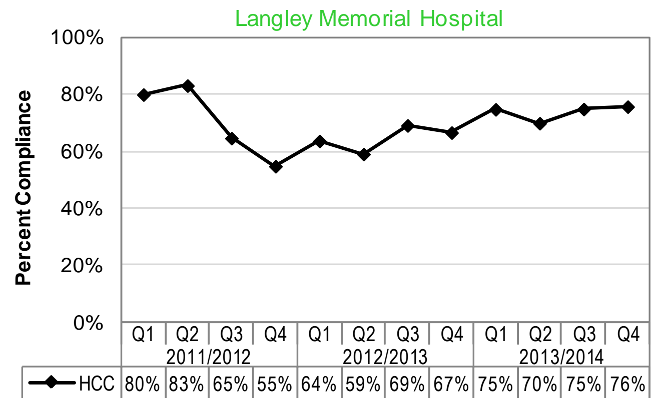
Notes:

1. Data were aggregated by fiscal quarter
2. Includes audits at the emergency departments
3. Includes self- audits conducted occasionally by units/departments in some facilities
4. Includes audits in the specific clinics (i.e. dialysis, daily surgery) and outpatient areas

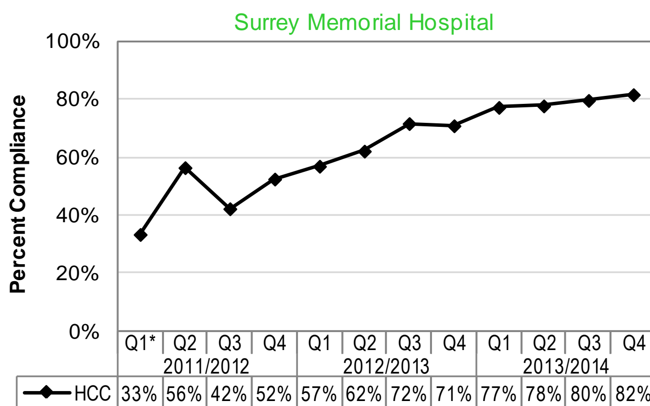
* Estimated hand cleaning compliance, which did not meet the minimum provincial requirement of 200 observations in the quarterly audit cycle



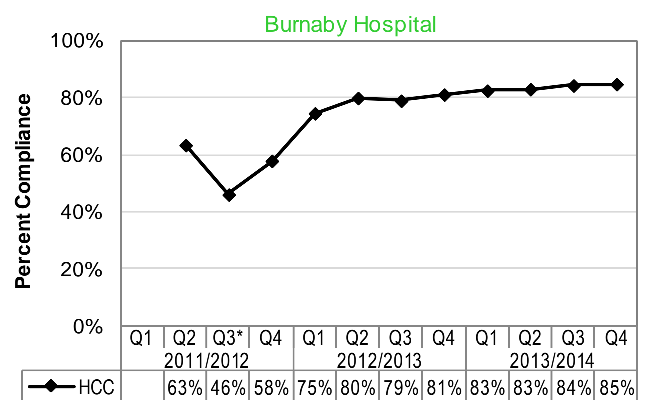
	2011/2012 Q1	Q2	Q3*	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	58%	60%	72%	77%	45%	55%	71%	71%	70%	73%	73%	76%



	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	80%	83%	65%	55%	64%	59%	69%	67%	75%	70%	75%	76%

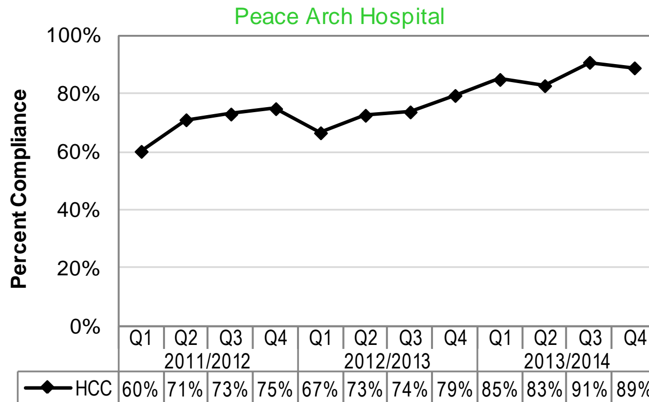


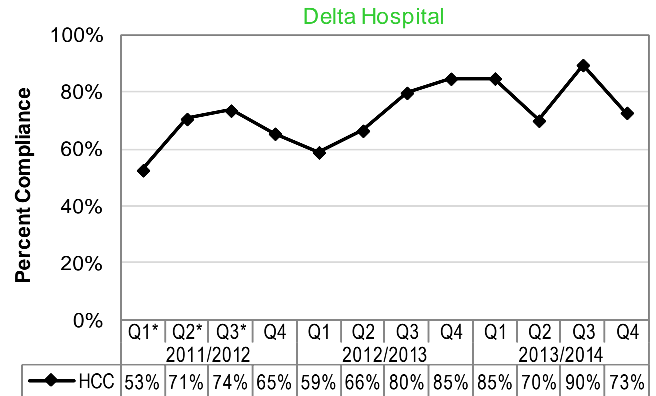
	2011/2012 Q1*	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	33%	56%	42%	52%	57%	62%	72%	71%	77%	78%	80%	82%

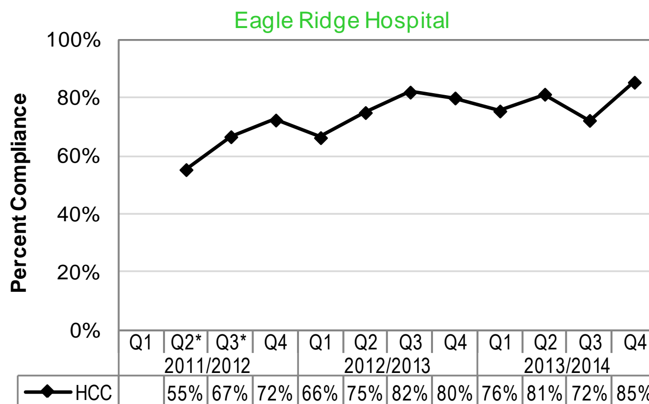


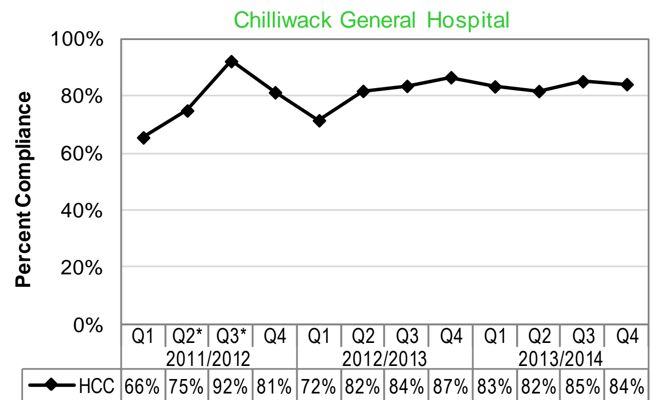
	2011/2012 Q1	Q2	Q3*	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC		63%	46%	58%	75%	80%	79%	81%	83%	83%	84%	85%

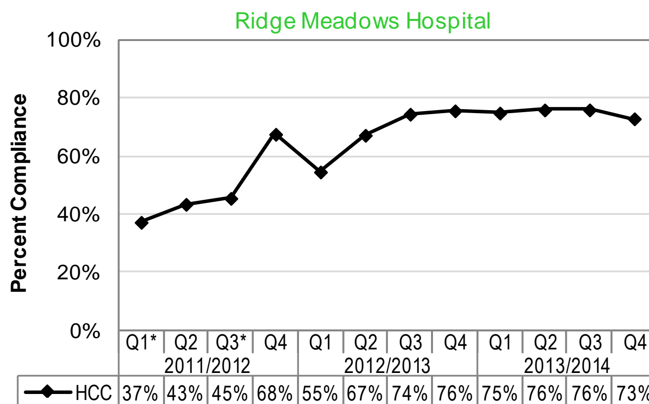
Figure 5 (cont'd). Hand cleaning compliance in Fraser Health











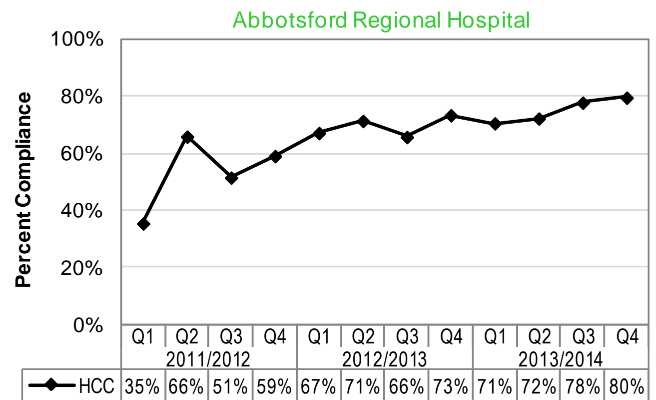
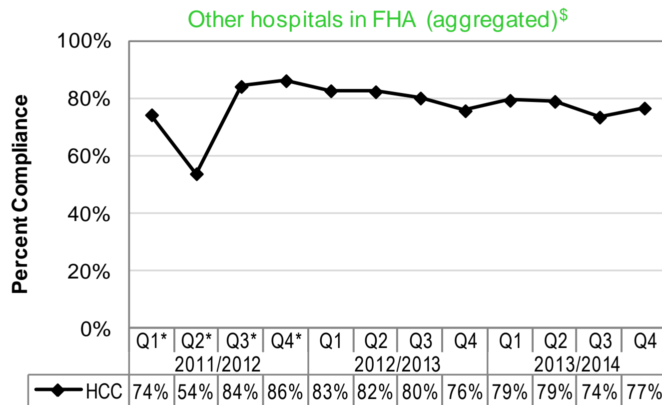
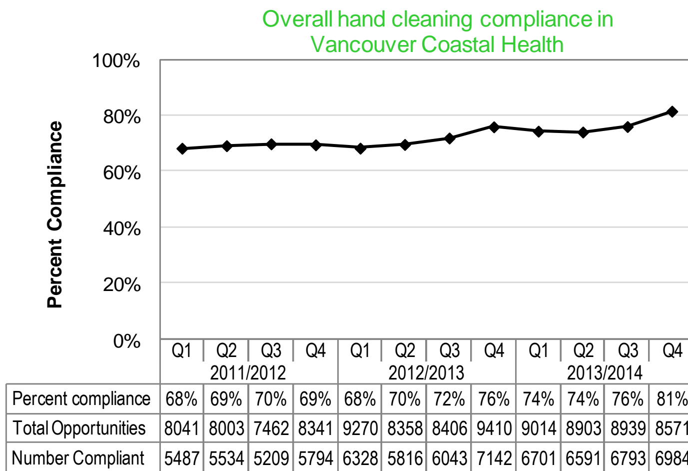


Figure 5 (cont'd). Hand cleaning compliance in Fraser Health



$ includes Queens Park Hospital, Mission Memorial Hospital, Matsqui Sumas Abbotsford and Fraser Canyon Hospital.

Figure 6. Hand cleaning compliance in Vancouver Coastal Health

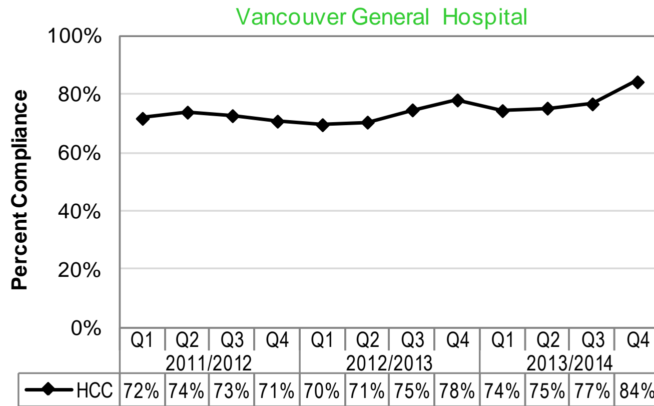


	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
Percent compliance	68%	69%	70%	69%	68%	70%	72%	76%	74%	74%	76%	81%
Total Opportunities	8041	8003	7462	8341	9270	8358	8406	9410	9014	8903	8939	8571
Number Compliant	5487	5534	5209	5794	6328	5816	6043	7142	6701	6591	6793	6984

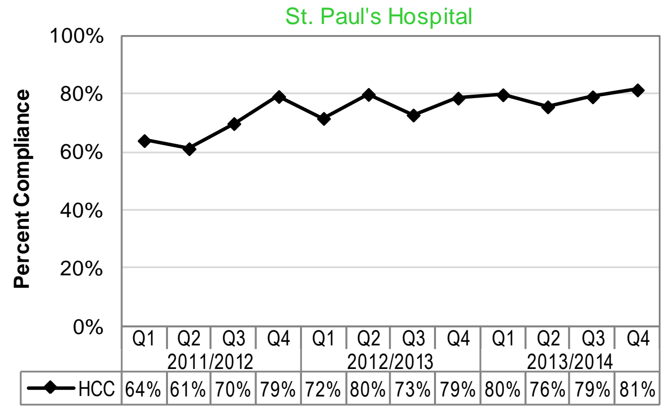
Notes:

1. Includes Providence Health Care (PHC)
2. Data were aggregated by calendar quarter except for PHC, which aggregated data by fiscal quarter
3. Includes audits at the emergency departments
4. Includes audits in the specific clinics (i.e. dialysis, daily surgery), outpatient areas, and facilities other than acute care, such as long-term care, rehab centre, etc.

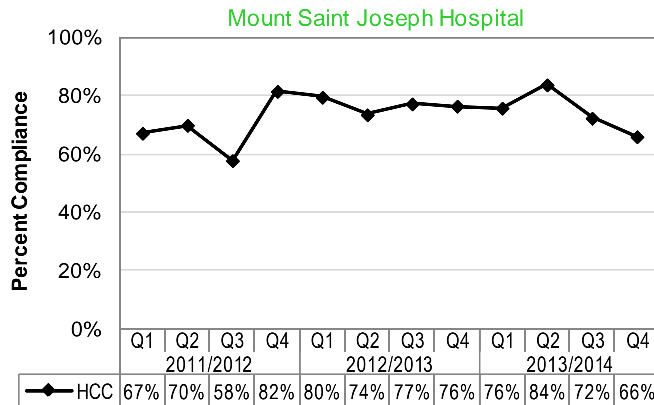
* Estimated hand cleaning compliance, which did not meet the minimum provincial requirement of 200 observations in the quarterly audit cycle



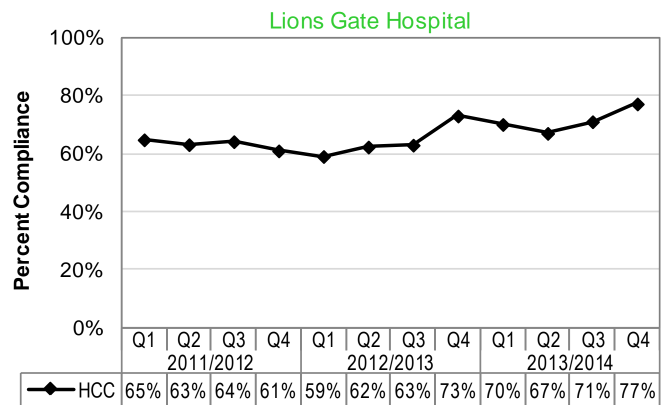
	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	72%	74%	73%	71%	70%	71%	75%	78%	74%	75%	77%	84%



	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	64%	61%	70%	79%	72%	80%	73%	79%	80%	76%	79%	81%

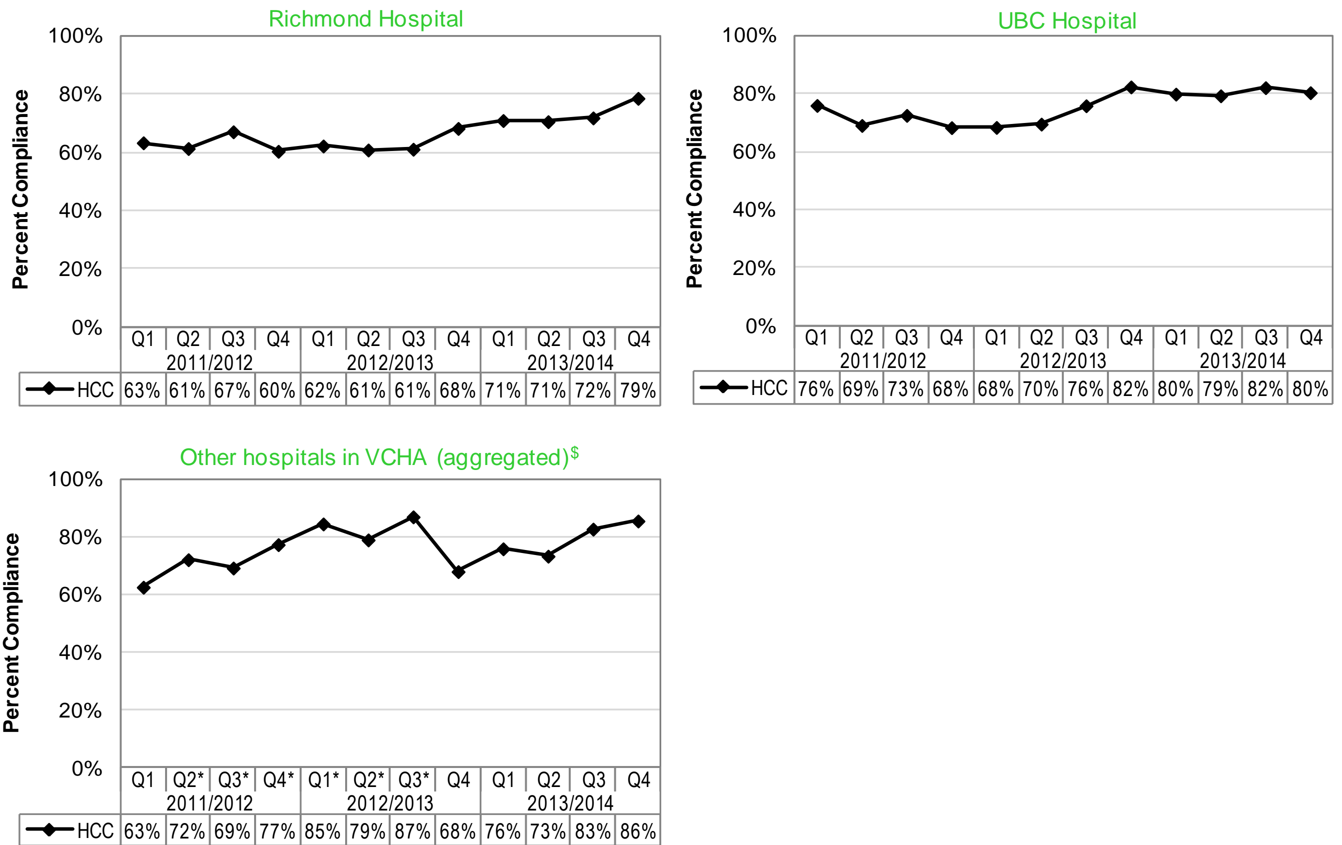


	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	67%	70%	58%	82%	80%	74%	77%	76%	76%	84%	72%	66%



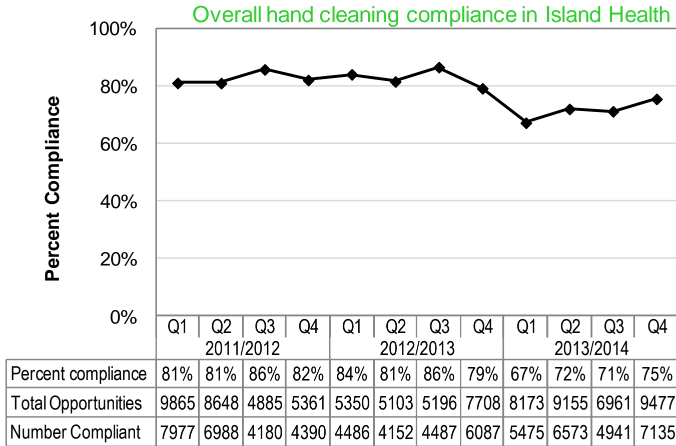
	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	65%	63%	64%	61%	59%	62%	63%	73%	70%	67%	71%	77%

Figure 6 (cont'd). Hand cleaning compliance in Vancouver Coastal Health



$ includes Powell River General Hospital, St. Mary's Hospital, Squamish General Hospital, Holy Family Hospital, and Community Dialysis Units

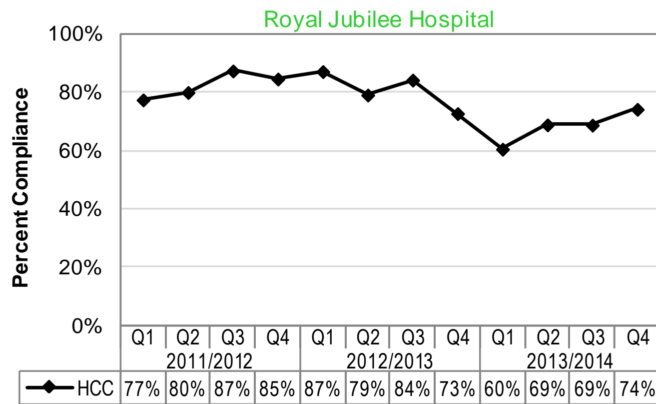
Figure 7. Hand cleaning compliance in Island Health

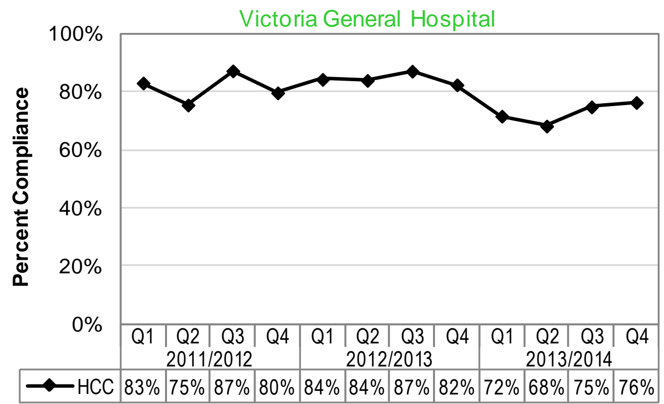


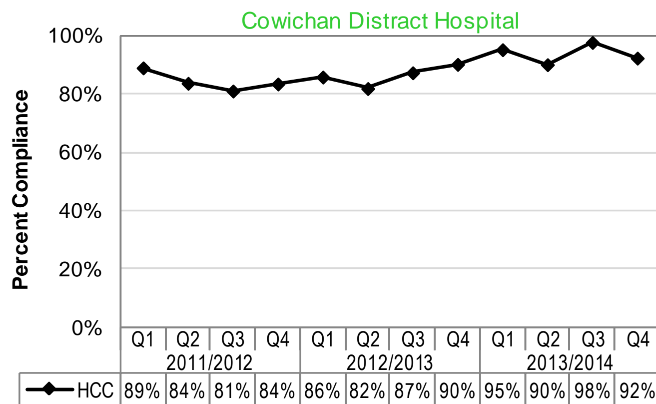
Notes:

1. Data were aggregated by fiscal quarter
2. More dedicated auditors were employed to perform auditing from Q1 of FY 2013/2014
3. Includes audits at the emergency departments
4. Includes self- audits conducted occasionally by units/departments in some facilities
5. Includes audits in the specific clinics (i.e. dialysis, daily surgery) or outpatient areas

* Estimated hand cleaning compliance, which did not meet the minimum provincial requirement of 200 observations in the quarterly audit cycle







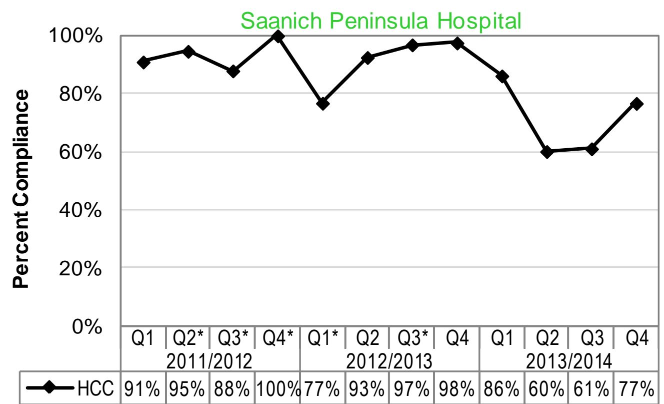
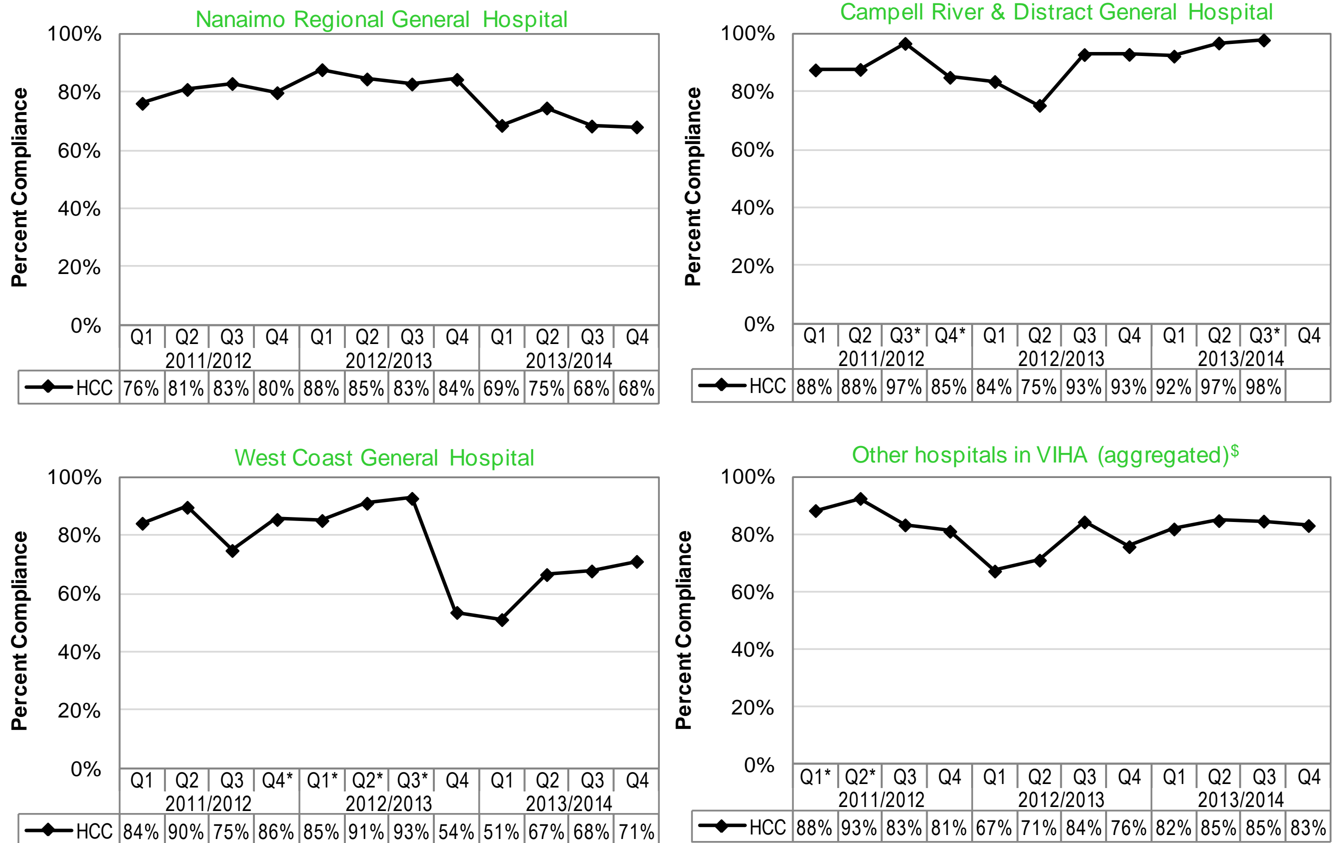
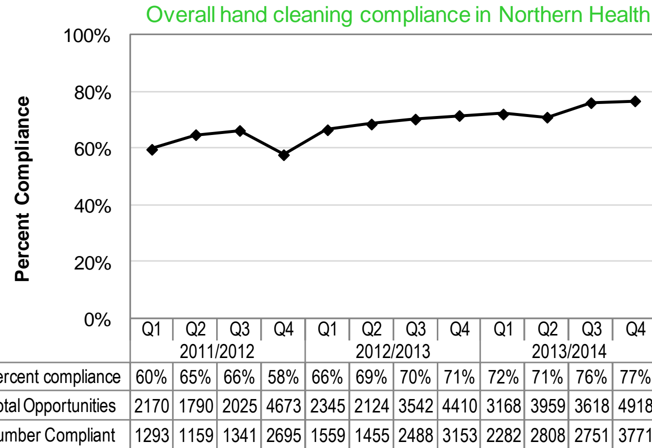


Figure 7 (cont'd). Hand cleaning compliance in Island Health



$ includes Lady Minto Gulf Islands Hospital, Cormorant Island Community Health Centre, Port Hardy Hospital, Tofino General Hospital, Port McNeill and District Hospital, and St. Joseph's General Hospital

Figure 8. Hand cleaning compliance in Northern Health

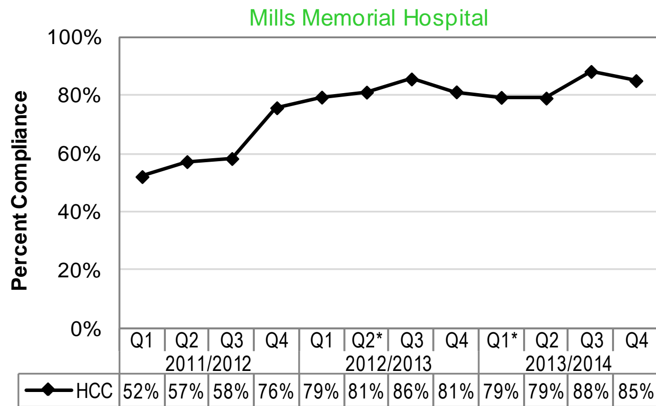


	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
Percent compliance	60%	65%	66%	58%	66%	69%	70%	71%	72%	71%	76%	77%
Total Opportunities	2170	1790	2025	4673	2345	2124	3542	4410	3168	3959	3618	4918
Number Compliant	1293	1159	1341	2695	1559	1455	2488	3153	2282	2808	2751	3771

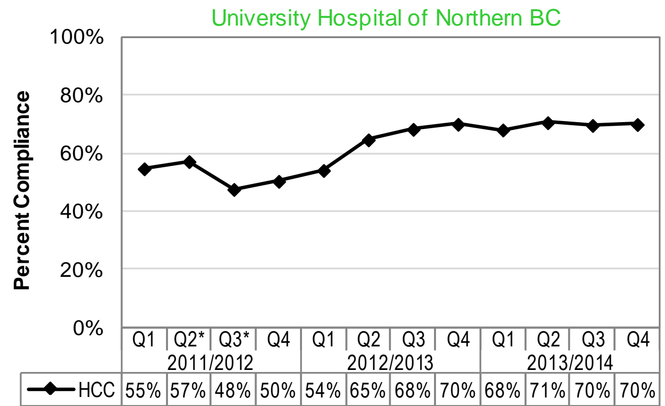
Notes:

1. Data were aggregated by fiscal quarter
2. Includes audits at the emergency departments
3. Includes self- audits conducted occasionally by units/departments in some facilities
4. Includes audits in the specific clinics (i.e. dialysis, daily surgery) or outpatient areas

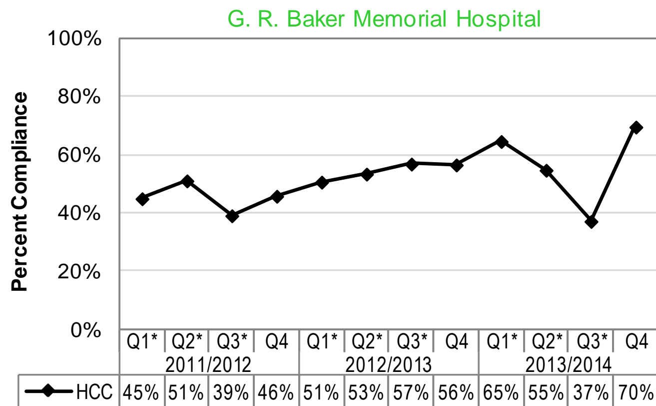
* Estimated hand cleaning compliance, which did not meet the minimum provincial requirement of 200 observations in the quarterly audit cycle



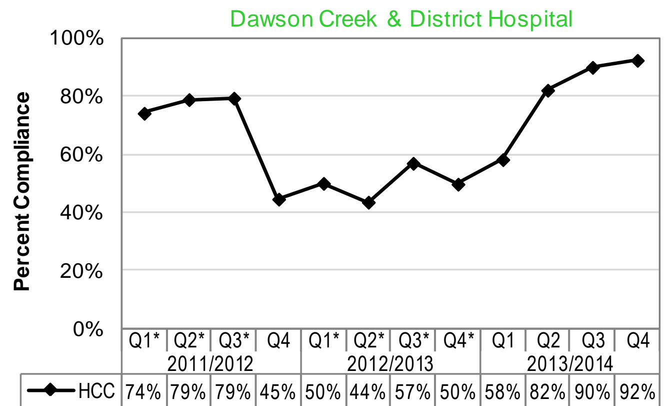
	2011/2012 Q1	Q2	Q3	Q4	2012/2013 Q1	Q2*	Q3	Q4	2013/2014 Q1*	Q2	Q3	Q4
HCC	52%	57%	58%	76%	79%	81%	86%	81%	79%	79%	88%	85%



	2011/2012 Q1	Q2*	Q3*	Q4	2012/2013 Q1	Q2	Q3	Q4	2013/2014 Q1	Q2	Q3	Q4
HCC	55%	57%	48%	50%	54%	65%	68%	70%	68%	71%	70%	70%

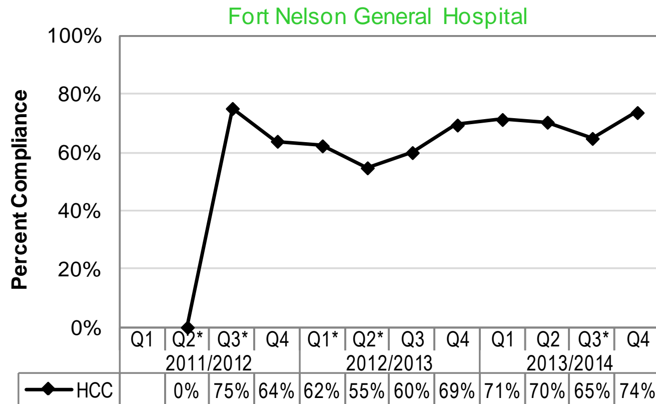


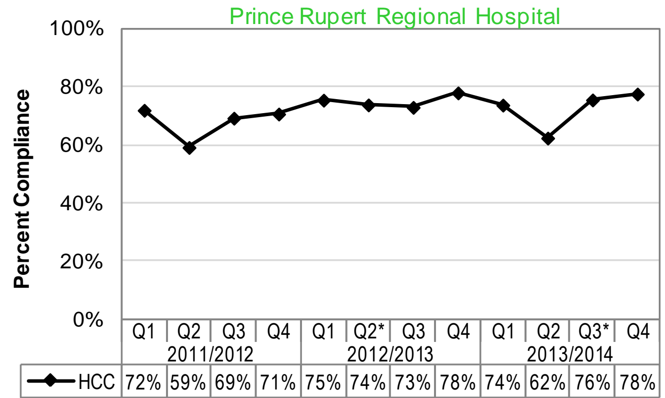
	2011/2012 Q1*	Q2*	Q3*	Q4	2012/2013 Q1*	Q2*	Q3*	Q4	2013/2014 Q1*	Q2*	Q3*	Q4
HCC	45%	51%	39%	46%	51%	53%	57%	56%	65%	55%	37%	70%

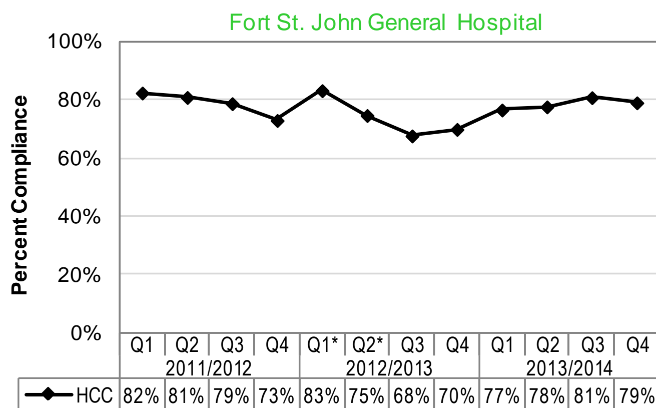


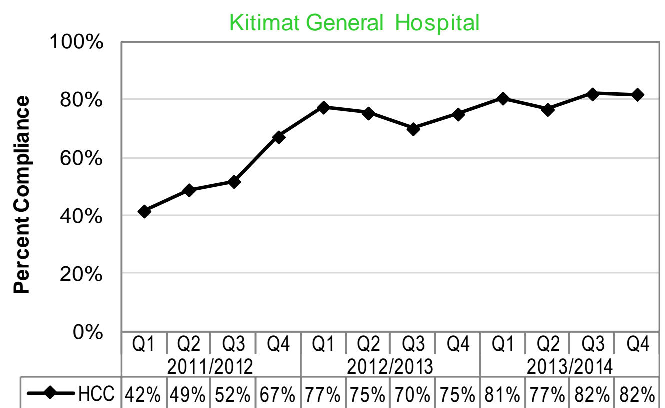
	2011/2012 Q1*	Q2*	Q3*	Q4	2012/2013 Q1*	Q2*	Q3*	Q4*	2013/2014 Q1	Q2	Q3	Q4
HCC	74%	79%	79%	45%	50%	44%	57%	50%	58%	82%	90%	92%

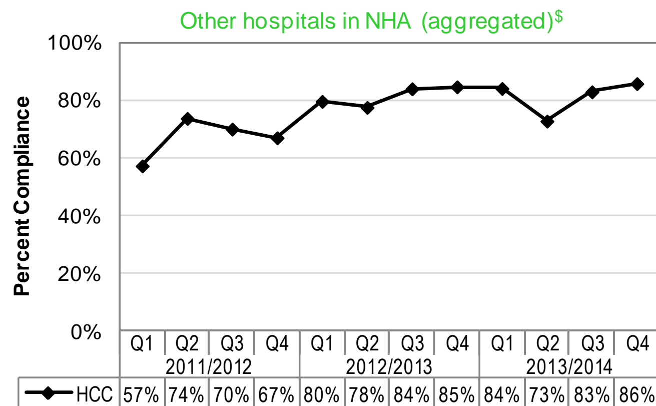
Figure 8 (cont'd). Hand cleaning compliance in Northern Health





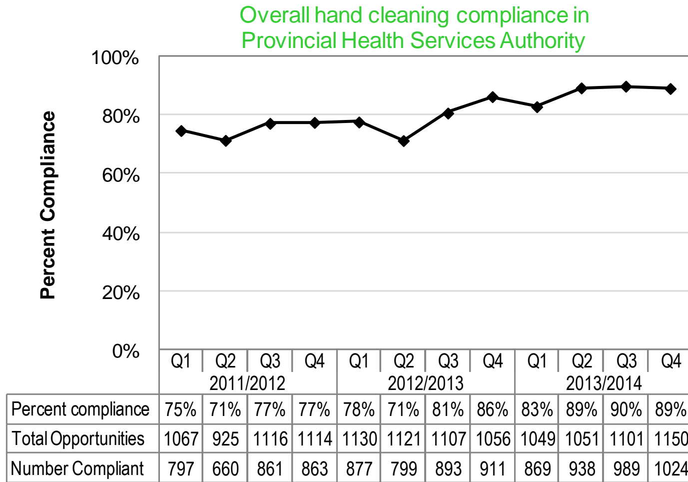






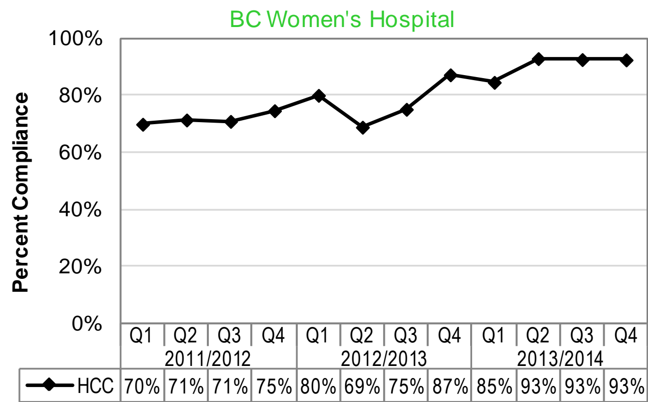
[$] includes St. John Hospital, Lakes District Hospital, McBride and District Hospital, Mackenzie and District Hospital, Chetwynd General Hospital, Stuart Lake Hospital, Wrinch Memorial Hospital, Bulkley Valley District Hospital, Queen Charlotte Islands General Hospital, and Northern Haida Gwaii Hospital

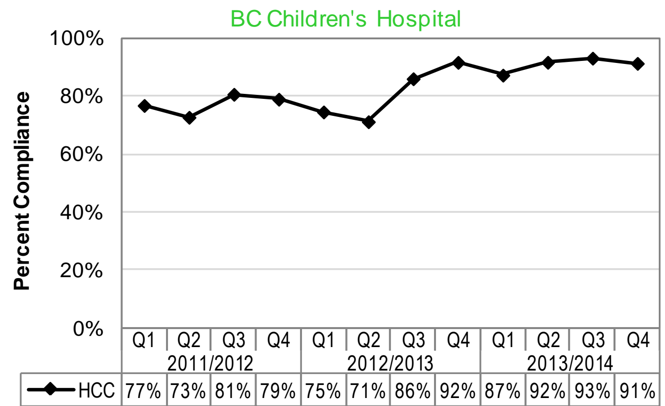
Figure 9. Hand cleaning compliance in Provincial Health Services Authority

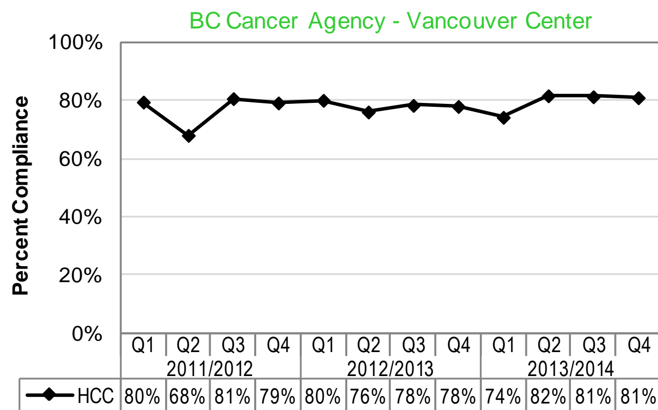


Notes:

1. Data were aggregated by calendar quarter
2. Includes audits at the emergency departments
3. Includes audits in the specific clinics (i.e. dialysis, daily surgery) or outpatient areas







Discussion

Significant improvements in HCC have been observed among all healthcare providers in acute care facilities across the province during the past three fiscal years, and compliance reached 79% in the last quarter of FY 2013/2014, which is close to the target performance of 80%. However, there is still work to do, especially with regards to increasing compliance before patient contact, and in engaging physicians.

HAs have launched numerous campaigns and educational initiatives to improve hand cleaning compliance over the past three years. The auditing results have been fed back to the senior leaders, physicians, and managers across the health authorities, and posted on the units in each healthcare facility. PHHWG and its sub-committees have met regularly to share the strategies and tips for improving compliance that worked with different facilities or healthcare provider groups. A perception survey on hand hygiene among healthcare workers in BC was also conducted in 2012, with a follow-up survey in 2013[6]. The survey results were shared with the individual HAs and relevant groups so that they could address any impediments to hand cleaning. The barriers identified for increasing compliance included the availability of sinks and hand cleaning products, and a culture where people feel too busy to wash their hands when there is an opportunity. About 70-80% of responses in 2012 reported empty or broken soap, alcohol rub, or paper towel dispensers, but only 5-6% reported the same in the follow-up survey in 2013, reflecting considerable efforts by the HAs to remove environmental and infrastructural barriers for hand hygiene.

Healthcare workers' opinions varied on how to address persistent non-compliance. Both surveys[6] revealed that healthcare providers remained uncomfortable reminding physicians and colleagues to clean their hands, and only 45% of respondents indicated that they agreed with disciplinary measures for consistent non-compliance with hand hygiene protocols. There is also no clear advice from experts on this issue. Some experts[7] advocate balancing "no blame" with accountability for failure to perform hand hygiene, and promoting a "just culture". Others caution against this approach, citing evidence in their own facilities that penalties encouraged concealment of poor performance[8]. Still others take a more temperate approach, using compliance bundles that include violation letters[9]. Multimodal strategies using a variety of intervention components intended to address obstacles to complying with good hand hygiene practices and to reinforce behavioural change have emerged as the best approach to improving hand hygiene compliance[10]. However, challenges remain in promoting widespread adoption and implementation of a coordinated approach. Encouragingly, nearly 80% of the respondents in the 2013 survey felt that the provincial target was achievable[6].

The data presented in this report have several limitations. Although direct observation of healthcare providers is widely accepted and used for monitoring hand cleaning compliance, various techniques can be employed. For example, the auditing might be performed by auditors who work in the same unit or small facility as the healthcare providers they are observing (self-auditing); conversely, it might be performed by external auditors such as infection control practitioners (ICPs) or members of the healthcare quality department of the hospital or HA. Research shows that self-auditing often reports higher compliance rates than non-self-auditing.[11] In addition, several factors are used to define whether hand cleaning is "compliant" or not, such as the duration of cleaning, the wearing of hand or wrist jewellery and/or artificial nails, or sleeves below the elbows. Variations exist across the HAs as to which of these factors make a hand cleaning event "compliant". In addition, although the auditors have been trained, it should be acknowledged that the training of auditors varies widely across HAs, and it is possible that observer bias may occur. It is also well recognized that workers will change their behaviour if they are aware that they are being observed (the "Hawthorne effect"). Furthermore, because auditing is very labour intensive work, the facilities that have more resources may observe more opportunities

than others, thus contributing more samples to the provincial data, and more greatly affecting the provincial overall compliance. Therefore, the results presented in this report may not reflect true hand cleaning compliance for all healthcare providers at all times. However, the purpose of auditing is to improve healthcare practice and quality, and any actions that improve the compliance will increase patient safety.

Acknowledgements

We would like to acknowledge the commitment of all hand cleaning auditors and members of the hand cleaning programs in each hospital and HA. We also thank the members of the Evaluation, Reporting, and Communications sub-committees of the Provincial Hand Hygiene Working Group.

Appendix

Start and end date of quarters for this report

Fiscal year	Quarter code	Fiscal quarter		Calendar quarter	
		Start date	End date	Start date	End date
2011/2012	**Q1**	01-Apr-2011	23-Jun-2011	01-Apr-2011	30-Jun-2011
	Q2	24-Jun-2011	15-Sep-2011	01-Jul-2011	30-Sep-2011
	Q3	16-Sep-2011	08-Dec-2011	01-Oct-2011	31-Dec-2011
	Q4	09-Dec-2011	31-Mar-2012	01-Jan-2012	31-Mar-2012
2012/2013	**Q1**	01-Apr-2012	21-Jun-2012	01-Apr-2012	30-Jun-2012
	Q2	22-Jun-2012	13-Sep-2012	01-Jul-2012	30-Sep-2012
	Q3	14-Sep-2012	06-Dec-2012	01-Oct-2012	31-Dec-2012
	Q4	07-Dec-2012	31-Mar-2013	01-Jan-2013	31-Mar-2013
2013/2014	**Q1**	01-Apr-2013	20-Jun-2013	01-Apr-2013	30-Jun-2013
	Q2	21-Jun-2013	12-Sep-2013	01-Jul-2013	30-Sep-2013
	Q3	13-Sep-2013	03-Dec-2013	01-Oct-2013	31-Dec-2013
	Q4	06-Dec-2013	31-Mar-2014	01-Jan-2014	31-Mar-2014

References

1. Public Health Agency of Canada. Essential Resources for Effective Infection Prevention and Control Programs: A Matter of Patient Safety - A Discussion Paper (2010). http://www.phac-aspc.gc.ca/nois-sinp/guide/ps-sp/index-eng.php. Accessed May 11, 2014.
2. World Health Organization (WHO). Clean care is safer care: the first global patient safety challenge. http://www.who.int/gpsc/en/. Accessed May 18, 2011
3. Al-Tawfiq JA, Abed MS, Al-Yami N, and Birrer RB. Promoting and sustaining a hospital-wide, multifaceted hand hygiene program resulted in significant reduction in healthcare-associated infections. Am J Infect Control 2013; 41:462-6
4. Erasmus V, Daha TJ, Brug H, Richardus JH, Behrendt MD, Vos MC, et al. Systematic review of studies on compliance with hand hygiene guidelines in hospital care. Infect Control Hosp Epidemiol 2010; 31:283-94.
5. Mertz D, Johnstone J, Krueger P, Brazil K, Walter SD, and Loeb M. Adherence to hand hygiene and risk factors for poor adherence in 13 Ontario acute care hospitals. Am J Infect Control 2011; 39:693-6
6. Bryce E. Innovation at work: Final report The Impact of a Mandated Provincial Hand Hygiene Program on Healthcare Worker Compliance, Heath and Perception of Safety Climate; Monitoring the Change Management Process. RS2011-OG10, January 2014 (Internal report)
7. Wachter RM and Pronovost PJ. Balancing “no blame” with accountability in patient safety. *N Engl J Med* 2009; 361:1401-6.
8. Dekker S and Hugh RB. Correspondence - Balancing “no blame” with accountability in patient safety. *N Engl J Med* 2010;362:275-6.
9. Chou T, Kerridge J, Kulkarni M, Wickman K, Malow J. Changing the culture of hand hygiene compliance using a bundle that includes a violation letter. Am J Infect Control 2010;38:575-578.
10. Pincock T, Bernstein P, Warthman S and Holst E. Bundling hand hygiene interventions and measurement to decrease healthcare-associated infections. Am J Infect Control 2012; 40:S18-S27
11. Dhar S, Tansek, R, Toftey E, Dziekan B, Chevalier TC, Bohlinger CG, et al. Observer bias in hand hygiene compliance reporting. Infect Control Hosp Epidemiol 2010; 31:869-70.

PICNet

PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA

A program of the Provincial Health Services Authority