

**H1N1 INFECTION CONTROL FOCUSED SURVEY  
PROJECT  
POST-SURVEY SUMMARY**

**CALIFORNIA DEPARTMENT OF PUBLIC HEALTH  
LICENSING & CERTIFICATION  
EMERGENCY PREPAREDNESS AND  
DISASTER RESPONSE SECTION**

**08/10/2010**



## Comment and Disclaimer Statement:

2009 was a challenging and unprecedented year for California hospitals, infection preventionists, employee health, and emergency preparedness staff. Multiple new infection prevention programmatic and reporting requirements from Senate Bills 158 and 1058 took effect January 1, 2009. In April, the first cases of novel H1N1 2009 pandemic influenza were diagnosed in southern California, with an initial wave of illness in May and a second, larger wave in the fall. Federal and State guidance for how to best prevent and manage H1N1 influenza changed, sometimes weekly, as more about the virus' transmissibility and control efforts became known. A number of local health departments issued recommendations that conflicted with state and federal recommendations. This situation was confounded by the implementation of the California Occupational Safety and Health Administration's (OSHA) Aerosol Transmissible Diseases (ATD) standard on August 5, 2009, which essentially made mandatory what had been previously only recommended occupational safety standards. Facilities were required to implement comprehensive respiratory protection programs for H1N1 patients while they coped with respirator shortages, limited fit-testing capacity, limited staff resources, and also manage employee illnesses. Additionally, after dealing with initial shortfalls in vaccine delivery, the scope of influenza vaccination outreach activities to hospital staff and their health care providers were doubled with the late fall release of the H1N1 influenza vaccination following the seasonal influenza vaccination in October 2009.

In response to an arguable need to understand the impact of H1N1 on the State's healthcare deliver system the California Department of Public Health (CDPH), Licensing and Certification Program (L&C) conducted an H1N1 Infection Control Focused Survey Project (Project) to measure general acute care hospital's compliance to infection control standards and a select number of facility stress indicators as it related to the presentation of the H1N1 virus. Results of the Project, conducted from December through March, showed that hospitals were very successful overall in their implementation of required infection control and specific H1N1 control measures. Of the 176 hospitals surveyed 104 (59.1%) had 100% compliance with all 19 survey elements. Of the total hospitals surveyed, 83.0% had a 90% or higher compliance rate, and only 4.5% of hospitals had compliance rates of less than 75%. While this was not a statistically-based study, given the number of hospitals surveyed and rigor of the survey process, we believe it is reflective of the performance of California hospitals at the time of the surveys and they are to be commended for the excellence of these results. The effort and commitment of those who rose to new heights during this challenging year are to be commended for all their efforts in supporting the safety of their patients and staff.

**California Department of Public Health  
Licensing and Certification**

**H1N1 Infection Control Focused Survey Project  
Post-Survey Summary**

**Background:**

Due to the spread of the H1N1 Influenza virus (H1N1) throughout the State, starting April 22, 2009 when the virus was first identified as a novel virus and gained world-wide attention, the California Department of Public Health (CDPH), Licensing and Certification Division (L&C) paid particular attention to the needs of hospitals as it related to the spread of this virus. Not only was it important to understand the dynamics of the virus as it presented itself throughout the State, but it was also important to understand how H1N1 would impact the healthcare system and its ability to meet the treatment needs of persons infected with H1N1.

By early December, 2009 it was common to see reports of over 250 persons per week being admitted to hospitals for treatment of H1N1 related illnesses. If H1N1 continued to expand and escalate, such a demand on an already overtaxed healthcare system could have created its own healthcare crisis. To address this lack of information, L&C began a project to measure the impact of H1N1 on hospitals throughout the State and to evaluate hospitals' response to H1N1. This project utilized a focused infection control survey developed to evaluate infection control measures used by hospitals to halt the spread of H1N1 within their facilities.

**H1N1 Infection Control Focused Survey Project**

The H1N1 Infection Control Focused Survey Project (Project) was intended to allow CDPH to measure the impact of H1N1 on hospitals and the overall health of California's hospital system as it related to infection control practices. This was accomplished by a survey that monitored hospital's abilities to comply with acceptable and standardized infection control practices, as identified in the California Code of Regulations Title 22, and Health and Safety Code. The surveys employed observations, staff interviews, and documentation reviews.

The Project began December 7, 2009, and continued through February 23, 2010. The surveys measured compliance with 19 applicable infection control regulations, and assessed specific factors determined by CDPH Executive Staff as being facility stress indicators related to H1N1. These stress indicators included the following three criteria.

- Increases in Emergency Department (ED) visits during the current year as compared to the previous year.

- Hospital staff absences on the date of the survey.
- The rate of hospital staff who received seasonal and H1N1 flu vaccinations.

The Project included the following three phases.

1. Pilot Phase: The Pilot Phase, lasted one week (December 7 through 10, 2010) and was intended to test the survey documents and practices and create an initial baseline from which future phases could be measured. Each of L&C's 15 District Offices (DO) were to conduct three surveys in different hospitals of the DOs choice (45 total hospitals), within their jurisdictions. The survey findings were compiled and tracked by L&C staff.
2. Phase 2: The second phase of the Project improved on lessons learned from the Pilot Phase. L&C continued the Project, targeting the remaining hospitals throughout the State. The hospitals surveyed were chosen by conducting consecutive Project surveys along with pre-scheduled hospital visits, including complaint or entity reported event investigations. Prior practices showed that by using this method, an average of 15 hospitals per week would be visited. Based on this prior experience it was estimated that within approximately six months all 450 hospitals in the State could have been visited.

In order to meet the requirements of surveying this number of hospitals, Surveyors previously trained in hospital and infection control issues mentored additional surveyors to increase the pool of staff trained to conduct these surveys.

See Appendix B for a copy of the Survey Tool used in the Project, which identifies the standards used in the survey.

3. Phase 3: The third phase of the Project was designed as a worst-case scenario to provide response and surveillance for the possible rapid expansion of the H1N1 virus, through the application of the following activities.
  - Provide additional training to DO staff so that hospital surveys could be conducted at least twice the rate as during Phase 2.
  - Use the data gathered from the Pilot Phase and Phase 2 to determine trends and identify critical indicators for future corrective action.

## Findings

As of February 23, 2010, 176 of the approximately 446 total hospitals were surveyed using the Focused Infection Control Survey, which was roughly 40% of all identified general acute care hospitals in the State. The following is a summary of those survey findings.

### Infection Control Survey Compliance:

Infection control compliance was measured by surveying 19 different standards. At the time the project ended in February, 2010, the overall state-wide compliance rate of hospitals surveyed for these standards was 94.4%.

83.0% of hospitals surveyed had a compliance rate greater than 90%. Of the remaining hospitals, 12.5% of the hospitals had a compliance rate between 75% and 90%, and 4.5% of the hospitals had compliance rates below 75%. A Plan of Correction was required to correct all 183 identified deficiencies.

72% of the identified deficiencies were found in the following nine areas. The percentage rate shown represents the percentage of hospitals with deficiencies in these areas.

13% Improper use of N95 masks and/or improper N95 fit testing.

11% Improper or lack of hand and general hygiene.

9% General inadequacy of infection control policies and procedures.

9% Inadequate cleaning and disinfection of common surfaces and equipment.

7% Lack of adequate policies and procedures and/or practices to reduce transmission of airborne infectious etiologic agents.

7% Not offering Seasonal and/or H1N1 vaccinations or requiring written declination for all hospital staff.

6% Not having a disaster plan that includes a pandemic influenza component that included collaboration with local public health agencies.

5% Lack of adequate training for environmental services staff relative to infection control practices.

5% Lack of adequate policies and procedures and/or practices to reduce the risk of patient-to-patient and patient-to-staff transmission of potentially infectious etiologic agents.

See Appendix A for details of the Survey findings.

### Facility Stress Indicators:

The stress on hospital operations was measured by examining any reported increase in ED visits, employee absence rate, and employee vaccination rates.

- ED Visits: There was an 8.7% increase in ED visits during the current year as compared to the same month in the previous year. This increase could be attributed to increases in population, reduction in statewide ED capacity due to closures, and effects from the current economic climate. (It is worth noting that the survey also attempted to measure the perception of ED overcrowding. 94 hospitals responded that ED visits had increased from the same time in the previous year. However, when ED logs were analyzed 15 of these hospitals (16%) actually had a decrease in ED visits.)
- Staff Absences: It was found that hospitals showed an average staff absence rate of 2.5%, on the date of the survey.
- Vaccination Rates: During the survey period, an average of 50.5% of hospital staff received seasonal flu vaccinations, and 45.5% of hospital staff received H1N1 flu vaccinations.

See Appendix A for details of the survey findings.

## **Conclusions**

### Infection Control:

Based on the findings of data gathered from the Project, it was determined that the overall compliance rate of hospitals was acceptable, and standardized infection control practices were within acceptable ranges. (It should be noted that there were several outlier hospitals that required additional attention, which attention will be accomplished through the normal Plan of Correction process.)

### Facility Stress Indicators:

Based on the findings gathered from the Project, the following could be concluded.

- ED Visits: It was determined that the observed increase in ED visits did not constitute cause for extraordinary measures by L&C resources, as the increase was within normal parameters expected for a seasonal flu season, with or without the effects of H1N1.
- Staff Absences: It has been determined that the observed degree of absences experienced by hospitals surveyed was within normal

parameters expected for normal hospital operations, with or without the effects of H1N1.

- Vaccination Rate: The rates for both seasonal and H1N1 flu vaccinations were lower than the California State Public Health targets. However, the vaccination rates discovered in the Project appeared higher than those of the National H1N1 Flu survey conducted by Centers for Disease Control and Prevention (CDC), which showed that 22.3% of healthcare workers nation-wide had received H1N1 vaccinations.

### **Next Step Recommendations**

Based on the above findings and conclusions from the Project there were five areas that L&C recommends for future attention and follow up.

1. Each of the deficiencies identified in the Project will be subject to the normal Plan of Correction process to ensure all are corrected.
2. A concerted effort to increase the awareness and compliance of infection control issues and practices should be developed, and distributed through the use of All Facility Letters (AFL), facility association contacts, and other routine communications and presentations.
3. Encourage healthcare staff to receive both seasonal and H1N1 vaccinations, through AFLs and web based guidance documents, and continue to require hospitals to obtain declination letters from staff who decline vaccinations.
4. Continue to improve the Survey Tool (See Appendix B for a copy of the Survey Tool) to ensure that the data gathered from the tool during a survey is usable and relevant to the purpose of the Project.
5. Research and develop other survey tools which can be used to respond in an effective manner during similar emergency response efforts.

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The following is an analysis for L&C's Infection Control Focused Survey project as of this date. The first week of this project (December 7 - 10, 2009) was the Pilot Phase. During this the 2nd Phase, District Office Staff visited only those facilities they were already scheduled to visit. (scheduled surveys, complaint visits, etc.)

**Note:** All data is preliminary and may change as more reports are received.

**Infection Control (Survey Standards 1 - 19):**

These standards measure general compliance with acceptable and standardized infection control practices, through the use of observation, documentation and employee interviews.

	Phase 2 Weeks										Pilot Week	Total
	2/15-26/10	2/8-12/10	2/1-4/10	1/25-28/10	1/19-21/10	1/11-14/10	1/4-7/10	12/28-31/09	12/21-24/09	12/14-17/09	12/7-10/09	Project
Facilities Visited	11	12	14	12	9	8	13	7	16	19	55	176
Total Deficiencies	15	15	22	7	4	9	5	8	28	17	53	183
Compliance Rate = Ratio of the 183 total deficiencies compared to the 3,247 total standards surveyed at all hospitals surveyed =												94.4%
% of Hospitals with a compliance rate of greater than 90%												83.0%
% of Hospitals with a compliance rate of 75% to 90%												12.5%
% of Hospitals with a compliance rate of less than 75%												4.5%

The following is a summary of deficiencies noted in the surveys of the 176 Hospitals surveyed

% of Hosp with deficiency	Summary of Deficiency observed at the Hospital
<b>Policies and Procedures</b>	
9%	General inadequacy of Infection Control Policies and Procedures with specific deficiencies noted below.
9%	General lack of cleaning and disinfecting of surfaces including common areas and equipment.
3%	Failure to properly handle and dispose of items soiled with body fluids.
5%	Failed to use appropriate methods prevent transmission of infections between patients to patients and between patients to staff.
11%	Failed to use proper hand hygiene, gloves and other protective barriers.
7%	Did not Implement practices to reduce airborne infections and addressing the assignment of rooms and/or room mates.

3%	Failed to implement procedures for the isolation of patients with influenza.
3%	Did not have a plans for surveillance, control, investigation and management of nonscomial infections.
3%	Did not have or adopt a seasonal Influenza Plan.

6%	Does not have a disaster plan that addresses a pandemic influenza type event, and/or that plan does not collaborate with local, regional and state public health agencies.
1%	Does not Implement respiratory hygiene and cough etiquette protocols.
2%	Did not offer annual no-cost influenza vaccines to all staff.
7%	Does not obtain written declinations from all staff who decline a vaccine.

<b>Training</b>	
3%	All staff have not received on-going infection control training.
3%	All staff have notreceived infection control training as part of their new orientation.
2%	Infection control training materials are not current and/or don't conform to new guidelines.
5%	Environmental Services staff did not receive new employee orientation, on-going training and were observed to practice inadequate infection control measures.
4%	All temporary staff, volunteers, and other healthcare workers (non-staff) have not received new employee orientation, and on-going training on infection control policies and procedures.
13%	All staff have not been fit tested for N-95 masks and/or did not receive annual fit testing training.

**Hospital Operation Stress Indicators (Survey Questions 20 - 21):**

The following questions deal with indicators of hospital operation stressors as related to the impact of the H1N1 on Emergency Department (ED) operations, and employee absence and the hospital's efforts to vaccinate employees for seasonal and H1N1 influenza.

#20: ED Visits	Phase 2 Weeks										Pilot Week 12/7-10/09	Total Project
	2/15-26/10	2/8-12/10	2/1-4/10	1/25-29/10	1/19-21/10	1/11-14/10	1/4-7/10	12/28-31/09	12/21-24/09	12/14-17/09		
Total ED visits this year	20,563	23,692	56,390	34,890	18,311	16,363	114,288	6,415	36,499	48,068	128,591	504,070
Total ED visits last year	20,281	23,602	54,238	34,418	15,765	14,653	102,692	5,562	31,829	43,390	117,174	463,604
Increase in ED visits	282	90	2,152	472	2,546	1,710	11,596	853	4,670	4,678	11,417	40,466
												8.7%

8.7% of all hospitals visited during this project reported an increase in ED visits this year compared to last year.

16.0% of hospitals that reported a perceived increase in ED visits actually had a decrease in ED visits when the ED log was analyzed.

**Note:** Part of the increase in ED visits can be attributed to a 4% increase in CA population that was largely an increase in immigrant populations, who traditionally use the ED as their portal to health care, and there was a decrease in EDs and ED beds from last year, which would have increased the usage of the remaining EDs this year.

**#21 Employee Absences:**

	Phase 2 Weeks										Pilot Week	Total
	2/15-26/10	2/8-12/10	2/1-4/10	1/25-29/10	1/19-21/10	1/11-17/10	1/4-7/10	12/28-31/09	12/21-24/09	12/14-17/09	12/7-10/09	Project
Number of Employees	11,280	11,661	24,576	25,659	8,782	10,391	34,008	3,299	15,021	21,660	57,089	212,497
Number of Employees Absent	351	233	1,266	164	117	89	388	19	540	207	2,037	5,411
												2.5%

2.5% of all employees at hospitals visited during this project were reported as absent at the time of the survey.

**Note:** Hospitals do not track absences due to H1N1 related illness vs. other absences. Therefore, the data does not conclusively indicate that any absences are related to H1N1 activity.

**#22 Vaccination Rates**

	Phase 2 Weeks										Pilot Week	Total
	2/15-26/10	2/8-12/10	2/1-4/10	1/25-29/10	1/19-21/10	1/11-17/10	1/4-7/10	12/28-31/09	12/21-24/09	12/14-17/09	12/7-10/09	Project
Number of Employees	11,280	11,661	24,576	25,659	8,782	10,391	34,008	3,299	15,021	21,660	57,089	212,497
Number of Employees Seasonal Vaccinated	6,567	7,564	18,637	16,633	4,901	6,602	22,906	1,960	10,212	14,710	38,019	107,225
												50.5%
Number of Employees H1N1 Vaccinated	7,431	5,969	15,535	14,313	3,953	4,320	18,614	1,319	8,309	12,887	33,853	96,655
												45.5%

50.5% of all employees in hospitals visited during this project were vaccinated for seasonal flu.

45.5% of all employees in hospitals visited during this project were vaccinated for H1N1 flu.

**Note:** During the Pilot and 1st week of Phase 2 of this project, questions #21 and 22 used the term "Health Care Workers (HCW)" was used and due to a possible miss-interpretation of the term "HCW" it was decided to use the term "Employees" in subsequent weeks. Because of this difference, data from pre and post "Employee" surveys may not be comparable.

## H1N1 Hospital Surveillance Tool (rev 12/16/09 e)

Facility Name \_\_\_\_\_ Provider Number \_\_\_\_\_

Date \_\_\_\_\_ Number of Beds \_\_\_\_\_ District Office \_\_\_\_\_ County \_\_\_\_\_

When completed, e-mail to Dan Kotyk, Caryn White, and Ron Smith or FAX to Emergency preparedness Disaster Response Unit at 916-324-4820. Indicate Compliant or Deficient, and how the finding was verified. Document specifics on Surveyor Notes Worksheet.

Compliant	Deficient	Verified By				Request the following Documents for Review & Observe for Implementation
		Observation	Interview	Record/Doc Review		
					<b>A</b>	<b>Policies and Procedures</b>
					1	T22 70739(a) Hospital wide policies and procedures include patients and healthcare workers. Policies and Procedures are implemented and include:
					2	H&S 1255.8 (e)(2),(3), (4) Cleaning and disinfection of restrooms, countertops, furniture, televisions, telephones, bedding, office equipment, and surfaces in patient rooms, nursing stations, storage units, all surfaces in common areas in the facility such as elevators, meeting rooms, and lounges, and all movable medical equipment, including point-of-care testing devices such as glucometers, and transportable medical devices
					3	T22 70739(a)(1) Methods for handling and disposing of items soiled with body fluids
					4	T22 70739(a)(1) Methods prescribed shall be designed to reduce the risk of transmission of potentially infectious etiologic agents from patient to patient and between patient and healthcare worker
					5	T22 70739(a)(1) Use of hand hygiene, gloves, other protective <b>barriers</b> (facility wide including critical and non critical areas) Can also use H&S 1279.9(a) for implementation of a <u>facility wide</u> hand hygiene program
					6	T22 70739(a)(2) Practices to reduce the risk of transmission of airborne infectious etiologic agents including tuberculosis and addressing the assignment of rooms and/or roommates.
					7	H&S 1288.7(b) Implement procedures for the isolation of patients with influenza
					8	T22 70739(a)(4) Plan for the surveillance and control of nosocomial infections including procedures for the investigation and management of outbreaks
					9	H&S 1288.7(b) Adopt a seasonal influenza plan
					10	H&S 1288.7(c) Revise an existing or develop a new disaster plan that includes a pandemic influenza component. The plan shall also document any actual or recommended collaboration with local, regional, and state public health agencies or officials in the event of an influenza pandemic.
					11	H&S 1288.7(c) Institute respiratory hygiene and cough etiquette protocols
					12	H&S 1288.7(a) The hospital annually offers no cost influenza vaccine to all HCWs
					13	H&S 1288.7(a) Requires vaccination or written declination of vaccination for all HCWs
					<b>B</b>	<b>Training - Infection Control Training is provided for:</b>
					14	T22 70739(a)(3) Infection control training for all HCWs

## H1N1 Hospital Surveillance Tool (rev 12/03/09 d)

Facility Name \_\_\_\_\_ Provider Number \_\_\_\_\_ Date \_\_\_\_\_

Compliant	Deficient	Verified By			Request the following Documents for Review & Observe for Implementation
		Observation	Interview	Record/Doc Review	
					15 T22 70739(a)(3)(A) Each new employee shall receive training appropriate to his/her job classification and work activities to acquaint him/her with infection control policies and procedures of the healthcare facility.
					16 T22 70739(a)(3)(B) Training material shall be kept current and conform to new information pertaining to the prevention and control of infectious diseases. Revised training material shall be presented to all healthcare workers.
					17 H&S 1288.95(d) <u>Environmental services staff</u> shall be trained by the hospital and shall be observed for compliance with hospital sanitation measures. The training shall be given at the start of employment, when new prevention measures have been adopted, and annually thereafter.
Review after 1/1/2010	Review after 1/1/2010				18 H&S 1288.95(c) <b><u>AFTER JAN 1, 2010</u></b> All permanent and temporary hospital employees <u>and contractual staff, including students</u> , shall be trained in <u>hospital-specific</u> infection prevention and control policies, including, but not limited to, <u>hand hygiene, facility-specific isolation procedures, patient hygiene, and environmental sanitation</u> procedures. The training shall be given <u>annually</u> and when <u>new policies</u> have been adopted by the infection surveillance, prevention, and control committee.
					19 Initial <b>N95</b> fit testing, the frequency of ( <b>such as annual</b> ), re-fit testing, including which HCW will be fit tested, and provision for HCWs that can't be fit tested ( <b>such as powered air purifying respirators (PAPR's)</b> )
<b>Yes</b>	<b>No</b>				<b>D Other</b>
		# of ED Visits for Last Full Month	# of ED Visits Same Month Last Year		20 Emergency Department Visits – Was the number of ED visits during the last full month higher than the number of visits during the same month last year ( <b>Y/N</b> )?; Note both <b>numbers</b> in the columns to the left.
		# of Employed HCWs	# of Employed HCWs Absent		21 Has number of HCW absences exceeded the norm for this season ( <b>Y/N</b> )? <b>Note the current number</b> of HCW employed and the total number of absent HCWs at the time of the visit in the columns to the left.
		# of Employed HCWs Vaccinated – Seasonal	# of Employed HCWs Vaccinated – H1N1		22 Number of HCW vaccinated for influenza (seasonal and H1N1). Document both numbers in the columns to the left.

## H1N1 Hospital Surveillance Tool (rev 12/03/09 d)

Facility Name \_\_\_\_\_ Provider Number \_\_\_\_\_ Date \_\_\_\_\_

**Surveillance tips:**

1. Request an in-patient census and ask hospital staff to identify any current in-patients in transmission-based precautions for potential or confirmed H1N1. Select 1-2 patients for unit observations for implementation of transmission-based precautions per the hospital's policies and procedures.
- 2a. Request a list of HCW hired since July 2009 (This information is used to ascertain N95 fit testing).
- 2b. Request a list of HCW fit tested since July 2009 (Compare this to the list of HCWs hired since July 2009 above). Refer to # 1, 6, & 20
- 3a. Visit the emergency department, or another other outpatient service areas where patients with potential influenza like illness could present for care, and check for quantities of available personal protective equipment (PPE), such as N 95 respirators, gloves, and gowns. Refer to # 1, 4 & 16
- 3b. If there are current emergency department patients with potential cases of H1N1, observe emergency department staff for hand hygiene and use of PPE. Refer to # 1, 5 & 15
- 3c. Check to see if signage is posted indicating transmission-based precautions have been implemented. Refer to # 1, 6, 7, & 8
- 4a. Based on complexity of services offered by the hospital, select one or two in-patient areas such as intensive care units, women's health, and pediatric units, and check for quantities of available PPE. Refer to # 1, 4 & 16
- 4b. During visits to in-patient care areas observe HCW compliance with PPE and hand hygiene. Refer to # 1, 5 & 15
- 4c. Observe for posted signage indicating that transmission-based precautions have been implemented. Refer to # 1, 6, 7 & 8

Yes	No	N/A	Areas and Units Observed or Reviewed
			Emergency Room
			Out-Patient Clinic(s)
			Intensive Care Unit(s)
			Pediatric Unit(s)
			OB/GYN(s)
			Medical Unit(s)
			Surgical Unit(s)
			Admissions – specifically ER and after hours presentation
			Public Areas
			Staff Only areas

**NOTE:** Additional documentation should be captured in field notes.