Improving Health Care Worker Influenza Immunization Rates in Los Angeles County Hospitals: Challenges, Opportunities, and Resources

The Challenge: Low HCW Immunization Rates

Low influenza immunization coverage levels among healthcare workers are among the most under-recognized adult immunization issues facing hospital delivery systems today. Because health care workers (HCW) infected with influenza can transmit the highly contagious virus to patients, including those at highest risk for influenza related complications, HCW immunization has long been recommended by the Centers for Disease Control and Prevention and other infection control, medical and nursing groups. In spite of a call-to-action by these medical advisory groups, HCW influenza immunization coverage levels have stagnated at less than 40% nationally. In Los Angeles County, similar coverage levels persist in local hospitals. These low rates leave staff and their patients at risk for this serious vaccine-preventable disease.

The Impact of Low HCW Immunization Rates

Low HCW immunization rates can lead to increased influenza morbidity and mortality among hospitalized patients, longer patient hospital stays, increased staff absenteeism, decreased productivity, and increased costs. Many research studies have demonstrated a correlation between unvaccinated health care workers and increased influenza-related morbidity and mortality. Unvaccinated HCWs can easily transmit influenza infection since the infection can be asymptomatic during the period of viral shedding in about half of all healthy adults. Furthermore, HCWs who are symptomatic (e.g. coughing and sneezing) sometimes report to work and provide direct care to individuals with compromised immune function, such as patients hospitalized in intensive care units, the elderly, neonates/infants, and individuals recovering postoperatively. This puts these patients at risk for serious complications.

Unvaccinated HCWs also impact hospital finances adversely. Direct financial effects include longer patient stays due to complicating factors associated with Hospital Acquired Infections (HAIs), many of which progress to secondary infection such as pneumococcal disease. Secondary persistent infections often involve aggressive treatments using more expensive drugs to address virulent, antibiotic-resistant infections. HAIs are estimated to cost California hospitals up to 3.1 billion dollars, for approximately 240,000 hospitalized patients each year (SB 739, Section 1 (a) p.2).

The indirect financial impact for hospitals is linked with high rates of employee absenteeism. Studies demonstrate that employee absenteeism, which peaks during the influenza season, may correlate with low HCW influenza immunization coverage rates. Perhaps more importantly, because HAIs, which can be prevented by HCW immunization, represent 30% of influenza cases in hospitals, the Centers for Medicare and Medicaid Services recently announced that it would no longer reimburse for nosocomial-related influenza for hospitalized patients.

Resources for Improving Influenza HCW Immunization Rates

Many resources are available to help hospitals develop employee influenza campaigns and comply with SB 739 and JCAHO requirements.

- The Immunization Coalition of Los Angeles County (ICLAC) offers a variety of tools that can be easily adapted including: “Talking Points for Managers,” employee reminder letter prototypes, declination forms, and immunization tracking tools to monitor immunizations and reasons for declinations. Download at www.publichealth.org/ip.

- “Influenza Vaccination of Health-Care Personnel: Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP)”. Download at www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm.


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Improving Health Care Worker Influenza Immunization Rates...from page 1

Addressing the Challenge: Evidence-based Interventions for Improving HCW Immunization Rates

In recognition of the impact of low HCW immunization rates, California recently passed legislation to formally address this issue. Enacted in July 2007, Senate Bill 739 evolved as a public health response to reduce the incidence of HAI and improve influenza coverage levels among HCWs in California. The bill requires acute care hospitals to take steps to prevent HAIs, including documenting influenza immunization coverage rates, offering on-site influenza vaccinations to all hospital employees at no cost, and monitoring the reasons for vaccination declinations among HCWs. Also acknowledging the importance of healthcare worker immunization, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires that hospitals institute annual influenza programs, which include on-site vaccination and staff education about influenza transmission, impact, and immunization.

Several strategies have been used successfully at hospitals in Los Angeles County to meet these requirements and improve influenza coverage rates among their HCWs. Consider the following options for your hospital:

• **Reduce barriers.** Increase employee access to influenza vaccine by providing vaccinations at no cost to staff. Use mobile vaccination carts to bring the vaccine to the employee’s work location, employee lounges, cafeterias, or after medical conferences. This strategy is especially important for employees who work in high-risk medical and surgical intensive care units.

• **Standing Orders.** Implement standing orders to vaccinate employees through the Occupational Health Department.

• **Education.** Provide annual educational in-services to employees during the flu season, emphasizing factors related to transmission and the importance of influenza immunization. Education should address misperceptions commonly held by HCWs including the belief that the flu shot causes the flu and concerns about egg allergies.

• **Promotion.** Use a variety of communication strategies to remind employees about influenza immunizations, such as e-mail, posters, screen savers, and memos inserted with paycheck stubs. Designate respected individuals such as medical/nursing directors or division chiefs as in-house immunization champions.

• **Monitoring.** Systematically track each employee’s influenza immunization status and reason’s for declining the vaccine. Computerized tracking systems are helpful in estimating immunization coverage and evaluating trends over time. They also help to assess the coverage status of non-employees such as volunteers and contract personnel.

To learn more about these efforts, connect with hospitals that are willing to share their experiences and resources, or for technical assistance, please contact Wendy Berger, M.P.H. at wberger@ph.lacounty.gov or 213-351-7499.

**Wendy Berger, M.P.H.**
Coalition Coordinator
Los Angeles County Immunization Program
Intimate Partner Violence & Depression Awareness

Two awareness campaigns in October provide an opportunity to remind physicians of the association between Intimate Partner Violence (IPV) and depression. On behalf of Domestic Violence Awareness Month and the October 10th National Depression Screening Day, this article provides physicians with a review of IPV screening, mandatory IPV reporting, and information on Depression Screening Day in Los Angeles County.

The long term health consequences of IPV victimization and childhood exposure to IPV are well documented. Many of these clinical presentations are exhibited in clinics and hospitals. Victims of IPV and adult children who have been exposed to IPV are both more likely to be diagnosed with chronic disease such as ischemic heart disease, cancer, liver disease, and chronic lung diseases in adult life. Further women are shown to be at greater risk of acute conditions such as stomach ulcers, spastic colon, arthritis, migraines, and sexually transmitted diseases. Studies also report that both men and women who experience IPV in their relationship are not only more likely to be diagnosed with substance abuse and chronic mental illness but are also more likely to exhibit signs and symptoms of depression.

Intimate Partner Violence (IPV)

Intimate partner violence (IPV) is a preventable public health problem that affects more than 32 million Americans. It includes actual, and/or threats of, physical or sexual violence and psychological or emotional abuse. National health care organizations recommend providers screen their patients for IPV as part of their routine screening. Studies also suggest that female patients welcome direct questioning of IPV by their physicians. While various screening tools have psychometric evaluations, based upon a systematic review, the U.S. Preventive Services Task Force recommends the Partner Violence 3-point Screen (PVS) which includes:

1. Have you been hit, kicked, punched, or otherwise hurt by someone within the last year?
2. Do you feel safe in your current relationship?
3. Is there a partner from a previous relationship who is making you feel unsafe now?

When this screen is positive (a yes answer to any of the above), the physician must clearly indicate to the patient that they believe the patient is not at fault, the patient is not alone, and that help is available. Secondly, the physician must ask if it is safe for the patient to go home. If yes, document this and further ascertain if the patient has a safety plan for getting out of the home, along with children should the situation change to an unsafe environment. If not, the patient should be instructed to institute a plan. Should the patient need resources, they can contact the National Domestic Violence Hotline at 1-800-799-7233 for further information.

If it is not safe to go home, ask if the patient can stay with family or friends or arrange for a shelter. California Penal Code Section 11160 mandates that a physician call local law enforcement by telephone immediately in such situations. Many clinics, hospitals, and HMO’s have internal policies regarding the use of specific forms. These forms must be completed and mailed to law enforcement within 48-hours. In the case of current abuse, the physician is recommended to document all injuries of the victim by using a body map or photographs and document the patient’s own words on the form.

Depression

Depression is ranked the 4th leading cause of premature death and disability in Los Angeles County (based on disability-adjusted life years (DALY). While there is no known cause for primary depression, research suggests it is a result from a combination of biochemical, genetic, psychological, and environmental factors. Neuroimaging studies have found that women with a history of depression had a 9–13% smaller hippocampus volume compared to non-depressed women, while controlling for age atrophy. Similarly, women exposed to IPV, also have reduced hippocampus volumes. Due to atrophy of the amygdala and hippocampus, this contributes to emotional dysfunction observed in both cohorts.

October 10, 2008 is designed as National Depression Screening Day to help educate the public about symptoms, treatments available, and free local screenings throughout Los Angeles County. We recommend making patients aware of the nine-free depression screening locations throughout Los Angeles County (see below). For additional information on IPV and depression, visit the IPV and depression sections at the Injury & Violence Prevention online screening link at http://www.lapublichealth.org/ivpp/InjTopicsHome.htm

James M. DeCarli, MPH, MPA, CHES
Injury & Violence Prevention Program
Los Angeles County Department of Public Health
Stay up to date on Immunization Recommendations!
Enroll Today in a 2-Day Training: Epidemiology & Prevention of Vaccine-Preventable Diseases

November 20–21, 2008
8:00 AM–5:00 PM
Doubletree Hotel, Orange, CA 92868

This course will provide a comprehensive overview of vaccine-preventable diseases, the principles of vaccination, vaccination recommendations, and recommended immunization strategies. CME credits are available. Registration fee is $50.00.

Register early – space is limited! For more information, visit

http://www.cdc.gov/vaccines/ed/onsite-trg.htm#ca

The course is presented by The Centers for Disease Control and Prevention; The California Department of Public Health, Immunization Branch; The County of Orange, Health Care Agency; and PHFE Management Solutions.

Immunization Coalition of Los Angeles County

Reminder

Next Meeting: October 20, 2008

The Immunization Coalition of Los Angeles County (ICLAC) is a public/private partnership of immunization providers. ICLAC’s mission is to foster collaborative efforts between diverse organizational sectors to prevent vaccine preventable diseases among the residents of LA County.

ICLAC convenes quarterly information-sharing meetings including special presentations on a variety of immunization-related topics, such as groups at risk for Vaccine Preventable Diseases (VPD), risk-benefit communication, provider/patient education outreach strategies, and immunization advocacy.

ICLAC also convenes member-supported workgroups that focus on planning and implementing a variety of community-based projects to close the gaps on immunization disparities. Please join us for the next meeting on October 20, 2008 from 10:00 a.m. to 12:00 p.m. at the California Endowment’s Center for Healthy Communities, 1000 N. Alameda, Street, LA, CA 90012. For more information about ICLAC, please contact Wendy Berger, Coordinator at 213-351-7499.
Vaccine Safety Update

Concerns about vaccine safety have been a part of public discourse since the advent of immunizations. Widespread skepticism about Salk’s polio vaccine circulated in the 1950s, and concerns about pertussis vaccine in the 1970s and 1980s led to declines in immunization rates in Britain and the United States. Most recently, a proposed link between vaccines and autism spectrum disorders (ASD) has ignited contentious debate.

Families of affected children, as well as other advocates and health care professionals seeking to find a mutable cause of these disorders, have raised questions regarding possible associations between vaccines and ASD. As healthcare providers and educators, it is important that we are sensitive to parents’ concerns; take the time to answer their questions; and clearly communicate the message that there is no reliable evidence to support the claim that vaccines cause autism.

Within the last decade, two theories positing a link between autism and vaccines have been popularized. One focuses on the MMR (measles, mumps, and rubella) vaccine; the other identifies thimerosal as a primary cause. Additional concerns include the safety of other vaccine ingredients as well as the idea that multiple vaccinations result in an immune system overload. While there is no reliable scientific evidence supporting these hypotheses, it is important to understand these theories in order to effectively address parents’ concerns.

The MMR Vaccine

Concerns about a potential link between MMR vaccination and ASD incidence were initially sparked by a 1998 publication in The Lancet. Wakefield et al argued that the MMR vaccine, which contains live virus, could cause a chronic measles infection. This infection could lead to “leaky gut” syndrome where toxins and chemicals normally broken down by the gut enter the bloodstream and damage the brain, causing ASD-like behaviors. Wakefield et al asserted that findings from a follow-up study in 2002 supported this hypothesis. Results indicated that 75 of 90 children with autism had measles virus genome in intestinal biopsy tissue, versus only 5 of 70 control patients. While results have caused concern, the study methodologies were critically flawed and the results have been called into question by subsequent analysis. In fact, in 2004, 10 of the 13 authors of the 1998 study retracted its interpretation, stating that the data were not able to establish a causal link between MMR vaccine and autism.

Various studies have since failed to confirm a link between MMR vaccine and autism. Early ecological studies in the United Kingdom and California suggest a lack of association, and several controlled epidemiological studies have independently refuted the hypothesis. Perhaps most convincingly, Madsen et al performed a large-scale study in Denmark between 1991 and 1998, finding that the risk of autism in the group of vaccinated children was the same as that in the unvaccinated group. Additionally, no relationships were found between the age at vaccination, time since vaccination, or vaccination date and the appearance of ASD symptoms. Finally, the Institute of Medicine’s 2004 comprehensive “Immunization Safety Review: Vaccines and Autism” concluded that the evidence favors rejection of the causal relationship between MMR vaccine and ASD.

When speaking with parents about their concerns, it is important to remember that although a causal connection between MMR and ASD has been invalidated, temporal associations are powerful. Symptoms of autism often become evident during the second year of life, which corresponds to a time period of vaccination. Some mistake this temporal association for causation.

Thimerosal-containing Vaccines

In use since the 1930s, thimerosal is a preservative that prevents bacterial contamination of multi-dose vaccine vials. The compound is 49.6% ethylmercury by weight. Concerns have been raised that this preservative leads to ASD. However, there is no convincing scientific evidence of harm caused by the low doses of thimerosal in vaccines.

Most information about the toxicity of mercury compounds relates to methylmercury, which has been found to cause central nervous disorders, birth defects, and epilepsy. Methylmercury and ethylmercury are often mentioned interchangeably in the press, but the ethylmercury that is in vaccines is more rapidly broken down and eliminated from the body than methylmercury. While the levels of mercury in childhood vaccines before 1999 did exceed recommended guidelines for mercury in general, the exposure levels from vaccines did not constitute direct evidence of harm. Furthermore, clinical signs of autism are inconsistent with those of mercury toxicity; both conditions affect central nervous system function, but manifest differently.

A number of peer-reviewed studies have been published showing no correlation between thimerosal in vaccines and ASD. The IOM report cited above also concluded that the evidence is sufficient to reject this association. Despite the lack of evidence, the US Public Health Services and American Academy of Pediatrics issued a joint statement in 1999 recommending the removal of thimerosal from most childhood vaccines. Although precautionary, removal was merited given the goal of reducing exposure to mercury from all sources and the priority of ensuring public confidence in vaccine safety. With the exception of some flu vaccines, thimerosal has been removed from all childhood vaccines since 2001. In California, by law, no flu vaccine containing more than trace amounts of thimerosal can be provided to pregnant women or children under the age of three.

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Conclusion

Dramatic decreases in morbidity and mortality as a result of vaccinations are among public health’s greatest achievements. While coverage rates in Los Angeles County have exceeded national averages and Healthy People 2010 goals in recent years, media attention and advocacy continue to fuel questions about the safety of childhood vaccinations. Ultimately, these concerns—though repeatedly refuted—have the potential to translate into significant changes in parental behavior. Reservations may cause parents to utilize extended schedules or refuse vaccinations completely. In fact, the number of parents declining to vaccinate their children due to Personal Belief Exemptions (PBEs) has increased statewide.

Declines in vaccination rates can lead to increases in vaccine-preventable diseases. The increased potential for outbreaks is underscored by the recent measles outbreaks across the nation and in Southern California. In San Diego, nine out of twelve children infected through contact with an unvaccinated child who contracted measles outside of the US were not vaccinated because of PBEs. In Los Angeles, an unvaccinated child was hospitalized with measles in April 2008.

Persisting misconceptions are likely to lead to decreased coverage, possibly undermining the significant advances in the prevention of vaccine-preventable diseases. It is incumbent upon the healthcare community to be sensitive to parents’ concerns and to help them understand that:

• Immunizations are the best way to protect against serious vaccine-preventable diseases.
• We have the safest, most effective vaccine supply in history.
• There is no reliable evidence that vaccines cause autism.
• A decision not to vaccinate has a significant impact on children, families, and communities.

Kim Harrison-Eowan, MPH, CHES
Health Communications Coordinator
Los Angeles County Immunization Program

Use every visit to address parents’ concerns and emphasize the benefits of on-time vaccination.

For More Information, visit the following links:

Vaccine Safety Update...from page 5

Recent data do not support an association between thimerosal-containing vaccines and autism. In California, Schecter and Grether’s 2008 review found continuing increases in autism levels statewide, following the exclusion of more than trace levels of thimerosal from all childhood vaccines given in the state. This is the latest in a series of studies that do not support the hypothesis that thimerosal exposure from vaccines is a primary cause of autism.

Emerging Vaccine Safety Concerns

Doubts about vaccines and autism are expanding beyond the MMR vaccine and thimerosal to include concerns about other vaccine ingredients (e.g. aluminum), the number of shots, and the recommended childhood immunization schedule. Some parents fear that the number of childhood vaccines will result in an “overload” of the immune system, though vaccines given today actually expose children to fewer antigens than in the past.

The Immunization schedule is developed and continually updated based on a combination of FDA licensure requirements and ACIP (Advisory Committee on Immunization Practices) recommendations. It is important to adhere to the recommended schedule so that children are protected from these diseases by the time the benefit from maternally acquired antibodies has waned. Vaccines are given early and at the recommended intervals to:

• Protect against diseases that can seriously harm infants and young children.
• Prevent complications that can be much more severe in young children.
• Ensure that children are protected by the time they have the greatest risk of exposure.

To facilitate adherence to the recommended schedule, children may often receive multiple vaccinations at the same visit. Although children receive more vaccinations today than in the past, the total amount of antigens in current vaccines is much less than that in vaccines given years ago. For example, the acellular pertussis vaccine used today contains only 2 to 5 antigens, as opposed to the 3,000 distinct antigens that were in the whole cell pertussis vaccine that most adults today received when they were children. Available data show no adverse effects from administering all of the routinely recommended vaccines in one visit. Also, it is important to remember that the immune systems of infants and children respond to many different antigens on a daily basis, as infants and children explore and interact with their biological and physical environments.

There are no valid studies that show a link between MMR vaccine or thimerosal and autism.

Persisting misconceptions are likely to lead to decreased coverage, possibly undermining the significant advances in the prevention of vaccine-preventable diseases. It is incumbent upon the healthcare community to be sensitive to parents’ concerns and to help them understand that:

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For More Information, visit the following links:
HEPATITIS B POST VACCINE SEROLOGICAL TESTING: The Final Step in Preventing Transmission of Hepatitis B from Infected Mothers to Their Infants

Post vaccine serological (PVS) testing of infants born to hepatitis B surface antigen (HBsAg) positive women is the final step in preventing hepatitis B transmission, but is often neglected. PVS testing is necessary to determine if the child is protected or susceptible to hepatitis B. Ten percent of infants born to HBsAg positive women that fail to receive appropriate prophylaxis at birth become infected. Ninety percent of these infants will become chronically infected and have an increased risk of cirrhosis and hepatocellular carcinoma (CDC, 2007).

Interpretation of Results

All infants of HBsAg positive mothers should be tested for both HBsAg (CPT code 87340) and antibody to hepatitis B surface antigen (Anti-HBs) (CPT code 86706) 3-12 months after administration of the final dose of hepatitis B vaccine (HBV) to determine the child’s response to the vaccination series. If the HBsAg is positive, a HBsAg confirmatory neutralization test test with reflex to confirmation (CPT code 87341) is required. The testing method should allow determination of a protective level of Anti-HBs, i.e., > 10 mIU/ml. To avoid detection of the Anti-HBs from HBIG administered during infancy, PVS testing should not occur before the age of 9 months.

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<th>Interpretation</th>
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<td>HBsAg</td>
<td>Negative</td>
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<tr>
<td>Anti-HBs</td>
<td>Negative</td>
<td>Susceptible/Nonresponder</td>
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<tr>
<td>HBsAg</td>
<td>Negative</td>
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</table>

Susceptible/Nonresponder

Children that fail to respond to the first series of HBV should complete a second 3-dose vaccine series on the usual 0,1,6 month schedule or the accelerated schedule at 0,1,4 months, then retest the HBsAg and Anti-HBs 1-2 months after the last dose to ensure that the infant is protected. Although fewer than 5% of persons receiving 6 or more doses of HBV will fail to develop Anti-HBs, do not assume that your patient will develop Anti-HBs.

Recommendations

- Do not accept positive HBsAg results without a confirmatory assay in accordance with the FDA requirements for the specific testing assay. Many unconfirmed HBsAg positive results are false positives.
- Obtain a history of the mother’s HBsAg status.
- Inquire about PVS testing for any child with documented HBIG at birth on their immunization record.
- Coordinate PVS testing with well child exams or other blood tests (e.g. lead).

Summary

Prevention of hepatitis B infection costs much less than treating the physiological and psychological complications of chronic hepatitis B. The cost of 1 dose of HBV ranges from $9.50 to $23.20 (CDC, 2008). Medi-Cal reimburses $11.87 for the Anti-HBs test and $11.42 for HBsAg tests (Department of Health Services, 2008). The annual cost of antiviral therapy for chronic hepatitis B ranges from $2,482 - $18,480.00 (Hepatitis B Foundation, 2006). PVS testing is the final step to ensure prophylaxis has been effective.

The Los Angeles County Perinatal Hepatitis B Prevention Program is available to assist the public in reducing the number of perinatal hepatitis B infections. Please call (213) 351-7400 or visit http://lapublichealth.org/ip/perinatalhepb/index.htm for more information.

References


Kim Moore, RN, PHN, MSN, FNP
Los Angeles County Immunization Program
**Physician Registry**

**Become a Member of the Health Alert Network**
The Los Angeles County Department of Public Health urges all local physicians to register with the Health Alert Network (HAN). By joining, you will receive periodic email updates alerting you to the latest significant local public health information including emerging threats such as pandemic influenza. Membership is free. All physician information remains private and will not be distributed or used for commercial purposes.

Registration can be completed online at [www.lahealthalert.org](http://www.lahealthalert.org) or by calling 323-890-8377.

Be aware of public health emergencies! **Enroll now!**

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**Selected Reportable Diseases (Cases) — April 2008**

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1. Case totals are provisional and may vary following periodic updates of the database.