

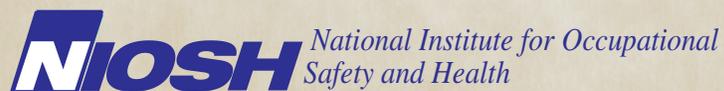


Needlestick Injuries among Employees at a Retail Pharmacy Chain – Nationwide

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CONTENTS

REPORT

Abbreviations	ii
Highlights of the NIOSH Health Hazard Evaluation	iii
Summary	v
Introduction	1
Assessment.....	3
Results	5
Discussion	11
Conclusions	13
Recommendations.....	14
References.....	16

APPENDIX

Bloodborne Pathogens	18
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ACKNOWLEDGMENTS

Acknowledgments and Availability of Report.....	21
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ABBREVIATIONS

CFR	Code of Federal Regulations
HHE	Health hazard evaluation
HIV	Human immunodeficiency virus
NAICS	North American Industry Classification System
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration

HIGHLIGHTS OF THE NIOSH HEALTH HAZARD EVALUATION

The National Institute for Occupational Safety and Health (NIOSH) received a management request for a health hazard evaluation at a nationwide retail pharmacy chain. The request concerned the potential exposure of pharmacists to needlestick injuries while administering vaccines in pharmacy locations nationwide.

What NIOSH Did

- We reviewed the company's written policies and procedures regarding vaccine administration, needlestick injuries, and bloodborne pathogens.
- We reviewed the company's needlestick injury reports and then analyzed the information in them.
- We observed work practices and interviewed eight employees at two pharmacies in October 2011.

What NIOSH Found

- The company has comprehensive written policies and procedures.
- Thirty-three needlestick injuries were reported across an 11-year period.
- The annual incidence of needlestick injuries ranged from 0–3.62 per 100,000 vaccinations and ranged from 0–5.65 per 1,000 immunizing pharmacists.
- Observed work practices involving sharps were safe at both pharmacies we visited.

What Managers Can Do

- Continue to encourage employees to follow all written work procedures.
- Promote prompt reporting of all needlestick injuries.
- Make sure that the needlestick injury reports have complete information.
- Ask for additional information about the circumstances of the injury for these reports.

What Employees Can Do

- Continue to follow safe work practices during all clinical procedures.
- Wash your hands before and after every clinical procedure.
- Dispose of used needles promptly in appropriate sharps disposal containers.
- Promptly report all needlestick injuries.
- Follow company health and safety policies and procedures.

In February 2011, NIOSH received an HHE request from management representatives at a nationwide retail pharmacy chain. The request concerned pharmacists' potential exposure to needlestick injuries while administering vaccines in pharmacy locations nationwide. The pharmacy chain began offering adult vaccinations in 2000 in select locations and had since expanded this service to all locations.

NIOSH investigators examined pharmacists' exposure to needlestick injuries in a retail pharmacy chain. We found 33 reported needlestick injuries across an 11-year period. The company's written policies and procedures were comprehensive. Work practices relating to sharps were safe at both pharmacies we visited.

Prior to our visit, we reviewed the company's written policies and procedures regarding vaccine administration, needlestick injuries, and bloodborne pathogens. We also analyzed the information in the company's needlestick injury reports. We visited two pharmacies in October 2011 where we observed work processes, work practices, and workplace conditions. We also interviewed pharmacy employees.

The company's written policies and work procedures were comprehensive. In our review of needlestick injury reports, we found 33 reported needlestick injuries over an 11-year period. The annual incidence of needlestick injuries ranged from 0–3.62 per 100,000 vaccinations and ranged from 0–5.65 per 1,000 immunizing pharmacists. Work practices relating to sharps were observed to be safe at both of the pharmacies we visited.

Pharmacists who have the added responsibility of administering vaccinations have become an emerging occupational group at risk of needlestick injuries. However, the incidence of needlestick injuries among employees at this retail pharmacy chain appears to be lower than that found in the hospital setting. This may be due to the nature of the procedures being performed, which require less manipulation (such as phlebotomy or suturing), activation of the safety devices, the company's training programs, and safe work practices.

We recommended that the company continue to encourage employees to follow all written work procedures. We recommended improvements to the positioning of patients and equipment during vaccine administration and health screenings to improve safety. We also recommended obtaining additional information on the circumstances of the injury for the needlestick injury reports. This information may be useful in determining factors contributing to these injuries at the pharmacy and in evaluating the safety of devices. Employees should continue to use safe work practices during vaccine administration and health screenings and should promptly report all needlestick injuries.

Keywords: NAICS 446110 (Pharmacies and Drug Stores), needlestick injuries, sharps injuries, bloodborne pathogens, pharmacy, pharmacists, vaccination

In February 2011, NIOSH received an HHE request from management representatives at a nationwide retail pharmacy chain. The request involved the potential exposure of pharmacists to needlestick injuries from the administration of vaccines across pharmacy locations nationwide. The pharmacy chain began offering adult vaccinations in 2000 in select locations and had expanded this service to all locations.

Prior to our visit, we reviewed the company's written policies and procedures regarding vaccine administration, needlestick injuries, and bloodborne pathogens. We also reviewed manufacturer information on the injection devices used by pharmacy employees and analyzed the information collected by the company in its needlestick injury reports. During our on-site evaluation at two locations in October 2011, we observed work processes, work practices, and workplace conditions and interviewed pharmacy employees.

Retail Pharmacy Chain

At the time of our evaluation, the retail pharmacy chain was located within a national retail grocery company. The company operated approximately 2,500 retail grocery locations and more than 800 in-store pharmacies in 25 states.

At the time of our evaluation, vaccinations offered at the retail pharmacy chain included the influenza, pneumococcal, tetanus/diphtheria/pertussis, hepatitis A, hepatitis B, human papillomavirus, herpes zoster, and meningococcal vaccines. Vaccinations were offered by appointment or on a walk-in basis at the pharmacies or in a clinic setting. As of February 2011, 2,150 certified immunizing pharmacists were employed at 805 pharmacy locations within the company.

Needlestick Injuries and Exposure to Bloodborne Pathogens

Needlesticks and other percutaneous injuries pose the greatest risk of occupational transmission of bloodborne pathogens to healthcare workers [Beltrami et al. 2000; CDC 2001]. The bloodborne pathogens of most concern include hepatitis B virus, hepatitis C virus, and HIV. More information on these pathogens can be found in the Appendix.

INTRODUCTION (CONTINUED)

In 1991, OSHA issued its bloodborne pathogens standard, requiring employers to maintain a written exposure control plan and adopt engineering and work practice controls that would eliminate or minimize employee exposure from hazards associated with bloodborne pathogens [29 CFR 1910.1030]. The standard was most recently revised in 2001. This revision added new requirements for employers, including additions to the exposure control plan and keeping a sharps injury log. It specifies in greater detail the engineering controls, such as safer medical devices, that must be used to reduce or eliminate worker exposure [29 CFR 1910.1030].

Most recent estimates have calculated the number of percutaneous injuries sustained annually by hospital-based healthcare workers to be 384,325 [Panlilio et al. 2004]. About half of these injuries go unreported [CDC 1997; EPINet 1999; Osborn et al. 1999]. Data has shown that most reported percutaneous injuries are associated with hollow-bore needles and that approximately 38% of injuries occur during use, and 42% occur after use and before disposal [NIOSH 1999]. Most studies have focused on these types of injuries in hospital settings while fewer have focused on long-term care facilities and outpatient medical and dental settings. Few studies have focused on injuries associated with vaccination campaigns [Haire and Sharma 1996; Abraham and Middleton 1997], and no studies have focused on injuries occurring in retail pharmacies.

The purpose of our evaluation was to determine the incidence of needlestick injuries among pharmacy employees from 2000–2011 and to assess and make recommendations to improve the controls in place to reduce the potential for needlestick injuries.

Our evaluation included the following activities: (1) a review of the company’s written policies and procedures regarding vaccine administration, needlestick injuries, and bloodborne pathogens; (2) an analysis of the company’s needlestick injury reports; and (3) an on-site evaluation at two pharmacy locations where we observed work processes, work practices, and workplace conditions and interviewed pharmacy employees.

Review of Company’s Written Policies and Procedures

We reviewed the company’s written policies and procedures regarding vaccine administration, needlestick injuries, and bloodborne pathogens. We determined if these policies met the requirements set forth by the OSHA bloodborne pathogens standard [29 CFR 1910.1030].

Analysis of the Company’s Needlestick Injury Reports

The company’s centralized needlestick injury reports from all pharmacy locations were obtained and reviewed. We characterized the circumstances surrounding these reported injuries. We calculated the annual incidence of percutaneous injuries using two methods: (1) by dividing the total number of needlestick injuries reported during a given year by the total number of vaccinations administered by the company during that same year and (2) by dividing the total number of needlestick injuries reported during a given year by the total number of immunizing pharmacists employed by the company during that same year. Because the focus of our evaluation was on the potential exposure of pharmacists to needlestick injuries from the administration of vaccines, we excluded injuries involving lancet needles in our annual incidence calculations. Although the company did not collect information on the purpose for which the sharps device was initially used, on the basis of our discussions with management representatives and employees, we made the assumption that all non-lancet needle related injuries were associated with vaccination in our annual incidence calculations.

On-site Evaluation

The two locations for the site visit were chosen in conjunction with management representatives at the company because of the high volume of vaccinations administered at both. During the visits in October 2011, we met with the staff at both pharmacies to discuss the HHE request. We observed work processes, work practices, and workplace conditions particularly associated with vaccine administration and other clinical procedures. We conducted semi-structured interviews with all employees working at both pharmacies on the dates of the visit. We discussed their work history and exposures as well as other health and workplace concerns.

Review of Company's Written Policies and Procedures

The company's bloodborne pathogens exposure control plan was comprehensive and contained all of the required elements according to the OSHA bloodborne pathogens standard [29 CFR 1910.1030]. These required elements include an exposure determination, methods of compliance, hepatitis B vaccination, post-exposure evaluation and follow-up, communication of hazards to employees, and recordkeeping [29 CFR 1910.1030]. At the time of our evaluation, the exposure control plan was accessible to all employees through the company's intranet.

Pharmacy employees identified as being at risk for occupational exposure to blood or other potentially infectious materials included pharmacists giving vaccinations or performing a laboratory test or an education session and pharmacy technicians performing laboratory tests. All company employees at risk of exposure to bloodborne pathogens were encouraged to receive the hepatitis B vaccination, which was provided at no charge to them. Employees declining hepatitis B vaccination must sign a waiver.

Injured employees were instructed to contact the clinical programs department immediately after the injury. The facility/store director was required to complete the exposure incident report within 48 hours and the needlestick injury report form within 72 hours. Copies were kept at the facility/store and in the clinical programs department. Injured employees were required to visit the designated medical provider within 48 hours of the incident for appropriate evaluation. The clinical programs department contacted the source individual and requested that he or she visit the designated facility to get blood tests for hepatitis B, hepatitis C, and HIV.

The company's vaccine administration protocol stated that employees should never bend, break, or recap needles; remove needles from disposable syringes; or overfill, reach into, open, empty, or reuse a sharps container. Employees were instructed to dispose of all sharps items immediately in marked containers.

At the time of our evaluation, the company's immunizing pharmacists were required to be specially trained by attending an immunization certificate program. The company offered the American Pharmacists Association's Pharmacy-Based Immunization Delivery, a national certificate program for pharmacists. Training consisted of self-study followed by a live

RESULTS

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training seminar. Once these two modules are complete, the pharmacist attends an immunization orientation. We reviewed the presentation slides for this orientation and found that they included information on bloodborne pathogens, the needlestick protocol, and use of the retractable safety syringes. The orientation also included hands-on practice.

The company's needlestick injury reporting form contained all of the information required by the OSHA bloodborne pathogens standard [29 CFR 1910.1030]. This information included the type and brand of device involved in the incident, the work area where the exposure occurred, and an explanation of how the incident occurred.

Analysis of the Company's Needlestick Injury Reports

Of the 34 injuries reported to the company's clinical program department from 2000–2011, only 33 were actual sharps or needlestick injuries. The other report was about a splash rather than a needlestick injury.

The 33 total needlestick injuries were reported by 31 different pharmacy locations. Two injuries did not have a pharmacy location reported. Seventeen (52%) injuries occurred in front of the pharmacy, 10 (30%) in the pharmacy, 3 (9%) in flu clinic, 1 (3%) in the pharmacy waiting area, 1 (3%) by the consultation window, and 1 (3%) in a non-pharmacy location.

Of the 33 needlestick injuries, 24 (73%) occurred from September through January, the period during which influenza vaccines are commonly administered; 12 (36%) occurred in the month of October. Eight injuries (24%) occurred between midnight and noon, while the other 25 (76%) occurred between noon and midnight.

Five (15%) injuries occurred with a lancet needle, while 28 (85%) injuries occurred with a syringe needle. Of these 28 injuries, the VanishPoint® syringe was used in 7 injuries, the BD SafetyGlide™ needle was used in 12 injuries, the BD PrecisionGlide™ needle was used in 1 injury, and the BD Safety-Lok™ syringe was used in 1 injury. The type of needle was not reported in seven injuries. A finger was the injured body part in 30 cases, and the palm in 1 case. The injured body part was not recorded in 2 cases.

RESULTS

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The company's sharps injury report form contained check boxes for an explanation of how the injury occurred. These explanations are displayed in Table 1. Most commonly, the injury was reported after use and before disposal of the sharp (58% of injuries). Additional details of the circumstances surrounding these injuries, such as for what purpose the sharp item was originally used, were lacking from the reports.

Table 1. Explanation of how the needlestick injuries occurred as contained in the company's needlestick injury reports

Explanation*	No. (%) Injuries
After use and before disposal of sharp	19 (58)
During use of sharp	6 (18)
While putting sharp into disposal container	5 (15)
Disassembling	2 (6)
Sharp left, inappropriate place	2 (6)
Other†	4 (12)

*Employees could choose more than one explanation of how the incident occurred.

†Other explanations included "while activating safety device," "taking bag from patient," "glove got caught in safety glide and accidentally got stuck," "lancet fell on floor, happened while picking it up."

Numbers of needlestick injuries ranged from 0–14 per year (Table 2). The years 2000–2001 and 2004–2007 had no needlestick injuries reported, while 2010 was the year of the highest number of needlestick injuries at 14. We excluded the 5 needlestick injuries associated with lancet needles from annual incidence calculations. The annual incidence of needlestick injuries ranged from 0–3.62 per 100,000 vaccinations and ranged from 0–5.65 per 1,000 immunizing pharmacists (Table 2 and Figure 1). The year 2010 had the highest incidence at 3.62 needlestick injuries per 100,000 vaccinations and 5.65 per 1,000 immunizing pharmacists.

On-site Evaluation

At the time of our visit, the first pharmacy had 14 employees, including 3 pharmacists, and the second pharmacy had 18 employees, including 3 pharmacists. All pharmacists administered vaccination as part of their responsibilities. Both pharmacies had extended hours of operation during the week and regular hours during the weekends. The first pharmacy had administered 341

RESULTS

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Table 2. Annual numbers of needlestick injuries, administered vaccinations, and immunizing pharmacists

Year	No. needlestick injuries	No. administered vaccinations	Annual incidence per 100,000 vaccinations	No. immunizing pharmacists	Annual incidence per 1,000 immunizing pharmacists
2000	0	9,900	0	67	0
2001	0	38,000	0	120	0
2002	1	55,685	1.80	270	3.70
2003	1	156,000	0.64	400	2.50
2004	0	42,000	0	540	0
2005	0	225,000	0	731	0
2006	0	129,965	0	538	0
2007	0	146,525	0	821	0
2008	2	232,050	0.86	1,043	1.92
2009	6	391,850	1.28*	1,450	3.45*
2010	14	358,800	3.62†	2,300	5.65†
2011‡	9	286,383	2.10§	2,164	2.77§

*One injury was excluded from the 2009 incidence calculation because it was associated with a lancet needle.

†One injury was excluded from the 2010 incidence calculation because it was associated with a lancet needle.

‡2011 data as of November 3, 2011

§Three injuries were excluded from the 2011 incidence calculation because they were associated with a lancet needle.

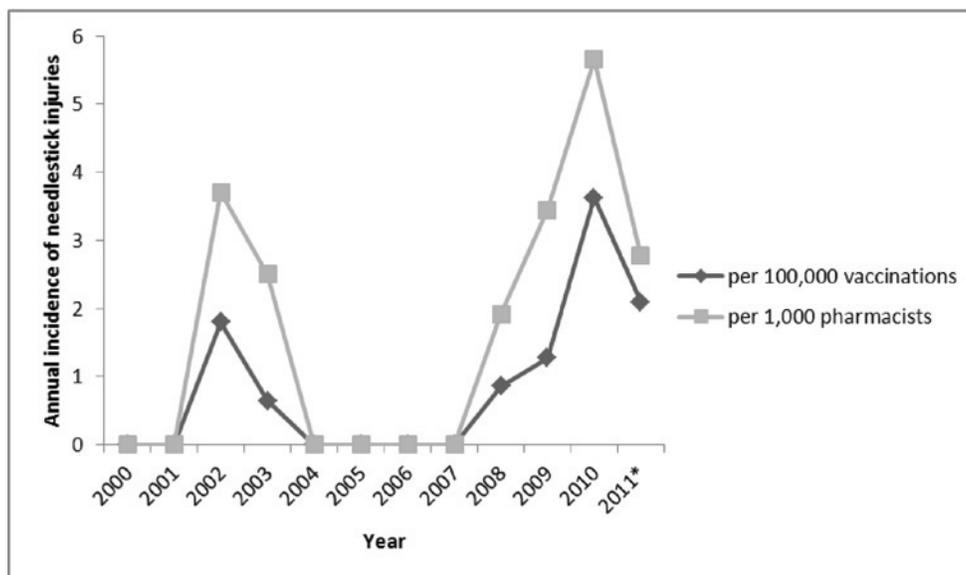


Figure 1. The annual number of needlestick injuries per 100,000 vaccinations.

*2011 data as of November 3, 2011

RESULTS

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vaccinations, including 286 influenza vaccinations, from February 27, 2011, (the start of the company's fiscal year) through October 21, 2011. The second pharmacy had administered 897 vaccinations, including 790 influenza vaccinations, over the same period. As of October 2011 neither pharmacy had reported any needlestick injuries since 2002.

Confidential Medical Interviews

We interviewed all four pharmacy employees working at each pharmacy on the dates of the visits. These 8 employees included 3 pharmacists and 5 pharmacy technicians. Only the three pharmacists reported administering vaccinations, and all were certified by the American Pharmaceutical Association to provide immunizations. All three reported completing the American Pharmaceutical Association Pharmacy Based Immunization Delivery training program and internal company training. All three estimated administering vaccines 2–4 years, and all three estimated that they had given more than 350 influenza vaccinations during the calendar year 2011. Four of the five pharmacy technicians reported that they did not come into contact with sharps items during their job; the other one performed fingersticks as part of her job.

The four pharmacy employees who came into contact with sharps items reported never recapping used needles, and all reported they always disposed of used needles promptly in appropriate sharps disposal containers. None of the eight interviewed employees reported ever experiencing a needlestick injury, and none had any health concerns related to their work.

Observation of Procedures

During the visit, we observed the following procedures at both pharmacies: 11 influenza vaccinations, 2 zoster vaccinations, and 2 health screenings. For all 13 vaccination procedures, the pharmacy employees drew up the syringe and placed all necessary supplies in a plastic bin before administering the vaccine. Sharps disposal containers were portable. In the first pharmacy, the sharps disposal container was also placed in a larger plastic bin that contained the other supplies. The sharps disposal container was placed conveniently next to the employee for immediate disposal of the needle in all but one instance.

RESULTS

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During 9 vaccination procedures, the pharmacy employees sat in a chair perpendicular to the patient's chair. However, during the other 4 vaccination procedures, the vaccinator either stood or squatted by the patient's chair. During 2 of the vaccination procedures, the patient was seated in a chair that had wheels.



Figure 2. A pharmacist administering the influenza vaccine to a patient. She can be seen activating the retraction mechanism of the introducer needle while the needle is still in the patient's arm.

We observed hand hygiene before administering the vaccine during 6 of 13 procedures and after administering the vaccine during the same 6 procedures. During all 13 procedures, the pharmacy employees wore gloves while administering the vaccine, and they also activated the safety syringe while the needle was still in the patient's arm (Figure 2). The pharmacies used the VanishPoint® syringe, which has a safety device that automatically and instantly retracts the needle from the patient into the barrel of the syringe when the injection is complete. No recapping of used needles was observed. The used syringe was promptly placed in the sharps disposal container during 11 procedures. During the other 2 procedures, the used syringe was placed first in the plastic bin and then transferred to the sharps disposal container shortly thereafter.

The health screenings consisted of a blood pressure check and a fingerstick for basic laboratory work. During both observed screenings, all of the necessary supplies were placed on the workspace. Sharps disposal containers were appropriately placed. In one screening, the employee stood next to the patient, who was seated in a chair with wheels. The employee practiced hand hygiene before the fingerstick one out of the two times, wore gloves during the fingerstick both times, and practiced hand hygiene after the fingerstick both times. During the fingerstick, the safety device was activated, and the used lancet needle was promptly placed in the sharps disposal container in both instances.

An increasing proportion of influenza vaccinations are taking place in nonmedical or nonclinical settings. During the 1998–1999 influenza season, 5% of adults reported being vaccinated in stores (supermarket or drug store) [Singleton et al. 2005]. At that time, only 22 states allowed pharmacists to administer influenza vaccinations to adults. By June 2009, all 50 states allowed pharmacists to administer influenza vaccinations (under prescribing protocols or prescription) to adults [APHA 2009]. For the 2010–2011 influenza season, 18.4% of adults received the influenza vaccination at stores (supermarket or drug store), which was the second most common place of vaccination after a doctor’s office [CDC 2011].

To date, no studies have examined needlestick injuries occurring in a retail pharmacy setting, and few studies have examined needlestick injuries associated with vaccination. Haire and Sharma surveyed 28 nurses and 26 physicians during a measles and rubella immunization campaign in Britain in 1994 [Haire and Sharma 1996]. They found that two nurses and three physicians reported sustaining a contaminated needlestick injury, though only two reported the injury.

In another study, Abraham and Middleton reported that 6 contaminated needlestick injuries were reported during a measles mass vaccination campaign in Canada in 1996 [Abraham and Middleton 1997]. This campaign had 63 nurses immunize 112,727 children at 238 schools, and the needlestick injury rate was calculated to be 1 needlestick injury per 18,788 vaccinations, or 5.32 needlestick injuries per 100,000 vaccinations. Circumstances leading to the injuries included technical factors, human factors, and disposal issues. These numbers are higher than those found in our evaluation, where we found a maximum of 3.62 needlestick injuries per 100,000 vaccinations in 2010, the year with the highest annual incidence.

Our range of 0–5.65 needlestick injuries per 1,000 immunizing pharmacists is also lower than the range of 23–103 needlestick injuries per 1,000 healthcare workers calculated by Lee et al. in five studies of reports in hospital settings [Linnemann et al. 1991; Haiduven et al. 1992; Longbottom et al. 1993; Jackson et al. 1994; Hatcher 2002; Lee et. al 2005]. This discrepancy can be explained by a few potential factors. First, the risk of needlestick injuries from vaccinations compared to other procedures involving sharps items such as phlebotomy and suturing may be

DISCUSSION

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lower because of the nature of the procedure that requires less manipulation. Second, all of the syringes and lancet needles used by the company's immunizing pharmacists had safety devices, and this likely also lowers the risk. Third, the pharmacists we observed during our visit all adhered to safe practices when administering vaccinations and obtaining fingersticks (i.e., activation of the safety device and optimal placement of sharps disposal containers), and the company's training programs were comprehensive.

Our evaluation was subject to some limitations. First, we analyzed 33 reports of needlestick injuries recorded in the company's national sharps injury reports. The incidence of needlestick injuries reported here is likely an underestimation of the actual incidence of these injuries among employees for two reasons. Studies have shown that underreporting of percutaneous injuries in healthcare workers occurs widely; calculations have estimated a 43.4% underreporting rate [Panlilio et al. 2004]. Also, it is possible that not all incidents at the individual pharmacy locations were reported to the national program office. Second, some needlestick injury reports had missing information, including type of device, pharmacy location, and injured body part. Third, we were unable to obtain the laboratory testing results of the source patients involved in the needlestick injury. Thus, we are unable to determine the actual exposure of the injured employees to hepatitis B, hepatitis C, or HIV. Fourth, we had limited information on the injured employee so were not able to determine work factors associated with an injury. Also, because the company did not collect the job titles of affected employees on the needlestick injury report form, we were unable to ascertain the number of injuries that occurred among pharmacists and pharmacy technicians. However, only pharmacists are certified to administer vaccinations, and this makes it less likely that needlestick injuries associated with vaccine administration occurred among pharmacy technicians. Finally, we observed vaccinations and health screenings at only two of the over 800 pharmacy locations. Thus, our observations are unlikely to be representative of all pharmacy employees at all locations.

CONCLUSIONS

Pharmacists who have the added responsibility of administering vaccinations have become an emerging occupational group at risk of needlestick injuries. In our retrospective review of reports of needlestick injuries of a large retail pharmacy chain, we found 33 reported needlestick injuries across an 11-year period. The annual incidence of needlestick injuries ranged from 0–3.62 per 100,000 vaccinations and ranged from 0–5.65 per 1,000 immunizing pharmacists. These rates appear to be lower than those found in the hospital setting. Work practices relating to sharps items were observed to be safe at both locations of our visit. Though needlestick injuries occur in this setting, the pharmacy employees appear to be at relatively low risk for needlestick injuries during administration of vaccines mainly because of the nature of the procedures that require less manipulation, the activation of the safety devices, the company's training programs, and safe work practices.

RECOMMENDATIONS

On the basis of the findings of the HHE, we offer some additional recommendations to further protect the health and safety of pharmacy employees with regard to bloodborne pathogens. We encourage the company to use a labor-management health and safety committee or working group to discuss the recommendations in this report and develop an action plan. Those involved in the work can best set priorities and assess the feasibility of our recommendations for the specific situation at the company.

More comprehensive recommendations, such as those regarding a culture of safety, procedures for reporting and examining needlestick injuries, selection of devices, and training of employees, can be found in CDC's "Workbook for Designing, Implementing and Evaluating a Sharps Injury Prevention Program" at http://www.cdc.gov/sharpssafety/pdf/sharpsworkbook_2008.pdf [CDC 2008].

1. Practice hand hygiene before and after giving an injection or performing a fingerstick. Hand hygiene can consist of hand washing or antiseptic hand rub.
2. Position the patient in a chair without wheels for vaccine administration and health screenings. Pharmacy employees should also be seated in a chair perpendicular to the patient. A table or other flat surface on which to lay supplies and the sharps disposal container should be within reach of the pharmacist.
3. Dispose of used needles promptly in appropriate sharps disposal containers. Ensure that these containers are placed in a location convenient to the pharmacist for immediate disposal. Consider placing the sharps disposal container along with the necessary supplies in a larger bin, as we observed at one location.
4. Encourage employees to report all needlestick injuries immediately. Emphasize the importance of timely medical evaluation and treatment, if indicated.
5. Ensure that each needlestick injury report contains all of the information required by the OSHA bloodborne pathogens standard [29 CFR 1910.1030]. This information includes the type and brand of device involved in the incident, the work

RECOMMENDATIONS (CONTINUED)

area where the exposure occurred, and an explanation of how the incident occurred. Each submitted report should be checked for completeness, and missing or incomplete responses should be addressed. Consider listing the possible devices that employees use during their work and asking injured employees to check the device used instead of having them write in this information. This change may facilitate more accurate reporting about the device.

6. Consider obtaining additional information in the sharps injury reports to include information about whether or not the device's protective mechanism had been activated and whether or not the sharps item penetrated gloves. This information will give insights into employee compliance with activation of the device protective mechanisms and glove use. Consider obtaining information on the job title of the affected employee, the purpose for which the sharp item was originally used, if it was contaminated or uncontaminated, and if blood was present on the device if contaminated. This information will also help in characterizing the circumstances of these injuries. In addition, consider asking injured employees to give their opinions on whether any engineering controls or administrative or work practices could have prevented the injury. The forms in CDC's "Workbook for Designing, Implementing and Evaluating a Sharps Injury Prevention Program" and from the International Healthcare Worker Safety Center can be used as guides for information to collect and can be adapted to the pharmacy setting [IHWSC 2001; CDC 2008].
7. Send at least annual reminders to individual pharmacy locations to send all local needlestick injury reports and exposure incident reports to the clinical programs department. It is important to have an accurate central location for these records.
8. Review the needlestick injury reports at the local and corporate levels at least annually to determine which factors contribute to these injuries at the pharmacy and gain information that may be helpful in evaluating devices.

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Human Immunodeficiency Virus

HIV, also known as the human immunodeficiency virus, is the virus that can lead to acquired immune deficiency syndrome, or AIDS. HIV attacks part of the body's immune system by destroying specific blood cells, called CD4+ T cells, which are crucial to helping the body fight diseases. Each year, approximately 50,000 U.S. residents become infected with HIV [CDC 2011a]. In 2008, an estimated 1,178,350 persons were living with HIV, including 236,400 (20.1%) whose infection was undiagnosed [CDC 2011a]. Through December 2001, 57 cases of occupational HIV transmission to healthcare workers in the United States were documented, and no confirmed cases have been reported since 1999 [Do et al. 2003; CDC 2011b]. No cases have been documented in pharmacists [Do et al. 2003]. The average risk for HIV transmission after a percutaneous exposure to HIV-infected blood has been estimated to be approximately 0.3% [Gerberding 1994; Bell et. al 1997; Ippolito et al. 1999].

Hepatitis B

Hepatitis B is a contagious liver disease that results from infection with the hepatitis B virus. It can range in severity from a mild illness lasting a few weeks to a serious, lifelong illness. Effective hepatitis B vaccines have been available in the United States since 1981, and since then, the incidence of acute hepatitis B has declined. The estimated incidence of hepatitis B infection was 38,000 in 2009, but an estimated 700,000–1.4 million persons are living with chronic hepatitis B infection [CDC 2008; CDC 2011c; Ioannou et al. 2011]. The rate of hepatitis B transmission to susceptible (or non-immunized) healthcare workers ranges from 6%–30% after a single needlestick exposure from a hepatitis B infected patient [CDC 1997].

Hepatitis C

Hepatitis C is a contagious liver disease that results from infection with the hepatitis C virus. It can range in severity from a mild illness lasting a few weeks to a serious, lifelong illness. It more commonly causes chronic infection than hepatitis B. An estimated 2.7–3.9 million persons are chronically infected with hepatitis C [Armstrong et al. 2006; CDC 2011c]. The number of acute hepatitis C cases has declined to an estimated 16,000 cases in the United States. The average rate of hepatitis C transmission averages 1.8% for healthcare workers exposed to hepatitis C through a needlestick or percutaneous injury [Alter 1997; CDC 1998].

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APPENDIX: BLOODBORNE PATHOGENS (CONTINUED)

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