ADVANCES IN EXPOSURE PREVENTION

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One Unnecessary Needle = HIV + HCV

by Lisa M. Black, R.N., B.S.N.

MY NAME IS LISA BLACK. I AM A TWENTY-eight year old registered nurse living in Reno, Nevada. From a very young age, I knew I wanted to be a nurse. After completing high school in 1988, I immediately enrolled in nursing school at the University of Nevada, Reno. While a student there I married and had my first child. Though it was grueling to be a full-time student as well as the mother of an infant, my determination to realize my goal of being a nurse never wavered. I graduated from nursing school with high honors in 1993.

On Oct-ober 18, 1997, I was working the night shift as a per-diem staff nurse on a combination medical-surgical-telemetry unit in a small, privately owned hospital in Sparks, Nevada. That night I was assigned to eight acutely ill patients, one of whom was in the terminal stages of wasting due to advanced AIDS.

Lisa Black, R.N.

While checking on my patients, I noticed that one of them—I'll call him Mr. Jones—had blood backed up in his intravenous (IV) line tubing, which had become occluded. In order to prevent having to re-establish his IV access, I needed to irrigate the line quickly. As I assembled my supplies, I noted that Mr. Jones' IV line was not equipped with the needleless IV access system that the hospital had made available in order to prevent needle-stick injuries. Because the IV line was occluded, I was unable to change over to the needleless system.

I filled a syringe with saline irrigation solution and inserted the needle into the rubber port on the patient's IV line. Using a push-pull method, I attempted to aspirate the blood clot from the occluded catheter and then flush the solution through the line. During this procedure, however, Mr. Jones startled and his arms jerked—a

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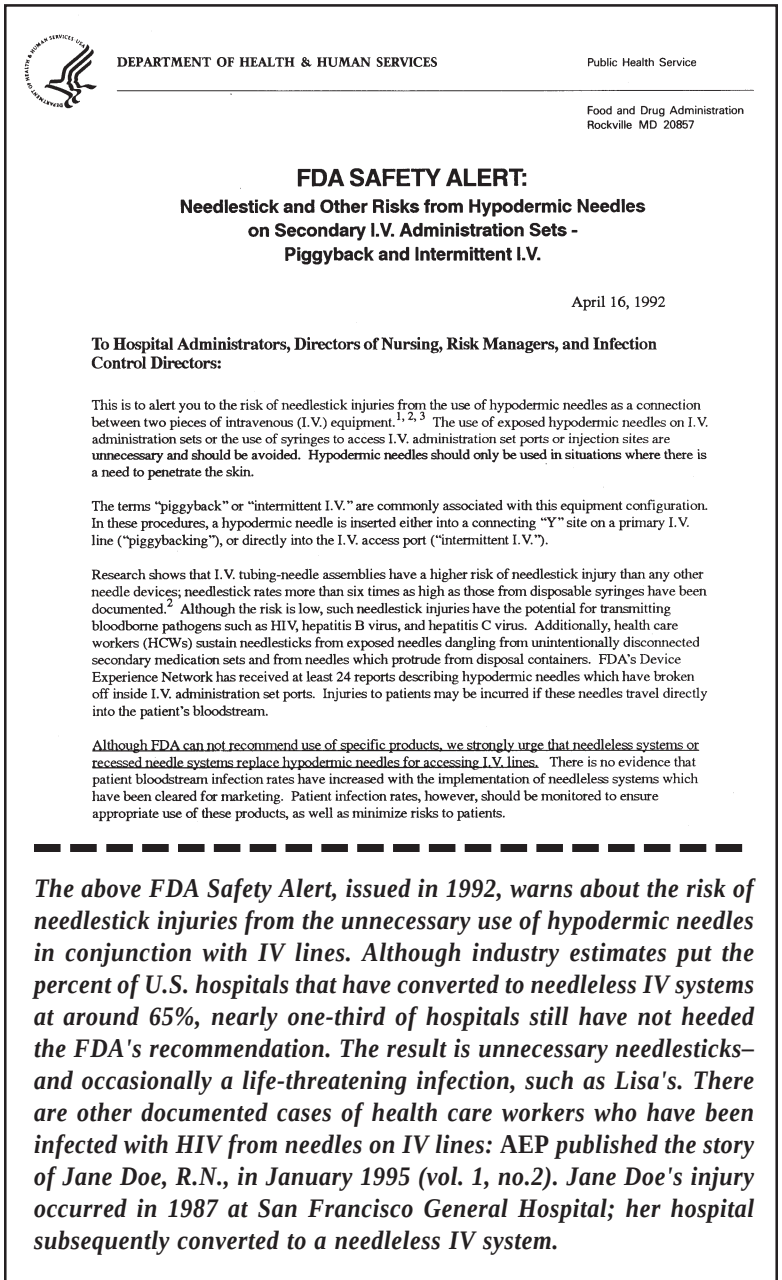
motion which caused the needle that had been inserted through the rubber stopper of his IV line to dislodge and puncture my left palm.

My first reaction was sheer panic, but this soon yielded to robot-like action. The staff of our unit had recently attended an in-service on occupational needlestick injury and post-exposure chemoprophylaxis. Replaying the in-service in my head, I quickly expressed as much blood from the wound as possible and scrubbed it with betadine. By the time I left the patient's room and walked to the nurse's station, I was in tears. I was sent immediately to the emergency department and had blood drawn for baseline tests for HIV, HBV and HCV, which eventually came back negative. I was started on a regimen of AZT, 3TC and Crixivan within two hours of my blood exposure. I was instructed to take some of the pills with food, others on an empty stomach, and continue this regimen around the clock for one month, returning for frequent blood counts to monitor my response to these potentially toxic chemicals. Although the drugs made me ill, I adhered to the regimen faithfully. I thought, "I can stand this for one month, if it prevents me from becoming HIV positive and succumbing to the same illness that's killed many of my patients." As though to reinforce this conviction, I was assigned to care for Mr. Jones again ten nights later, when he finally lost his battle against AIDS and died.



DEPARTMENT OF HEALTH & HUMAN SERVICES — Public Health Service

Food and Drug Administration
Rockville MD 20857

FDA SAFETY ALERT:

Needlestick and Other Risks from Hypodermic Needles on Secondary I.V. Administration Sets - Piggyback and Intermittent I.V.

April 16, 1992

To Hospital Administrators, Directors of Nursing, Risk Managers, and Infection Control Directors:

This is to alert you to the risk of needlestick injuries from the use of hypodermic needles as a connection between two pieces of intravenous (I.V.) equipment.[1, 2, 3] The use of exposed hypodermic needles on I.V. administration sets or the use of syringes to access I.V. administration set ports or injection sites are unnecessary and should be avoided. Hypodermic needles should only be used in situations where there is a need to penetrate the skin.

The terms "piggyback" or "intermittent I.V." are commonly associated with this equipment configuration. In these procedures, a hypodermic needle is inserted either into a connecting "Y" site on a primary I.V. line ("piggybacking"), or directly into the I.V. access port ("intermittent I.V.").

Research shows that I.V. tubing-needle assemblies have a higher risk of needlestick injury than any other needle devices; needlestick rates more than six times as high as those from disposable syringes have been documented.[2] Although the risk is low, such needlestick injuries have the potential for transmitting bloodborne pathogens such as HIV, hepatitis B virus, and hepatitis C virus. Additionally, health care workers (HCWs) sustain needlesticks from exposed needles dangling from unintentionally disconnected secondary medication sets and from needles which protrude from disposal containers. FDA's Device Experience Network has received at least 24 reports describing hypodermic needles which have broken off inside I.V. administration set ports. Injuries to patients may be incurred if these needles travel directly into the patient's bloodstream.

Although FDA can not recommend use of specific products, we strongly urge that needleless systems or recessed needle systems replace hypodermic needles for accessing I.V. lines. There is no evidence that patient bloodstream infection rates have increased with the implementation of needleless systems which have been cleared for marketing. Patient infection rates, however, should be monitored to ensure appropriate use of these products, as well as minimize risks to patients.

The above FDA Safety Alert, issued in 1992, warns about the risk of needlestick injuries from the unnecessary use of hypodermic needles in conjunction with IV lines. Although industry estimates put the percent of U.S. hospitals that have converted to needleless IV systems at around 65%, nearly one-third of hospitals still have not heeded the FDA's recommendation. The result is unnecessary needlesticks–and occasionally a life-threatening infection, such as Lisa's. There are other documented cases of health care workers who have been infected with HIV from needles on IV lines:* AEP *published the story of Jane Doe, R.N., in January 1995 (vol. 1, no.2). Jane Doe's injury occurred in 1987 at San Francisco General Hospital; her hospital subsequently converted to a needleless IV system.

The weeks after my needlestick were among the most tumultuous of my life. I experienced severe fatigue and nausea from the HIV medications, difficulty with tasks that required concentration, and trouble with short-term memory. My hospital provided little support. Eventually I made several on-the-job errors that resulted in my being fired. At the time, I did not attribute my poor memory and difficulty paying attention directly to my needlestick. I could not understand why I was so scatterbrained. Now, in retrospect, it makes sense to me.

I started work at another hospital, but I still felt tired and unable to concentrate. I was often irritable and short-tempered and, in the end, I was let go from that job as well. Being fired from two nursing positions in such a short time devastated me. Prior to this, I had been employed by the same hospital for seven years. I did not understand what was going wrong with my life and my career, but I knew I needed to take some time out to regroup.

During this period, I did not share my needlestick experience with anyone except my immediate family and a few very close friends. I felt scared and alone. I feared judgement from my colleagues in the nursing profession about my competency as a nurse, having been fired from two jobs, to say nothing about being possibly infected with HIV.

While I was taking some time to get myself together, my three-month post-exposure blood work came back negative. I felt like the weight of the world had been lifted from my shoulders. The literature I read indicated that close

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to 90% of seroconversions took place within the first twelve weeks of a blood exposure.

I was offered a position on an oncology unit at yet another hospital, and though I thought frequently of my needlestick, I believed that the period of acute risk was behind me. I was very successful at this new job, made many friends, and discovered a love of oncology nursing.

In June 1998, however, I again started to feel fatigued. I had swollen lymph nodes in my neck and groin and regularly ran low-grade fevers. After two weeks of this, I started to worry that I'd gotten mononucleosis or something of the kind, and made a mental note to see my physician. It did not cross my mind that these symptoms were consistent with acute HIV infection.

On July 9, 1998, I woke up with a very high fever and the most excruciating headache I could ever have imagined. I was admitted to the hospital under airborne isolation precautions with a tentative diagnosis of acute meningitis, which later was ruled a viral meningitis syndrome.

During my stay in the hospital, I was again tested for HIV, and again I tested negative. My lymphadenopathy persisted, however, and my white blood cell and platelet counts remained dangerously low—symptoms my physicians were at a loss to explain.

After I was discharged, I spent many hours researching my symptoms on the Internet and in medical journals. At a follow-up appointment with my physician, I showed him literature outlining the symptoms of early HIV infection, which were ominously consistent with the symptoms I'd been experiencing. He ordered a test for an HIV-RNA by PCR examination, which was done by a molecular biology laboratory in Virginia.

On July 27, 1998, nine months and nine days after my needlestick injury, I learned that I had, indeed, been infected with HIV. Though my ELISA antibody test was still negative for the HIV virus, the PCR test was positive, with a viral load of 250,415 HIV viral particles per milli-liter of blood.

There are no words to adequately describe the horror of the moment when I learned I was HIV positive. Although I could not have asked more of my physician or his staff, their kind words could not change the finality of my diagnosis. It was the beginning of a new journey in my life—one I would never willingly have chosen. In the end, I was sent home with a prescription for Valium and a referral to an infectious diseases specialist.

By October 1998, I was starting to adjust to the fact that I was now one of the statistics—a person with "occupationally acquired HIV infection." I had gotten used to the routine of taking upwards of sixteen pills every day to keep the virus at bay. But there was more bad news ahead. During some follow-up blood work, my liver enzymes were found to be severely elevated. Subsequent testing revealed that I was seropositive for hepatitis C (HCV). The source patient had been tested for HCV at the time of my exposure and was found to be negative. Since I had no risk factors for HIV or HCV other than being a health care worker, the only possible conclusion was that the source patient had been in the seroconversion window period at the time of my needlestick, and that I was simultaneously infected with both pathogens from my injury.

Fortunately, my needlestick was well documented. The exposure was reported to the proper supervisory personnel and the necessary baseline tests were performed. While my experience with worker's compensation has not been without stumbling blocks, the claim for my occupational HIV and HCV infections was accepted and my mounting medical bills are fully covered. I feel fortunate, since many health care workers occupationally infected with HIV have been denied benefits, often because of problems related to inadequate documentation.

I am unable to work at this time due to a deficiency in the number of infection-fighting white blood cells in my body—a side

Lisa Black's Disability Benefits

■ Lisa's annual salary, pre-needlestick	$37,628
■ Her workers' compensation disability benefit, @ 66-2/3% of her previous salary	$24,999
■ Reduced by 25% because she wasn't wearing gloves at the time of her needlestick	- $ 6,250
TOTAL DISABILITY BENEFITS	= $18,749*

*The federal poverty line for a family of three = $13,656

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effect of the bone marrow-suppressing HIV drugs I must take. This deficiency puts me at risk for contracting infections; therefore I must limit my contact with those with communicable diseases. Recently I was hospitalized with a severe systemic infection that led to my being admitted to the intensive care unit for septic shock.

Although I am receiving disability payments, my benefits, which would have been 66-2/3% of my previous salary, have been reduced by 25% because I was not wearing gloves at the time of my injury. *[See box, previous page.]* This was done even though there is no clear indication from the medical literature that wearing latex gloves would have prevented my infection. As a divorced mother with two children, the disability benefit, which comes to $18,749 annually, is barely enough to live on.

I recently started a regimen to treat my HCV infection, which consists of three self-administered injections of interferon per week, as well as oral ribavirin, which brings my daily pill total to 22. Current medical literature indicates a 75% chance that this treatment will result in long-term remission of my hepatitis C. I say "remission" because one is not "cured" of hepatitis C—one can only hope for a long (and possibly permanent) period without clinical signs of the disease. Though I am hopeful that this treatment will be successful, it comes at a price, with its own set of unpleasant side effects. Interferon causes me to have periodic fevers, chills, muscle aches, and further increases my already-high fatigue level. The ribavirin causes severe nausea, as well as changes in my skin tone and hair texture. Again, however, I can live with these side effects for the chance to suppress the progress of this potentially lethal disease.

Telling my family about my infection with HIV and HCV has been the most difficult thing I've had to do. My mother, who is also a nurse, knows all too well the ramifications of my diagnosis. Though she strongly supports me in my ongoing struggle, I cannot imagine the heartache of watching one's child deal with such tragedy. I have yet to fully explain my illness to my own two daughters, ages four and eight. I dread the time when they will realize that I might not be there to share the moments when they graduate from high school, get married, and have children of their own. I would give anything to be present at those times in their lives when my own mother was so important in mine.

On the other hand, with all of the research and advances in treating HIV, I may very well may be alive and well when my children are grown. I have to accept, however, that there are no guarantees, and I must make plans for a time when I may not be part of my children's lives.

This brings me to the reason I am telling my story. I cannot turn back the clock and undo the events of October 18, 1997. Nothing will give me back my life as it was before HIV and HCV were a part of it. But I would like my experience to be used to prevent similar tragedies from happening to other health care workers, and to educate hospital administrators and the general public about the real dangers of occupational blood exposures.

Although I certainly have questioned the meaning of all of this pain and turmoil in my life, I am not bitter. I believe that all things happen for a reason and that God will not hand us more than we are able to endure.

Dealing with illness and being forced to face my own mortality has given me a completely new perspective on life. I no longer take for granted the time I enjoy with my children, family and friends. I have discovered that this life I have been given is a precious gift. I strive to live better and to love better every day. ❐