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A Needlestick in the ER

A patient turned aggressive—and Vanessa Burkhart was infected with HCV

By Jane Perry, M.A.



IN 1999, Vanessa Burkhart was a 39-year-old emergency nurse who was supremely confident in her clinical skills. She had worked in a variety of settings during her thirteen

years as a nurse—including medical/surgical, orthopedics and home health—but emergency nursing had always been her passion. It was, she says, “all I ever wanted to do.” In nursing school, when she had to choose two areas for her clinical training, she wrote down “ER and ER.” She loved the excitement and challenge of having to think quickly on her feet, the constant opportunities to expand her clinical knowledge and skills, the adrenline rush of trauma situations. Emergency nursing was the perfect fit for her: it demanded assertiveness, self-assurance—someone who was driven. Vanessa was all three.

Vanessa grew up in Arkansas and earned an associate’s degree in nursing from Arkansas State University in 1986. She had a natural toughness and resiliency that had already seen her through some major crises—including her 21-year-old

daughter’s automobile accident four years earlier that had left her with brain damage and in need of care. Vanessa also had a 17-year-old son who was a senior in high school, and she had remarried during the previous year.

She had worked in the emergency departments (EDs) of several health care facilities. One was Barnes-Jewish in St. Louis, a top-rated hospital and a teaching facility for Washington University School of Medicine. With her breadth and depth of experience, she thought she had seen just about everything in the ED.

In 1995, wanting to be closer to home and family, she accepted a position in the ED of a small-town hospital in rural southeast Missouri, near the Missouri-Arkansas border. The hospital had a mental health unit and thus saw a higher-than-average number of patients with depression and suicidal tendencies; there was also a high incidence of drug use in the local population.

On the evening of December 17, 1999, Vanessa was working as a charge nurse on the night shift. About 11:30 p.m., the police brought in a woman who had attempted suicide by taking an overdose of pills, which she washed down with alcohol. “We called such patients ‘pseudo-suicidal,’” Vanessa recalls. “Right before they take the pills, they call 911.” Vanessa took charge of her.

The patient seemed fairly cooperative; close at hand was another nurse as well as the two policemen who brought her in.

Vanessa explains what happened next: “I started an I.V. in the patient’s left forearm using an 18-gauge catheter needle; it wasn’t a safety design. With this type, you had to pull the needle out a little from the catheter after insertion to visualize blood return. As I did that, the patient suddenly tried to hit me with her right fist. Letting go of the needle, I blocked her—that becomes a reflex when you work in the ER. In the scuffle, the needle came all the way out of the catheter. The patient then hit the holding end of the needle, pushing it towards my right hand, which was on the stretcher supporting my weight as I leaned over to grab her with my left hand.”

“She immediately calmed; I let go of her arm and moved to pick up the needle on the side of the stretcher. The catheter was still positioned in her arm with blood dripping out of it. We reached for the needle at the same time; I thought she was trying to be helpful. I told her to leave it there or one of us might get stuck. She didn’t pick it up—instead, she used the base of her hand to jam it into my finger. It went through the medial side of my right third finger; when I felt the initial prick of the needle, I must have moved just enough to rotate my fin-

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ger, allowing the needle to pass through the joint complex. It came out the lateral side about 3 cm.”

“It didn’t dawn on me how badly it hurt until I looked down and saw the needle sticking through my finger—it felt like a railroad spike had gone through it. I finally managed to dislodge it; meanwhile, blood was still dripping from the catheter in the patient’s arm. Because she was so inebriated, she bled more easily. But she had calmed down again and was alert enough to put her finger over the catheter end to stop the bleeding, because she didn’t want to get stuck for another I.V.”

Agitated patients who try to attack health care personnel are not uncommon in the ED—although they don’t usually use needles as weapons. But what happened next was totally outside Vanessa’s realm of experience. As the patient sat calmly twirling her hair, she said, “You’re going to have to get your blood tested, because I have hepatitis. I might have HIV, too—I’ve been living on the streets for a while.” Vanessa was both flabbergasted and furious. “One of my first thoughts was, I could be dead in five years. Of course, I wanted to have her tested immediately, but we had to get her permission. The patient refused at first, but after a few other members of the ER staff talked with her, she finally said yes.” (One week later, Vanessa learned that the patient was indeed positive for hepatitis C, but negative for HIV.)

After the needlestick, Vanessa called her supervisor and filled out an exposure report. Three days later, the infection control/employee health nurse was notified. Baseline tests were not performed immediately after the incident. Five weeks prior to the needlestick, Vanessa had been scratched by a suicidal patient’s pierced earring; she was tested at that time for HIV, hepatitis

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B virus and hepatitis C virus (HCV), and found negative. Her caregivers did not think retesting was necessary. However, her workers’ compensation-appointed physician changed course, and her blood was drawn for baseline tests on January 2, 2000. HCV and HIV antibody tests by enzyme immunoassay were performed, along with an alanine aminotransferase (ALT) test for liver enzyme levels. She was notified three days later that her baseline tests for both HIV and HCV were negative; her ALT levels, however, were elevated.

Although the patient tested negative for HIV, Vanessa was encouraged to have follow-up HIV tests in case the patient was in a window period of infection. Her first follow-up test was performed at 15 weeks, and was negative. Her blood was drawn for a second test in May 2002, and she is currently awaiting the results.

Vanessa was carefully monitored and received excellent post-exposure care; however, she wishes she had had the opportunity to take interferon and ribavirin prophylactically, immediately after her exposure, even though this is not recommended by the CDC. “I would have done it in a heartbeat,” she says, “especially given the level of risk involved in my exposure.”

Vanessa was seen by the workers’ compensation physician soon after her exposure. He was not concerned about her elevated ALT levels, since she had been taking therapeutic doses of ibuprofen for arthritis, which could potentially affect

her liver enzymes. He instructed her to discontinue the ibuprofen and her daily allergy medicine; however, her ALT levels continued to rise.

By mid-March, her liver enzymes were twice the normal level, and Vanessa began to realize that she might be infected. She insisted on being seen by a hepatologist; her physician arranged an appointment at Barnes, but it was three weeks away.

On April 3, at 15 weeks post-exposure, Vanessa had blood drawn for a qualitative HCV RNA test by PCR. Three days later, on April 6, 2000, she received the news that her HCV test was positive. “The infection control nurse was very distraught about having to give me the news. She was also afraid one of the lab personnel might say something to me before she had a chance. It’s such a small hospital and small town. She took me aside in an ER exam room and showed me the piece of paper with the test results. At first I didn’t understand—I thought she was showing me results from the source patient. I already knew *she* had hepatitis. But the nurse said, ‘Vanessa, you’re not paying attention. It’s *you*.’”

Vanessa was surprised at how emotional she became. “As my liver enzymes had shot up over the previous months, the clinician in me recognized that infection was a real possibility. But another part of me refused to believe it. Besides, the statistics were on my side: According to the CDC, I had less than a 2% chance of seroconverting. But I have learned that I should never play the

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odds.”

After Vanessa got the news, her co-workers were very supportive. “There were offers to drive me home and to stay with me until my husband got home from work, but what I needed more than anything was to be alone. I had to find a way to tell my husband. I had to tell him not just that I had a life-threatening disease, but that he, too, was potentially in danger of being infected.”

Vanessa went on leave in mid-April. She was having joint pain and swelling and some problems with memory loss, although she did not have jaundice.

After she learned she had seroconverted, she had a liver biopsy. The results were positive for HCV but did not show signs of liver damage. Labwork was also performed to determine her HCV genotype, but it was inconclusive.

Vanessa started combination therapy with interferon and ribavirin on May 8, 2000, 20 weeks after her exposure, and underwent treatment for one year. During the first three months of therapy, she experienced severe nausea, fever, and myalgia; her hair, which had been down to her waist, began to thin and she had to cut it short. She suffered from malaise and depression, common side effects of interferon. She was able to do very little during this period; she could hardly care for herself, much less her husband, son and daughter. “There were days I felt like I was going to die; it was like the worst case of flu you ever had, only it went on for a year. If I crawled out of bed, it was just to crawl over to the couch.” The treatment, she notes, felt worse than the disease: “For every ribavirin pill or shot of interferon I took, I had to take two more pills of something else to counteract the side effects.”

Although the combination treatment was physically grueling, an

HCV RNA quantitative test (PCR) performed in November 2000, 6-1/2 months after the start of therapy, indicated that her viral load was less than 1,000 viral particles per ml of blood, an “undetectable” level. Her most recent test, in December 2001, showed that she continued to have undetectable levels of HCV (a “sustained response”), and she is no longer considered a transmission risk. This result was, of course, a tremendous relief to Vanessa—especially since she had already decided that if her viral load was over

situations. I could no longer rely on my ability to do that in all circumstances.” She also wasn’t sure she could be a very compassionate caregiver for patients who were drug or alcohol abusers, especially ones who became aggressive; she still felt a lot of anger towards the patient who had attacked her. So when Vanessa came back to work, she had a new position at the hospital: clinical nurse educator.

The transition from ED nurse to nurse educator was difficult at times. Vanessa especially remembers the

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1,000, she would not undergo another course of combination therapy. “The treatment destroyed my thyroid; I will have to take thyroid medication for the rest of my life. I just didn’t feel I could cope with another year of those side effects.”

In October 2000, 10 months after her needlestick and while still undergoing combination therapy, Vanessa returned to work. However, during her leave of absence she had come to a heart-wrenching conclusion: she would have to give up her career as an emergency nurse. “It was one of the hardest decisions I ever had to make. Being an ER nurse was a huge part of who I was. Until my needlestick, I didn’t imagine doing anything else.” But she no longer felt she could perform at her highest level. The work was physically demanding, and she suffered from severe fatigue at times. And she continued to experience memory problems. “ER nursing requires the ability to think quickly on your feet and react instinctively in life and death

day a co-worker said to her, “When are you going to go back to being a *real* nurse?” However, while it wasn’t the career she envisioned for herself, Vanessa found that she enjoyed her new role. Over the last year and a half, her responsibilities have included all nursing education, skills and competency checks, and providing in-services on new procedures or techniques. She does not provide any patient care or do patient education.

“My passion, of course, is teaching others how to protect themselves from needlesticks and blood exposures, and creating a safer work environment,” Vanessa says. “If I had been using a safety I.V. catheter, my needlestick and HCV infection would have been prevented. After my stick, my hospital completely converted over to safety devices. When we are doing training on a new device, I will sometimes literally drag people away from work to come to the training. I make sure they understand that this is important, that

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it has to be a priority. And I'm not afraid to use my own story to help educate others in the hospital. I tell them, 'Remember me? I use to work in the ER, and now I'm here to tell you why you *are* going to use safety I.V. catheters. You're going to use them because you do not want to end up like me. You do not want to live with a life-threatening disease.'

Her hospital administration has been very supportive: she has a flexible schedule and is able to leave work if she is too fatigued to put in a full day. She can also work from home. In addition, she has not had to fight for workers' compensation. Until recently, she was able to get all the medical treatment she needed. However, the workers' comp provider has refused to pay for her thyroid medication.

After Vanessa completed her combination therapy in May 2000, she accepted a position as the hospital's coordinator of clinical education. The competency checks she performs, and the education she does on compliance with standards set by the Joint Commission for Accreditation of Healthcare Organizations (JCAHO) are, she believes, of utmost importance for health care facilities today—yet she also finds the work frustrating at times. "Because nurses are already stretched to the maximum, it is difficult for them to find time to attend educational sessions and mandatory in-services or skills fairs. For them, it means either staying late, coming in early, or coming in on your day off. It can be hard to get their attention."

Vanessa is doing educational work on a larger scale, too: she has started speaking at national conferences about her needlestick and subsequent HCV infection. "It makes me feel good to use this terrible experience to help others. When I share my story, it brings home to my audi-

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ence the reality of the risk we face as nurses in a way no amount of statistics or data can."

"I really try to shake them up, help them understand that safety has to be a high priority for all of us. We must change our attitudes. Safety devices are not an annoyance devised by employee health or infection control people; they are our first line of defense."

When Vanessa is asked about risks in the ED, she focuses on mindset. "When you get too good at your job, you can get complacent. And ER nurses are usually very good at what they do. We like being specialty nurses; we like the sense of control that gives us. But sometimes we can get an attitude—OK, here's my first overdose for the night, where's my second and third? When I worked in the ER, we had the yearly bloodborne pathogens update, and I recognized the risk, but I think we all tend to have the attitude, 'It won't happen to me.'"

Living with HCV has changed Vanessa's life in a number of ways, both small and large. "We observe strict precautions at home. We cover our toothbrushes, and I change them every 30 days. We never share combs or brushes, and my daughter would never dream of borrowing a pair of my pierced earrings. I probably go overboard, but I don't want to take any chances." On a deeper level, she finds her attitude towards

life has changed dramatically: "The fear of liver cancer, liver failure—a variety of potential ills related to the hepatitis—is always with you. You do learn to live with it to some extent, but it changes your perspective. Many things that I took for granted before, I don't take for granted now. Before my needlestick and seroconversion, my all-consuming thought was making enough money to provide for my daughter in case something happened to me—I worked constantly. But now that something *has* happened to me, I have been forced to slow down; I have a more relaxed attitude. My priorities are different. I treasure the time I have with my daughter, with my son who is in college, and with my husband who has stood by me throughout this ordeal. And even though I talk to my mother, who I am very close to, almost every day on the phone, I make sure I see her at least once a week."

But she will always miss emergency nursing. "I can't begin to explain the feeling of a clinical save. They were the driving force behind my commitment to the ER. I remember each and every one of the patients whose lives I helped save in all the years I worked in ERs. Would I still be working as an ER nurse if I hadn't had that needlestick? In a heartbeat, without a doubt, without hesitation—yes." □