



Medical waste incineration is poisoning communities

By Susan Forsyth, RN

Even as registered nurses work to protect their patients from harm, they often discard wastes that, when incinerated, release a deadly chemical that causes a myriad of disorders . . . sicknesses that nurses work so diligently to treat. The chemical is dioxin.

The hazards of dioxin were exposed in 1994 when the United States Environmental Protection Agency (EPA) issued a critical report on the substance. The EPA makes no bones about the chemical's potency, saying that dioxin, a known carcinogen, is the most deadly substance known to humankind. Unfortunately, medical waste incinerators have been identified as one of the largest sources of dioxin air pollution.

Nurses may be more familiar with dioxin as the active ingredient in Agent Orange, the defoliant widely sprayed over Vietnam during the war. To this day, Vietnam veterans exposed to Agent Orange face an increased risk of many cancers and other endocrine and immune disorders.

And in the States, many will remember the 1982 environmental disaster when dioxin-contaminated oil was sprayed on the streets of Times Beach, Mo., to control dust. The town of 2,000 residents had to be evacuated and all of the houses and businesses were demolished.

(Read how communities are fighting back against Incinerators)

Yet this deadly poison continues to be created through medical waste incineration. Unlike most household trash, hospital waste contains a large amount of polyvinyl chloride (PVC) plastic. Commonly used PVC items in hospitals include IV bags, IV tubing, blood bags, endotracheal tubes, office supplies, mattress covers and oxygen tents. (Anyone involved in home remodeling or building has come across PVC plastic, as it is frequently used in houses for water pipes.)

But when PVC plastic is incinerated as a medical waste disposal method, dioxin is created as an unintended byproduct. Although dioxin is also created throughout the life cycle of chlorinated plastic, the EPA currently cites medical waste incinerators as the third largest source of dioxin production.

Nurses generate a lot of garbage during their normal workday. Almost every activity a nurse performs, from inserting a Foley to starting an IV, creates a substantial amount of trash. As the job complexity, workload and the use of disposables have increased, so has the amount of garbage coming from a hospital. Since 1955, the amount of medical waste generated per hospital patient has more than doubled. Generally, only 10 percent to 15 percent of hospital waste is classified as "infectious." Infectious waste is "red bagged" and requires special treatment to protect the health of the community.

Yet, even that waste does not need to be incinerated. According to the Centers for Disease Control, no

more than 2 percent of a typical hospital's waste stream must be incinerated to protect public safety. That 2 percent is mainly pathological waste, such as body parts. Yet, many hospitals routinely burn 75 to 100 percent of their waste, which creates this toxin.

Dioxin belongs to a family of 419 chemicals with related properties and toxicity, but the term "dioxin" is often used to refer to the 29 that have similar toxicity. Dioxin is created when industrial products containing chlorine are manufactured or burned. The most toxic form of dioxin is 2,3,7,8, tetrachlorodibenzo-p-dioxin or TCDD. This is the form of dioxin used in Agent Orange and sprayed in Times Beach. Dioxin is a known human carcinogen, according to the International Agency for Research on Cancer (IARC) and the EPA.

In addition to being carcinogenic, dioxin disrupts the way human hormones and chromosomes work. Because of its endocrine-disrupting qualities, dioxin also causes a host of other illnesses and problems, including reproductive, neurotoxic, immune system, other hormonal and developmental effects. (To See list of effects, [Click Here](#))

Poisoned Food Chain

This deadly chemical is omni- present in our environment and reaches to all corners of the globe. Dioxin is transported by water and atmospherically. Because of its ability to travel, dioxin can enter the food chain far from its point of origin, although the higher levels of contamination are usually found closer to the source of production. When PVC plastic is incinerated, dioxin is emitted from smokestack and also remains in the ash. Both end up deposited on the ground.

Dioxin is lipophilic and bioaccumulative. Dioxin is first absorbed into plants, animals then eat the plants and we eat the animals, with the dioxin levels becoming ever greater as the poison moves up the food chain. Common human dietary sources of dioxin, which account for 90 percent of human exposure, include meat, dairy products, eggs and fish.

At the top of food chain is the nursing infant. Because of the high fat content of breast milk, nursing infants are exposed to about 50 times the average adult dose and may receive more than 10 percent of their lifetime exposure during the nursing period. Although dioxin is found in breast milk worldwide, the concentration is highest in women living in industrialized countries and Vietnam.

Dioxin is toxic in smaller doses than any other chemical known to science. It is measured in parts per trillion and smaller. Because of its ability to travel so easily, all human beings alive today carry a body burden of dioxin.

According to a recently released report by the EPA, the risk from acquiring a dioxin-related cancer is greater than previous thought for the general population, although it is higher for people who practice certain dietary habits. The EPA drew a glum conclusion: No matter what kind of diet people adhere to, their risk for developing cancer from dioxin exposure is about one in 1,000. For people who eat a very high-fat diet, that risk can rise to as high as 1 in 100.

EPA Director Carol Browner suggested that the solution to this problem is to advise people eat less meat. Although this may make good dietary sense, this is not the solution.

Cleaning House

Nurses, as patient advocates, can play a vital role in removing this toxic and unnecessary chemical from both food and the environment.

"The waste we throw away should not end up poisoning our patients," says Charlotte Brody, RN. Brody is an organizer with the Health Care Without Harm (HCWH) campaign, an international activist coalition that includes many nurses and their organizations built through the Virginia-based Center for Health, Environment and Justice.

An important area is purchasing. If hospitals do not purchase chlorinated plastic products, they cannot be

thrown away. Easily replaced items include patient identification bracelets and cards, IV bags, compression stockings and fluid collection devices.

"The hospital industry does not need to use chlorinated plastic products. Safer alternatives exist for almost all uses of PVC plastic," states Brody. For example, IV containers made of non-chlorinated plastics such as polyethylene or other polyolefins are currently available. According to Brody, these plastics do not produce dioxin when burned or manufactured. Also, rigid PVC products often have alternatives made of metal or non-chlorinated plastic such as polypropylene and polycarbonate.

Brody believes that by virtue of their work settings, nurses are well positioned to have a major impact on decreasing the amount of dioxin released into the environment. Nurses use most of the chlorinated plastic products that hospitals purchase, and nurses are responsible for making waste disposal choices when throwing the products away.

Within Health Care Without Harm, nurses have worked hand-in-hand with other coalition members to encourage and in some cases force, hospitals to change their procurement and disposal practices.

According to Ann Melamed, RN, project coordinator for HCWH at the Center for Environmental Health in Oakland, Calif., nurses can start educating their co-workers and communities about the environmental and public health dangers of medical incineration. "Also, nurses should begin to exert their influence to include environmental issues on the agenda when making purchasing decisions and doing product evaluations.

"Dioxin is not a necessary by-product of health care," says Brody. "Hospitals can use non-PVC medical products and choose alternative waste treatment methods to provide quality, cost-effective care for their patients."

Alternative treatment methods to medical waste incineration exist. They include autoclaving, microwaving, electrothermal-deactivation, gasification or thermal treatment. Each treatment method considered would have to be carefully evaluated to assure that it was appropriate and meets the health and safety needs of the workers and the community. Nurses, as patient advocates, have a duty to alert their communities to the hazards of medical waste incineration.

In addition, Melamed believes nurses are in the position to make conscious, careful choices about their waste disposal practices. According to Melamed, nurses need to continue to red bag infectious and pathological waste, but trash that has a low probability of causing disease should be clear bagged. Nurses can have an impact on the amount of dioxin released into the environment simply by insisting that clear bags are easily accessible to the staff and the staff is educated on proper disposal techniques.

In a truly "green" move, some hospitals also have implemented active recycling, reuse and red-bag reduction programs. And hospitals that have actively implemented these programs have actually saved money. A case in point: Beth Israel Medical Center in New York City has found that a combination of employee education, monitoring of the waste stream and strategic placement of red-bag waste containers has cut the facility's regulated medical waste disposal costs by 60 percent. Not only is pollution prevention the right thing to do environmentally, but it is often the cheaper thing to do.

Right now, more than 200 member groups in Health Care Without Harm's coalition have endorsed its principles of working to "transform the health care industry so it is no longer a source of environmental harm by eliminating pollution in health care practices without compromising safety or care." The HCWH coalition is actively assisting nurses and other community groups to work toward this goal.

For more information on how to advocate for patient safety in this manner, see HCWH's website: <http://www.noharm.org> , or contact Ann Melamed, RN, at the Center for Environmental Health at 510-594-9864, or call Susan Forsyth, RN, at the California Nurses Association at 510-273-2258.