

Japanese-U.S. Collaborative Program: Sharing Data, Learning Lessons

By Janine Jagger, M.P.H., Ph.D., Ginger Parker, M.B.A., and Jane Perry, M.A.

THERE IS A QUIET REVOLUTION TAKING place in Japan, well outside of the public limelight, that is slowly but surely affecting the everyday working conditions of Japanese health care workers. It began in 1994 with Dr. Kiyoshi Kidouchi, a pediatrician working at Nagoya Municipal Hospital. He was concerned about exposures to hepatitis C among health care personnel in his hospital, but realized there was no system in place to document and track these exposures. Japan's regulatory structures are very different from those in the U.S., and there is no equivalent of the Bloodborne Pathogens standard or an agency like the Occupational Safety and Health Administration.

In response to this need, Dr. Kidouchi translated the EPINet surveillance system into Japanese and instituted sharps injury surveillance in his hospital. The work that he launched in one hospital quickly gained national recognition. Shortly thereafter, the Ministry of Health and Welfare of Japan provided a grant-in-aid to principal investigator Satoshi Kimura, M.D., Ph.D., Professor of Infection Control and Internal Medicine at the University of Tokyo Graduate School of Medicine. The government grant supported a project

team that collected three years of Japanese EPINet data from more than 300 designated HIV treatment hospitals, with data analysis provided by Dr. Kidouchi. Dr. Kimura and Dr. Kidouchi are also key members in the recently formed Research Group for

Dr. Kimura and Dr. Janine Jagger of the U.Va. Center, and is funded jointly by Terumo Corporation, BD, Johnson & Johnson Medical, and Kimberly Clark.

For four weeks during March and April, 2001, three Japanese infection

control fellows (Yaoko Takano, R.N., M.S.N., of Keio University Hospital, Aiko Ko, R.N., M.S.N., of the Japanese Nursing Association, and Satoru Itoyama, M.D., of the University of Tokyo School of Medicine) and three representatives from the sponsoring companies (Yumiko Hosomi, R.N., of BD, Mari Tomimoto of Johnson & Johnson, and Yoshiro Taniguchi of Terumo) participated in a program at the Center to compile and analyze the Japanese EPINet

data. They took an intensive one-week course in infection control at the University of Virginia Medical Center and also attended clinical rounds with U.Va. infection control professionals and observed infection control practices in a variety of clinical settings.

The expertise they gained will be put to use in further developing in-

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(l-r): Ms. Aiko Ko, Ms. Yaoko Takano, Dr. Satoru Itoyama, Mr. Yoshiro Taniguchi, Ms. Yumiko Hosomi, Ms. Mari Tomimoto (turned around), at the University of Virginia

Occupational Infection Control and Prevention (RGOICP), an industry-supported group.

Communications with the Japanese researchers eventually led to a three-year joint project with the International Health Care Worker Safety Center at the University of Virginia. The "Japan/U.S. Collaborative Program on Occupational Infection Control and Prevention" is co-chaired by

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fection control and exposure prevention policies in Japan. The Japanese data will also help broaden understanding of comparative risks of health care workers in countries around the world. In collaboration with Center personnel, the fellows were able to make some revealing comparisons between the Japanese and U.S. EPINet data.

It was found that the average sharps injury rate per 100 occupied hospital beds was far higher in the U.S. than in Japan (figure 1). Differences in underreporting rates of sharps injuries may account for some of this difference, but not all.

It is possible that the number of procedures performed per occupied hospital bed per day might be related to institutional injury rates. The average length of hospital stay in the U.S. and Japan provides some support for that hypothesis. Although shorter hospital stays are the trend in both countries, the U.S. has much shorter stays than Japan. During 1996-98, the average length of stay in the U.S. was less than seven days, while in Japan it was more than 20 days. The delivery of health care in the U.S. is extremely intensive, and patients are sometimes discharged still connected to pumps, drains, and I.V. lines. U.S. health care workers have to perform more procedures in less time than in countries with longer average hospital stays. In Japan, hospitalized patients may have no procedures performed on them for some days, whereas this would be rare in the U.S. This suggests that because Japanese health care workers carry out fewer procedures per patient per day, their injury rates per bed per year are consequently lower.

In Japan, a higher proportion of injuries are caused by butterfly needles, in relation to overall number of injuries, than in the U.S.: 22% compared to 7% (figures 2 and 3).

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Figure 1

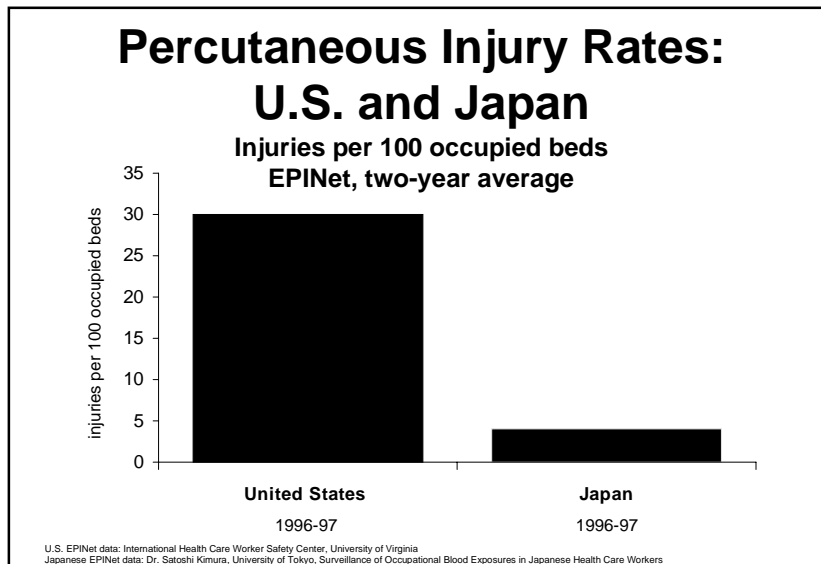


Figure 2

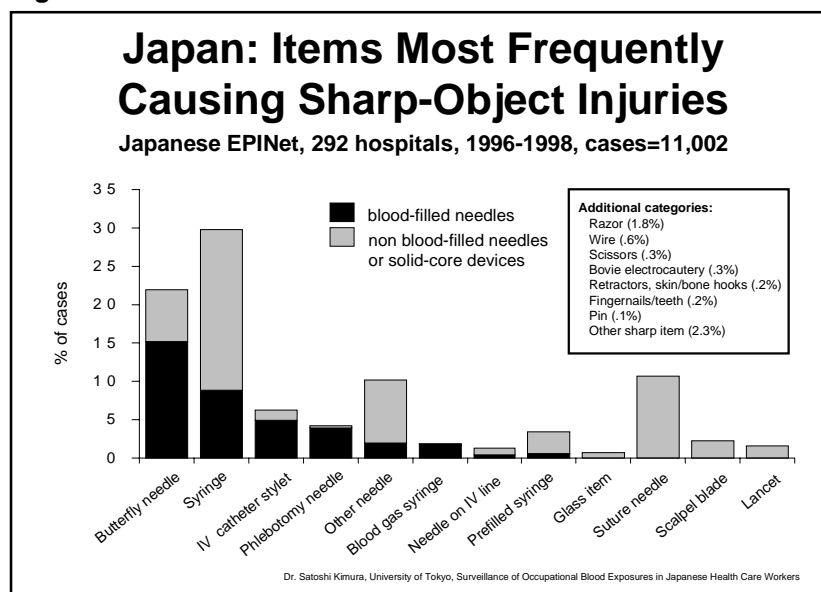


Figure 3

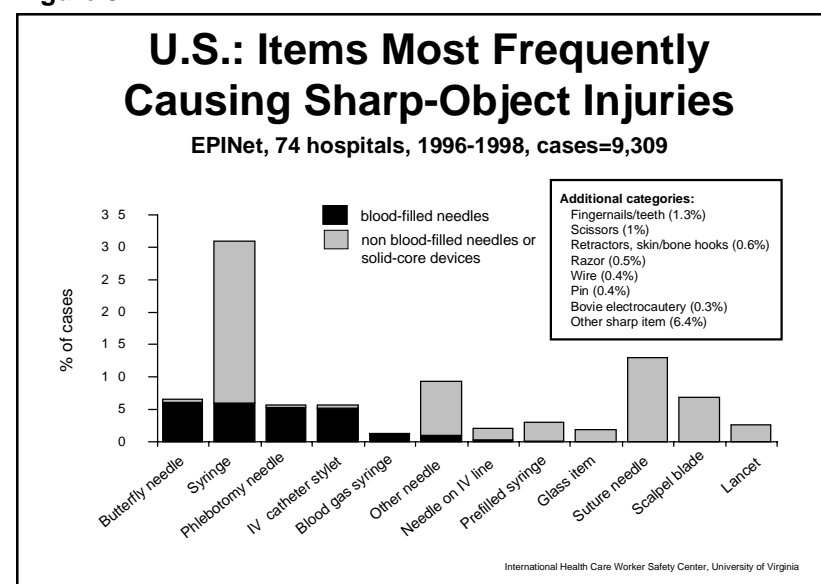
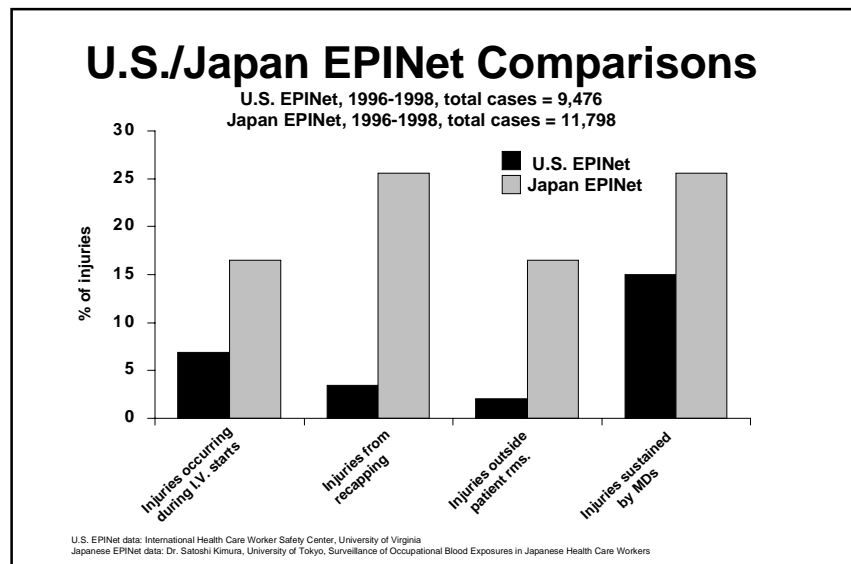


Figure 4



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This is because butterfly needles are used much more frequently for blood drawing and I.V. infusion in Japan than in the U.S.

In the U.S., 6.9% of injuries occur while starting an I.V. or setting up a heparin lock, compared to 16.5% in Japan (**figure 4**). This difference could be due in part to the higher level of safety I.V. catheter use in the U.S.; it could also be due to differences in practice. Physicians more frequently start I.V. lines in Japan than in the U.S., and then hand off the stylet to a nurse or other assistant, with some injuries occurring during passing. This is reflected in the Japanese I.V. catheter data: in a large proportion of cases, the injured health care worker was not the original user of the device.

Recapping is another area of significant difference. In the U.S., 3.4% of injuries occur while recapping; in Japan, 25.6%. The contrast is partly explained by the implementation in the U.S. of the Bloodborne Pathogens standard in 1991, which prohibited the practice of recapping in most cases. But it is also indicative of another difference between U.S. and Japanese health care facilities: the placement of disposal con-

tainers. In Japanese hospitals, sharps disposal containers are placed at a central location, such as nurses' stations, not in patient rooms; thus, health care workers often must carry used sharps some distance in order to dispose of them. In an effort to protect themselves, they sometimes recap the needles. This is similar to the situation in the U.S. before the Bloodborne Pathogens standard called for point-of-use sharps disposal containers.

In Japanese hospitals, 16.5% of injuries occur outside of patient rooms, compared to 2% in the U.S.; some of the injuries to Japanese health care workers occur while they are carrying used sharps to containers located at a distance. Such statistics can be used to support recommendations for placement of disposal containers closer to point-of-use.

Percutaneous injuries to physicians account for 25.6% of total injuries in the Japanese data, and for 13% in the U.S. data. The higher proportion of injuries in Japan in this category might be related to the fact that Japanese physicians perform more needle-based procedures, such as starting I.V. lines, than U.S. physicians. However, it could also be a reporting phenomenon: Japanese physicians may be more cooperative

in reporting their injuries than those in the U.S.

One other interesting finding was a higher fraction of foot injuries caused by I.V. catheter stylets in the Japanese data compared to the U.S. data. This phenomenon may be explained by several factors. In Japan, the practice of physicians handing off I.V. stylets to nurses after completing the procedure increases the risk of the device being dropped; in addition, because I.V. catheters are relatively heavy compared to other devices, they are more likely to pierce footwear. Also, it is the cultural practice of Japanese health care workers to wear slippers inside the hospital as opposed to hard "outdoor" footwear. This extra measure of footwear hygiene may make the feet more vulnerable to injury when sharp instruments are dropped on them.

The pioneers of the Research Group for Occupational Infection Control and Prevention in Japan are taking a "power in numbers" approach and using their EPINet data to develop appropriately targeted prevention programs. They are educating their peers on the new findings through publications and presentations, and encouraging the introduction of safety-engineered sharps devices. In turn, medical device manufacturers are responding to this new opportunity and need. With the exception of the U.S., more safety technology is available on the medical device market in Japan than in any other country. (In many countries, safety-engineered medical devices are not offered for sale because manufacturers perceive little or no demand for them. This means that many health care workers outside the U.S. have never even seen a safety device.)

The advocates of health care worker safety in Japan have made impressive strides in surveillance. Their challenge now is getting the new safety technology and protective measures into the health care workplace. □