

## Putting the “cold back into the chain”: Strengthening capacity in vaccine management through training of physicians

**T**he use of appropriate equipment and proper adherence to vaccine storage, inventory management, handling, and transport practices are vital to ensuring optimal potency of vaccines.

In June 2004, following concerns about vaccine wastage, a biologicals management focus session led by the British Columbia Centre for Disease Control (BCCDC) identified that improving vaccine inventory management could decrease vaccine wastage.

### **BCCDC funded a pilot project to develop, implement, and evaluate an intervention to improve physician vaccine inventory management in order to decrease vaccine wastage.**

A literature review indicated that vaccine storage, handling, and transport was inadequately dealt with and required improvement on the part of the provider.<sup>1-9</sup> Therefore, BCCDC funded a pilot project to develop, implement, and evaluate an intervention to improve physician vaccine inventory management in order to decrease vaccine wastage.

In November 2004, physician offices in Vancouver Coastal Health and

Fraser Health Authorities (health authorities with the highest physician delivery of immunization) received an anonymous, self-administered questionnaire to assess knowledge, attitudes, and practices regarding vaccine management.

Of the 784 questionnaires distributed, 183 were returned and 170 analyzed. Some key findings were that 112 (66%) respondents were aware of the BCCDC *Management of Biologicals Guidelines*,<sup>10</sup> 103 (61%) had a

are vast differences in vaccine management practices and opportunities for improvement exist.

Twenty-four physician offices in Vancouver, Fraser North and South, and the North Shore were recruited for the intervention, which included a site visit conducted by a public health nurse (PHN) between 19 January and 10 March 2005. The site visit included a standardized interview to assess knowledge, attitudes, and practices of the person responsible for vaccine management in the office. The vaccine refrigerator was inspected and monitored using a Taylor 1424 digital min/max thermometer. Equipment for vaccine transport (hard-sided insulated coolers, ice packs, and min/max thermometers) and educational materials were distributed to each office.

Pilot office personnel were asked to follow the BCCDC Management of Biologicals Guidelines, which included the following:

- Establish a designate/back-up person responsible for vaccine management.
- Establish an emergency plan in case of fridge malfunction/power failure.
- Monitor and log refrigerator temperatures twice daily.
- Follow appropriate procedures if the temperature is outside the +2°C to +8°C range.
- Use the equipment provided for the pick up/return of vaccines.
- Keep a log of vaccines administered.
- Organize vaccines using plastic baskets.
- Place short-dated product in front of longer-dated product.

Twenty-two of the 24 sites completed the follow-up telephone inter-

min/max fridge thermometer, 21 (12%) performed twice-daily monitoring, 52 (30%) discarded expired vaccine in the garbage/sharps container, and 39 (23%) self-rated their knowledge on vaccine storage and handling as “excellent.”

The low response rate (24%) to the questionnaire limits our ability to generalize the results to all physicians’ offices in the province. However, it supports existing literature that there

view 5 weeks post-visit. Results were compared to the initial visit assessment to determine improvement.

All pilot offices displayed a positive response to the site visit and training. Further suggestions for delivering the information included fax, e-mail, in-service, bag-stuffers, and newsletters.

The self-reported knowledge level and vaccine management practices in the offices showed significant improvement in understanding and compliance. Nineteen (86%) established emergency procedures for power outage/fridge malfunction, 18 (82%) used the equipment provided to pick up vaccines from their local public health office/centre and 22 (91%) reported twice-daily temperature logging. Temperature logs faxed back were compatible with the self-reported temperatures with the exception of two offices where excursions below +2°C occurred and resulted in wasted vaccine. Although only a modest reduction in the storing of non-medicinal items (e.g., food, beverages, and lab specimens) occurred, efforts were made to limit/coordinate the number of refrigerator door openings throughout the day.

To date, hard-sided insulated coolers, ice packs, min/max thermometers, educational materials, and temperature logs have been distributed to physician offices within BC. In addition, the author of the Medical Office

Assistant (MOA) handbook was forwarded the BCCDC *Management of Biologicals Guidelines*<sup>10</sup> to incorporate into the MOA curriculum. It was also recommended that health authorities establish a physician liaison (e.g., PHN) to support physician offices when questions regarding vaccine management practices arise.

Educational materials can be found on the BCCDC web site at [www.bccdc.org](http://www.bccdc.org) under Resources and Cold Chain Information for Physicians.

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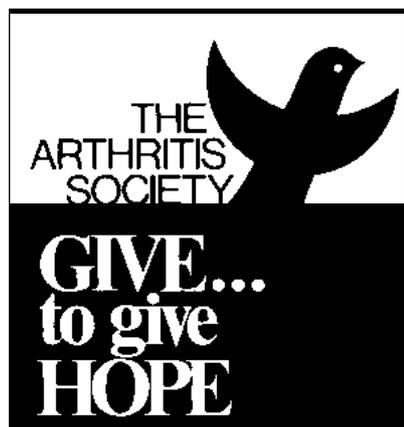
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