The Five D's: A West Nile Education Campaign in Wyoming

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West Nile virus (WNV) was first detected in Wyoming in August 2002. By the end of 2002, two humans, 17 birds, and 96 horses had tested positive for the virus, mainly in eastern Wyoming. The Wyoming Department of Health gave numerous community presentations throughout the state during 2002, but it conducted no official education campaign. Despite the presentations, the department was overwhelmed with requests for information on the background of the disease, prevention, and animal testing for WNV.

Applying a model for health communication

Public health often finds itself in a "reactive" position because, given the nature of public health, events can happen without warning or notice. This can lead to very little time to plan a public education campaign. Anticipating increased transmission of WNV to humans, birds, horses, and other mammals in 2003, the department began to develop a statewide WNV public education campaign during the winter of 2002-2003. Planning for the Wyoming WNV campaign included convening a group of state health department experts in communication, health education and promotion, and infectious diseases; searching existing WNV Web sites of city, county, and state health departments in the United States to learn about other campaigns; and choosing a media relations firm to help develop a campaign logo and materials that would be unique and representative of Wyoming. The department also discussed using a health education theory early in the planning process to help guide the creation and evaluation of the campaign's messages.

The Health Belief Model, a widely used health education model, was chosen for the WNV campaign because of its simple design and past success in health interventions. U.S. Public Health Service psychologists originally developed the model in the 1950s to increase the use of preventive services such as chest x-rays for tuberculosis screening and immunizations for influenza. Since then, the model has also been used to explain health behaviors and design interventions in many other areas, such as cancer screenings, HIV/AIDS, and prenatal care, as well as in multicultural settings.

The model has six concepts: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy.

- Perceived susceptibility is a person's perception of being at risk of contracting a disease.
- Perceived severity focuses on a person's feelings of the seriousness and effects of contracting the disease.
- Perceived benefits are a person's opinion of the effectiveness of taking recommended actions to prevent contraction of the disease or its effects.
- Perceived barriers are the negative aspects or costs, as viewed by the person, to taking the preventive action.
- Cues to action are the triggers used to encourage people to take the recommended actions to prevent the disease.
- Self-efficacy refers to people's confidence that they can successfully perform an action and prevent the occurrence of new disease.

Creating campaign messages

We created the campaign messages first to ensure that all materials presented a consistent

Health Belief Model Campaign Messages

Concept	WNV Campaign Messages
Perceived Susceptibility	• Anyone from infants to the elderly can contract West Nile Virus. • People over 50 years old are at more risk for West Nile fever and West Nile encephalitis.
Perceived Severity	• West Nile Virus can lead to severe illness, hospitalization, and possibly death in certain populations. • West Nile fever and encephalitis may result in serious illness or hospitalization.
Cues to Action	5 D's of West Nile Virus Prevention: • Avoid being outside at dawn and dusk if possible. • Drain standing water and containers that collect water on your property. • Dress in long sleeved, long-legged clothing. • Use mosquito repellent with DEET according to the label.

message. The campaign used the Health Belief Model concepts of perceived susceptibility, perceived severity, and cues to action. We used the perceived susceptibility component to create a message that ensured the public knew who was at risk for contracting WNV. The campaign emphasized that people over 50 years old were especially at risk for West Nile fever and West Nile encephalitis.

The perceived severity component focused on defining the signs and symptoms of West Nile fever and West Nile encephalitis, as well as on the long-term consequences of the disease to the general population.

Finally, using the cues to action component, we created simple, easy-to-follow actions people could take to prevent contracting WNV. "The 5 D's"—Dawn, Dusk, DEET, Drain, and Dress—as they came to be known, were designed to be an easy-to-remember alliterative message for promoting relatively simple actions the public could take to prevent contracting WNV. (*See the table on page 12 for examples of the campaign messages created using the Health Belief Model.*)

Campaign materials included banners, radio announcements, bookmarks, brochures, newspaper advertisements, posters, and wallet cards. Materials were distributed to the public through county public health nursing offices, state and national parks, the University of Wyoming Cooperative Extension Service, and other agencies and organizations. In addition, a Web site (www.badskeeter.org) helped disseminate additional information and offered downloadable copies of the brochures, posters, and wallet cards. The campaign messages using perceived susceptibility, perceived severity, and cues to action were included in almost all campaign materials to ensure a consistent message at all times and in all contexts.

We changed the campaign messages during late summer 2003 to bring additional awareness and attention to the susceptibility and severity of WNV during the projected peak transmission periods for humans. We strengthened campaign messages about the level of susceptibility and severity by intensifying the language of the message. For example, we emphasized the groups most susceptible and the severity of the illness in a second brochure and poster that were printed and distributed in July. The bullets under the perceived susceptibility and perceived severity components in the table on page 12 show the changes to the messages. The new campaign messages further emphasized WNV and its potential effect on humans.

Evaluating campaign successes

From June through October 2003, the Wyoming Department of Health distributed approximately 327,000 bookmarks, brochures, posters, and wallet cards throughout Wyoming. The Web site received more than 11,700 visitors from May through October 2003. The Health Belief Model was an easy, simple tool for planning and evaluating the Wyoming Department of Health's 2003 WNV campaign. The model guided the creation and changing of the campaign's messages to meet our needs.

We also conducted an evaluation during 2003 to assess whether the campaign met our goals and needs. The model helped guide the process of developing survey questions to use in evaluating the campaign. We asked evaluation questions concerning campaign reach, behaviors, and attitudes associated with WNV prevention in one pre-test and two post-test surveys. We used past Health Belief Model literature to guide the creation of the questions concerning perceived susceptibility, perceived severity, and cues to action (behavior) components.

Bad Skeeter is the logo developed for the West Nile public education campaign.

Time, resources, and energy can be scarce when public health is forced to react quickly to an outbreak, emerging disease, or other unexpected event. Anticipating increased WNV transmission, the department took a proactive approach to preparing for the disease, using available resources in order to plan the campaign.

Our experience suggests that with a health education theory such as the Health Belief Model and advance planning, public health departments can produce and evaluate high-quality, successful public health campaigns.

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Resources

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