Public Health's Winter Games: Bioterrorism Surveillance in Wyoming

"Have a plan and work the plan" proves to be a strategy that benefits public health departments as well as athletes.

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In summer 2001, with the 2001 Winter Olympic Games due to open in six months, the Wyoming Department of Health (WDH) estimated that 20,000 people would be traveling through Wyoming to the Games in Salt Lake City, Utah. The events of September 11 cast preparations for the Winter Olympics in a new light. Not only did the WDH have to anticipate the usual health surveillance needs of any large gathering but also a possible bioterrorism attack.

Planning for surveillance

The WDH Epidemiology and Bioterrorism sections worked together to develop a strategy to evaluate the health status of the people traveling through the state during fall 2001. The multi-agency task force initiated a surveillance system called *Syndromic Disease Surveillance*, which we temporarily "dropped in" to our health care system for a specific period of time. This system was modeled after the Center for Disease Control and Prevention's health surveillance of the Summer Olympic Games in Sydney, Australia, in 2000 and Atlanta, Georgia, in 1998. Wyoming had previously tested this model during other large gatherings, including Frontier Days in Cheyenne in July 2001 and the Blackhills Motorcycle Classic in Sundance in August 2001.

WYOMING DEPARTMENT OF HEALTH
SYNDROMIC SURVEILLANCE
OLYMPIC WINTER GAMES 2002

Instructions: Please complete this form for EACH patient seen at your facility

Triage/ Registration Complete This Section

Last Name: _____
First Name: _____
Medical Record #: _____
Male ____ Female ____
Date of Visit: _____
Age: _____
Wyoming resident: Yes ____ No ____
How can you be reached in the event of an emergency? _____
(cell phone, home phone, hotel room number)

Did you attend any events at the 2002 Winter Olympics? YES NO Don't know

Health Care Provider Complete This Section

Please check the PREDOMINANT syndrome from the following list that best represents the PRIMARY condition of the patient

- None of the following
- Respiratory Infection with Fever
- Diarrhea/gastroenteritis (including vomiting, abdominal pain, or any GI distress)
- Rash with Fever (must have both)
- Sepsis or non-traumatic shock
- Meningitis, encephalitis, or unexplained acute encephalopathy
- Botulism-like syndrome (cranial nerve impairment and weakness)
- Unexplained death with history of fever
- Unexplained lymphadenopathy
- Localized cutaneous lesion with at least one of the following:
  - Pruritic maculopapular rash
  - Acute ulcer
  - Eschar

Was the patient admitted to the hospital? YES NO Don't Know
Was the patient transferred? YES NO Don't Know

SDS Coordinator should give each completed form an ID# based on the date and patient number. (Example: 2-01-01 for first patient seen on February 1)

ID#

If you have any questions, please call the Wyoming Department of Health, 1-800-996-9184

Figure 1. Patient tracking form

Putting the plan in action

In fall 2001, we presented the Syndromic Disease Surveillance project to administrators and physicians in nine hospitals and three clinics along the Wyoming and Utah interstate corridor. The cultivation of relationships between WDH and local medical facilities was a time-consuming process and required numerous phone calls, e-mails, and personal visits by WDH personnel. The administrators of the hospitals and clinics agreed to participate after we discussed and resolved issues of staff scheduling, staff turnover, internal administrative systems, communication barriers, and facility policies.

Data collection began the week of December 15, approximately eight weeks before the opening Olympic ceremonies. Starting early allowed us to establish baseline data for each participating facility.

The mechanics of our system were fairly simple. In each facility, a physician recorded the appropriate syndrome seen during a patient's visit (*see figure 1 for an example of the patient tracking form)*. Syndromes chosen were those most likely to reflect an incident of bioterrorism and included:

- Respiratory infection with fever
- Diarrhea/gastroenteritis (including vomiting, abdominal pain, or any GI distress)
- Rash with fever
- Sepsis or non-traumatic shock
- Meningitis, encephalitis, or unexplained acute encephalopathy
- Botulism-like syndromes (cranial nerve impairment and weakness)
- Unexplained death with history of fever
- Unexplained lymphadenopathy
- Localized, cutaneous lesion with at least one of the following: pruritic maculopapular, rash, acute ulcer, eschar

After receiving the demographic patient information as well as the syndrome reported by the physician, the infection control personnel completed a summary form of all syndromes seen in the hospital or clinic between 12:00 A.M. and 11:59 P.M each day (*see figure 2 for an example of the summary form*). The summarized syndromes for each facility were then transmitted to the WDH

on a daily basis, using a variety of methods, including e-mail, facsimile, and a secure Web site created specifically for the Syndromic Disease Surveillance project. The Wyoming Department of Health was responsible for collecting, summarizing, and analyzing the information from these reporting stations. If any suspicious patterns of illness emerged, the Department would have initiated an epidemiological investigation.

The most frequently reported syndrome was respiratory infection with fever, with 1,645 cases reported. Most of this group of cases was attributed to the influenza season, which was endemic throughout the state. Diarrhea and gastroenteritis accounted for 909 cases, with no clustering above the baseline in each facility observed. Other syndromes reported were 32 cases of rash with fever, 18 cases of sepsis or non-traumatic shock, 5 cases of meningitis, 18 cases of localized, cutaneous lesions, 1 case of unexplained lymphadenopathy, and 2 cases of unexplained deaths with history of fever. No cases of Botulism-like syndromes were reported. Data collection took place over a 13-week period from December 16, 2001, to March 3, 2002.

What didn't work?

The most difficult part of the process was recruiting hospitals and clinics to participate in the voluntary Syndromic Disease monitoring system and keeping them motivated throughout the surveillance period. Despite the many hours that WDH personnel invested in reconciling issues of concern, some facilities along the interstate corridor lacked enthusiasm and reported syndromes intermittently, citing reasons of time constraints and work overload on an already overburdened staff. Several facilities that had agreed to participate did not send reports in a timely fashion or, in some cases, missed several days of reporting altogether.

Another issue the WDH tried to resolve throughout the surveillance period was that reports were often submitted after the daily deadline of 10 A.M. The time delays typically occurred over the weekends when hospitals were either understaffed or the staff that had been delegated to do the reporting during the weekend had not been properly educated regarding the process.

What did work?

Overall, the compliance among facilities to complete the surveillance process was high. Out of 22,132 emergency room visits recorded in these facilities, 20,158, or 91 percent, were reported to the Wyoming Department of Health.

One of our most valuable assets was the group of about 15 health professionals who volunteered their time to make phone calls, review charts, and investigate reports. This group was made up of public health nurses, WDH staff, and members of the Emergency Operations Center established in Evanston throughout the Winter Olympic Games. Thanks to this dedicated bunch, *every* case involving rash with fever, sepsis, meningitis, localized cutaneous lesions, and unexplained death was investigated during the Olympics and for one week following the closing ceremony. They also investigated unusual clusters and cases above the established baseline. Although no respiratory or gastrointestinal clusters were detected, if a suspicious syndrome had developed, this group was prepared to investigate it immediately.

Even though no major disease outbreaks were detected, this epidemiological surveillance tool provided many learning opportunities for WDH personnel and for the local medical communities. Medical personnel had practice recognizing symptoms that could be associated with bioterrorism. Numerous phone conversations and on-site visits enhanced relationships between local medical facilities and the Wyoming Department of Health. Invaluable communications links were strengthened through electronic reporting techniques. Conference calls between WDH and participating hospitals and clinics generated discussion among medical facilities in the state. These combined benefits produced a proficient disease-tracking system for use by local facilities and the Wyoming Health Department, which in any adverse health event would be a critical component in protecting the health of the public.

Wyoming Department of Health
Syndromic Disease Surveillance
Summary Report

Reporting Site Code ________
Data Collector Name ________
Contact Number ________
Date ___/___/___

ID # ____ to ____

SUMMARY COUNT OF PREDOMINANT SYNDROME:

___ None of the following
___ Respiratory Infection with Fever
___ Rash with Fever (must have both)
___ Sepsis or non-traumatic shock
___ Unexplained death with history of fever
___ Unexplained lymphadenopathy

___ TOTAL NUMBER OF SUMMARY FORMS COMPLETED

Were patients admitted to the hospital?
___ YES
___ NO
___ Don't Know

Please complete the following summary fields for the previous 24 hour period FROM THE ELECTRONIC OR WRITTEN LOG:

Total ER Visits (all causes) ________
Total Hospital Admissions ________
Total Deaths ________

Figure 2. Daily summary form

Authors

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