

program

Continued from preceding page pre-immunization levels.

2. By 1995, coverage of not less than 95% by 1 year of age at all levels.

3. By 1995, reduction of the case-fatality rate to less than 1%.

The surveillance data indicate that Saudi Arabia has achieved the 1% case-fatality rate and the 95% reduction in measles deaths. Incidence rates and vaccine coverage are nearing the WHO targets. In developing countries before the introduction of measles immunization, 80% of measles cases were in children from 1 to 4 years old. The 15% currently observed in this age group 10 years after initiation of the compulsory vaccination policy attests to the success of this program.

Although natural factors such as population density can explain part of the observed age distribution of measles, vaccination should have a profound effect. According to policy, all 1-to-4-year-old children in Saudi Arabia should be vaccinated. Higher proportions of total cases in this age group indicate the need for more in-depth evaluation of vaccine coverage and efficacy in the respective areas. The kingdom-wide in-

crease in measles case in the 5-to-14-year-old age group also needs close inspection. Each year the entrance of vaccinated 5-year-old children into this group and the departure of unvaccinated 15-year-old children from this group should increase the vaccine coverage of the entire group by about 10%. Thus, this age group should have the greatest decline in measles cases.

Recommendations for control:

1. Maintain high coverage by: (a) screening and immunizing all children visiting a health center for any reason; (b) ensuring that all children registering for primary school receive a dose of MMR vaccine before school entry; (c) immunizing all children upon admission to a hospital or as soon as their condition allows; (d) minimizing the drop rate between the third DPT vaccine and the measles dose.

2. Improve the health information system by using information in immunization coverage and disease trends to identify high-risk groups and high-risk areas and take action accordingly.

3. Develop the capacity for prompt and aggressive outbreak investigation and control.

4. Enhance case management (diagnosis, clinical assessment, classification and treatment) to reduce the case-fatality rate to below 1%.

Reported by the Infectious Disease Department, Ministry of Health.

How Qatif responds to outbreaks

The Qatif Primary Health Care (PHC) Department is one of 12 districts that report notifiable diseases to the General Directorate for Primary Health Care in the Eastern Province. The Qatif district includes 26 primary health care centers, Qatif Central Hospital, Qatif General Hospital, one private hospital and 12 private dispensaries; all are required to report to the Qatif PHC Department. Patients may also seek treatment in nearby cities, such as Dammam or Khobar, or at Aramco. Qatif has a population of about 230,000 Saudis and 12,000 non-Saudis.

Each week the epidemiologist uses the computer to produce a graph of weekly incidence for each communicable disease (both suspect and confirmed cases) on the computer screen. These may be immediately compared with the pattern during previous years. When the epidemiologist notes any suspicious increase in incidence of any disease, he uses the computer to do a more detailed review by age, sex, nationality or residence. This weekly data review requires less than 30 minutes.

The speed of this system allows the epidemiologist to begin community-wide investigation without delay. Since both suspect and confirmed cases are entered, the epidemiologist is alerted to problems at a very early stage. For final reports to higher authorities it is a simple matter to restrict the data output to confirmed cases with complete investigations.

Several examples of outbreak investigations follow to illustrate prompt community-wide action in Qatif.

In late 1991, one Qatif PHC reported 35 measles cases among Mahri immigrants living in one house. The epidemiologic investigation identified 16 other houses with 700 Mahri in Qatif. None had previous measles vaccination and because of their previous isolation in remote areas of the Empty Quarter many had never been exposed to measles. The action was to vaccinate all Mahri in Qatif. No more measles occurred in the Mahri after the vaccination

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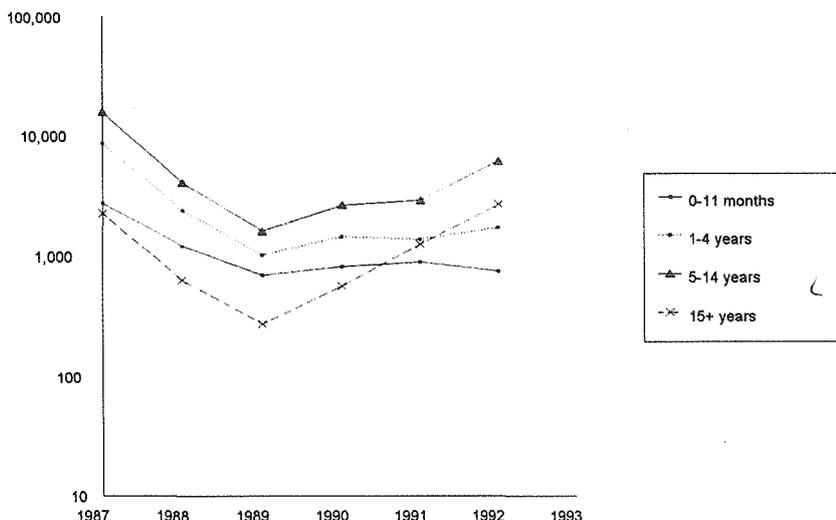


Figure 3: Measles cases in Saudi Arabia, 1987-1992

Qatif outbreaks

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effort.

In early 1992 measles again appeared in Qatif (Chart 1). Prompt action identified a failure of vaccination policy in schools covered by a neighboring school district. We vaccinated all other children without written proof of vaccination in families with a case.

Later in 1992 an increase in typhoid fever was noted (Chart 2). The investigation revealed that typhoid was affecting Qatif residents who had visited Syria. It also eliminated the possibility that infection had been acquired in Qatif or during the travel to Syria or returning from Syria. However, a common source of typhoid in Syria was ruled out by the investigation. Waterborne typhoid remains the most likely, but unproven, cause. As action, PHC and hospital doctors were alerted to suspect typhoid fever in persons presenting with febrile illness after returning from Syria. Typhoid fever vaccine was recommended to Qatif residents going to Syria.

Editor's note: Surveillance can be defined as information for action. Action for communicable diseases is often taken by the health inspector who visits patients and applies preventive meas-

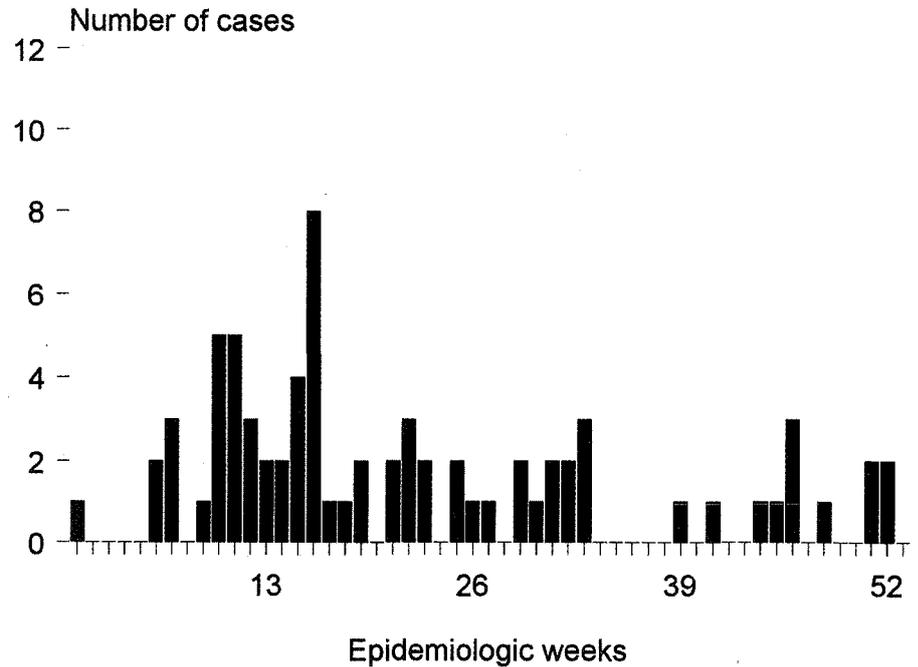


Chart 1: Measles cases in Qatif, 1992

ures to their contacts. However, many communicable diseases can have sources that are community-wide and do not involve contacts or person-to-person spread. This system illustrates how effi-

cient handling of suspect cases using the computer can detect and trigger action directed to prevent community-wide spread of communicable disease.

The program for the Qatif surveillance system was developed on EpiInfo software. EpiInfo is available from the Field Epidemiology Training Program. Send two high-density diskettes or four double-density diskettes and your return address. The data entry format for the surveillance system will be provided.

Regions interested in developing computerized surveillance for rapid epidemiologic action and efficient management of surveillance data may contact the Field Epidemiology Training Program, Ministry of Health, for additional information and discussion.

Reported by Dr. Hashim A. Abulrahi (Field Epidemiology Training Program).

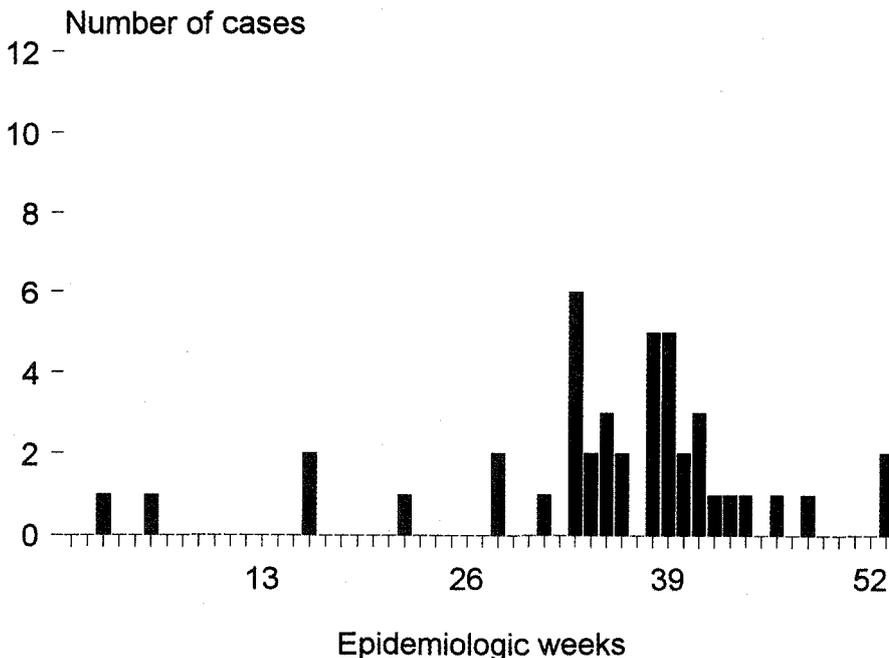


Chart 2: Typhoid and paratyphoid cases in Qatif, 1992