Reducing measles: The Kingdom's

As part of the communicable disease surveillance system in Saudi Arabia, all medical facilities, both governmental and private, should report new measles cases through local health authorities to the Ministry of Health. For the purpose of surveillance, a clinical case of measles is defined as an illness with a generalized blotchy rash lasting three or more days with fever plus one or more of the following: cough, runny nose, red eyes and Koplik spots. These surveillance reports help to monitor the effect of the compulsory immunization policy that began in 1983.

In 1992, 11,229 measles cases were reported in Saudi Arabia. Incidence rates by region ranged from 15 per 100,000 in Najran to 197 per 100,000 in Hafr al-Batin (Figure 1). The proportion of cases in the 1-to-4-year-old age group declined from 28.4% in 1989 to 15% in 1992.

Since compulsory immunization began in 1983 and coverage exceeded 80%, incidence rates have declined more than sixfold (Figure 2). However, from 1989 to 1992 they did not continue the downward trend, ranging from 33 per 100,000 to 82 per 100,000. During these four years, measles cases steadily increased in the 5-to-14 and 15-to-44-year-old groups. They also showed a milder increase in the 1-to-4-year-old age group (Figure 3).

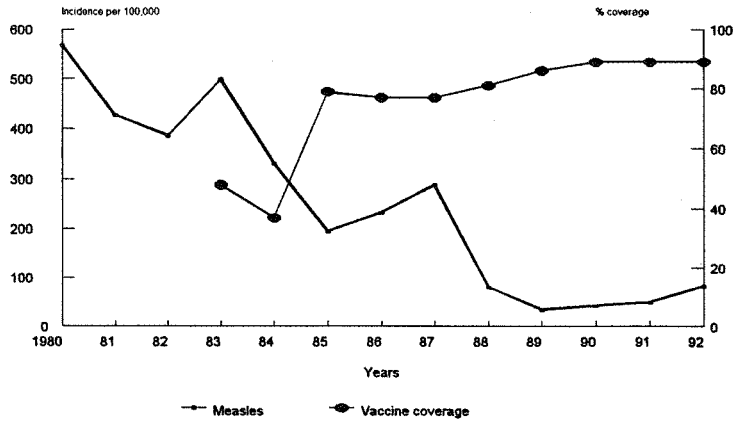

Figure 2: Measles incidence rate and vaccination coverage Saudi Arabia, 1980-1992

Editor's note: The introduction of measles immunization has had a profound effect on the incidence and age distribution of the disease. The target for 1995 is an incidence of less than 40 per 100,000. The World Health Organization Expanded Program for Immunization (EPI) has made the following recommendations to countries participating in EPI:

1. By 1995, reduction by 95% of deaths due to measles and reduction by 90% of measles cases, compared with

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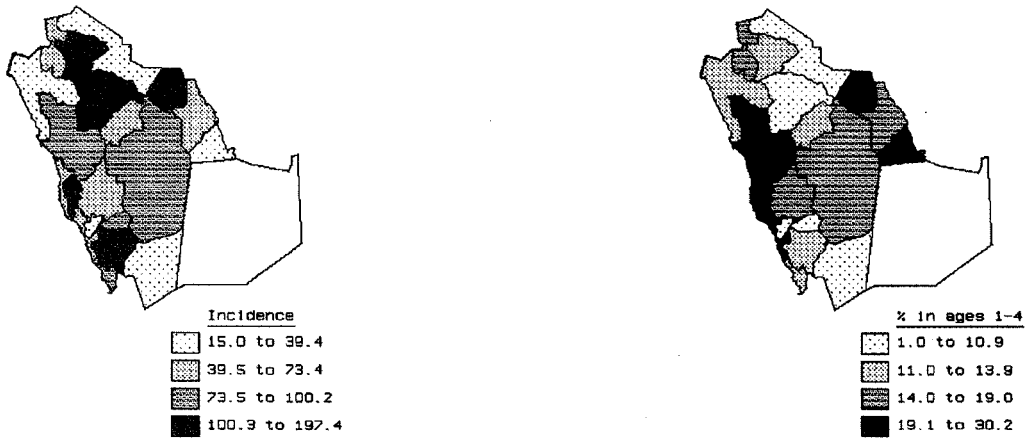

Figure 1: Measles incidence per 100,000 by region (left); percentage of cases in ages 1-4 by region Saudi Arabia, 1992

program

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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 increase 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.

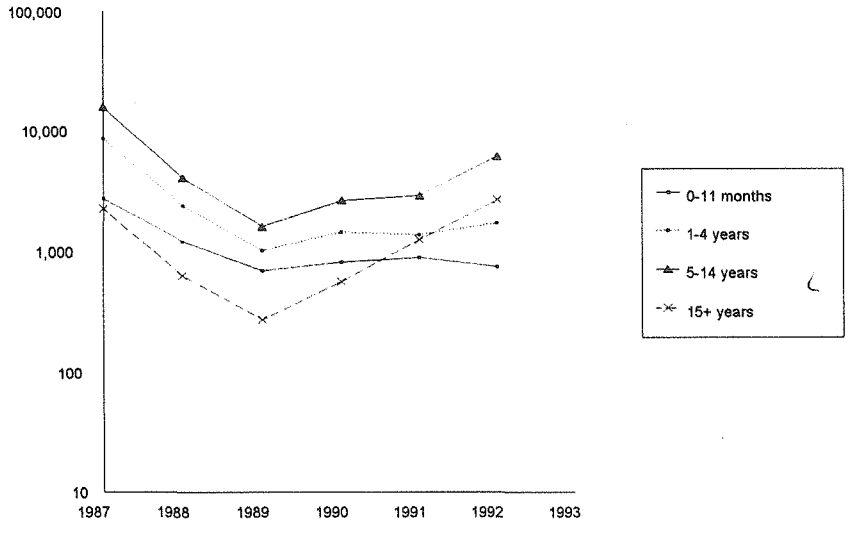

Figure 3: Measles cases in Saudi Arabia, 1987-1992

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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