

Measles in a school population

In March 1994, the Morsalat selected primary health care center (SPHCC) in Riyadh received a report from a private clinic of five Indian children with measles. All attended the Indian Embassy School. A check of three other SPHCCs in Riyadh city revealed 10 additional measles cases in Indian children. The Indian Embassy School doctor reported that he had seen about 20 cases of measles among the students over the preceding two weeks. We began an investigation to determine the extent of the outbreak and to examine the effect of measles vaccine policy.

We defined an outbreak-associated case of measles as a febrile ($\geq 38.3^{\circ}\text{C}$) illness with a generalized maculopapular rash \geq three days and cough, coryza or conjunctivitis occurring between February and April 1994 in Riyadh city. Surveillance data from all four SPHCCs in Riyadh were reviewed. School nurses asked about rash illness in students absent for two consecutive days. A case-control study was conducted among Indian Embassy School students. For each case among the students, we selected 5 control-students at random from the same class. We interviewed parents of both case- and

control-students about past measles disease and measles vaccination of the student.

The first case was in a unvaccinated 9-year-old Indian who visited Riyadh for two weeks and returned to India. No measles cases had been reported in Riyadh for the preceding two months. Over the next three months, 101 children developed measles, including 60 Indian School students (attack rate 11/1000). An outbreak of 21 cases followed in the Pakistani Embassy School, and the remaining cases had no direct link to these two outbreaks or to each other.

Only 7 of the Indian students had no history of measles vaccine. Students with documented measles vaccination (17 cases) had a decreased risk of measles when compared with students (36 cases) whose parents gave only an oral history of measles vaccination [odds ratio (OR) = 0.7, 95% confidence interval (CI) 0.4-1]. Documented measles vaccination first given between 6 and 9 months of age was not effective [vaccine efficacy (VE) = 10%, 95% CI 67-100], but it was effective if first given at age 10 months or more (VE = 100%, 95% CI 96-100). Documented MMR either alone or as a booster was not effective in

preventing measles.

— Reported by Dr. Salah Al-Awaidy (Field Epidemiology Training Program) and Dr. Etedal A. Bohlega (Morsalat Selected Primary Health Care Center, Riyadh Region)

Editorial note: This investigation demonstrates several points about measles prevention in Saudi Arabia. It shows the importance of having written documentation of measles vaccination for school enrollment as required by Ministry of Health regulations. It demonstrates that more attention needs to be paid to vaccination in expatriate children. In this outbreak measles was first introduced as an imported case from India and then spread among that nationality. Finally, it demonstrates the incomplete effectiveness of measles vaccine given before 10 months of age. The investigation also raises concern about the apparent ineffectiveness of MMR to boost these early measles vaccinations. Implementation of Ministry of Health recommendations regarding written vaccination cards as well as preschool MMR for children enrolled in schools should minimize measles outbreaks among school populations.

AFP surveillance

(Continued from page 5)

- poliomyelitis eradication initiative at central and regional levels.
- Appointment in each health region of a polio eradication supervisor, who is responsible for all activities related to poliomyelitis eradication.
- Formulation of polio eradication committees at regional and hospital levels, with the active participation of pediatricians, neurologists and infection-control and laboratory personnel.
- On-the-job training and orientation regarding the poliomyelitis eradication initiative and poliomyelitis surveillance of all polio eradication supervisors and committee members.
- Meetings with pediatricians to encourage their participation in the eradication initiative.

- A letter sent to pediatricians about the steps that should be taken, along with a copy of the World Health Organization poliomyelitis guide for clinicians
- Weekly zero reporting of AFP from all hospitals
- Regular quarterly meetings of the National Technical Committee with regional supervisors to monitor progress and discuss problems

The table on the previous page shows the results of close monitoring of AFP surveillance performance indicators. The data indicate that the polio surveillance system in the Kingdom is functioning properly, though more effort is needed to notify cases within 24 hours and to initiate control measures within 48 hours.

— Reported by the Infectious Diseases Department, Ministry of Health

Letter to the editor

I would like to comment on "Brucellosis in an urban setting" by Nashma Saleh Al-Shiban (Volume 1, No. 4, Saudi Epidemiology Bulletin).

It seems that brucellosis is still endemic in big cities like Riyadh simply because people still keep sick livestock, which are the natural reservoir of *Brucella* species.

I think more intervention should be taken to control the disease, including combined efforts among different government agencies such as the Ministry of Health, the Municipality of Riyadh, the Ministry of Agriculture and the Principality of Riyadh to eradicate sick livestock, vaccinate livestock and educate people about disease complications, mode of transmission and ways of prevention. Prevention is better than cure!

Dr. Salih bin Salih
Riyadh