

Ensuring a safer Hajj for pilgrims

Here are some preventive measures required by the Ministry of Health for pilgrims:

A valid international certificate of vaccination against yellow fever is required from all travelers coming from recognized yellow fever zones.

All pilgrims are required to show a valid certificate of vaccination against meningococcal meningitis. The certificate is valid for three years, beginning 10 days after the vaccination. Children aged 3 months to 2 years should receive A vaccine in two doses, one to two months apart. Pilgrims entering the Kingdom within 10 days of vaccination should receive as prophylactic treatment:

Adults: 500 mg ciprofloxacin (one dose) or 300 mg rifampicin twice daily for two days

Children: 10 mg/kg rifampicin (over 1 month of age), 5 mg/kg rifampicin (under 1 month)

Pregnant women: 250 mg ceftriaxone IM

All personnel deputed to work during Hajj must be vaccinated against meningococcal meningitis.

Foodstuffs carried by travelers, including pilgrims, are not permitted into the Kingdom, with the exception of small quantities for use by road travelers. Such items must be kept in clean, easy-to-open containers for inspection by health authorities.

trial was performed using Edmonston-Zagreb (E-Z) measles vaccine and seroconversion rate was 95% after E-Z at 6 months with persistent high measles antibody at 15 months (3). Accordingly, the measles immunization strategy in Saudi Arabia was changed to use E-Z at 6 months with a compulsory second dose given as MMR at 12 months. For poliomyelitis immunization, a national post-vaccination serosurvey was conducted during the same period and seropositivity after the third dose of oral polio vaccines was 79% (type 1), 88% (type 2) and 65% (type 3) (4). At that time, OPV was given at 3, 4 and 5 months. Alternative strategies are under investigation.

The interpretation of the seroconversion results should be taken within the context of the epidemiological pattern of the disease, knowing that the protective antibody levels for some diseases are not known yet.

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Preventing vaccine failure

Vaccination failure is a failure in giving a particular vaccine to all or part of the target group and it is measured by vaccination coverage, while on the other hand vaccine failure is a failure in the induction of expected immunogenic response after giving the vaccine and it is measured by seroconversion rate. This means that even 90% coverage does not mean that 90% of the target population are protected. For example, if the measles vaccine coverage is 90% and the seroconversion rate is also 90%, this means that only 81% are protected [vaccine coverage (90%) x vaccine seroconversion (90%) = 81%]. In another way, almost 20% of the target population are not protected and this means that a big pool of susceptibles will be accumulated each year and an outbreak can occur.

To remedy this situation, the Ministry of Health has encouraged research in the field of vaccine failure, besides sustaining the effort to assure a high coverage not only for the primary vaccine series but also for booster doses. In 1990, a national cluster survey was conducted to determine vaccination coverage in Saudi children before their first birthday (1). The results are shown in the table below.

In the same period, a study was conducted to evaluate the seroconversion rate after measles vaccine. At that time, Schwarz measles vaccine was given at 9 months. The seroconversion rate was only 85% (2). A vaccination

References

1. Al Mazrou YY, Al Shehri S, Al Jeffry M, Frag MK, Baldo MH, Khan MU. Saudi maternal and child health survey. Ministry of Health, Riyadh: 1991.
2. Abanamy A, Khalil M, Salman H, Abdelazeem M. Follow-up of measles antibodies and seroconversion after measles vaccine. *Ann Saud Med* 1991;11:51-53.
3. Khalil M. Follow-up study of children vaccinated against measles at the age of six months with 3.0 log₁₀ Edmonston-Zagreb. *Saudi Med J* 1993;14(1):44-45.
4. Khalil M, Al Mazrou Y, Abanamy A, et al. National serosurvey of post-vaccination antibody in Saudi Arabia. *Ann Saud Med* 1994;14(2):111-113.

Vaccine Coverage	BCG	OPV+DPT (3rd)	Measles
	99.5%	93.6%	90%

WHO guidelines for immunization safety

The following are the most recent guidelines on immunization safety from the Expanded Programme on Immunization (EPI) Update (November 1993):

A sterile syringe and a sterile needle must be used for each injection.

Reusable, sterilizable needles and syringes must be cleaned and sterilized after each use according to EPI guidelines (1).

All health facilities providing immunization services should have access to sterilization. Even facilities

using single-use syringes will require reusable, sterilizable equipment for backup in case of a stock shortage.

Single-use syringes and needles should only be used when it can be assured that they will be destroyed after use. Auto-destruct syringes that automatically reuse can now be purchased through UNICEF (2).

Used needles and syringes must be placed in a safe, puncture-resistant container, which should be available at all immunization sessions. If no safe container is available and a needle must

be recapped, it should be done with one hand to avoid needle-stick injuries.

References

1. Expanded Programme on Immunization. Immunization in practice -- A guide for health workers who give vaccine, part 2: syringes, needles and sterilization. World Health Organization 1987. WHO Document WHO/EPI/PHW/84/2 Rev. 1.
2. Expanded Programme on Immunization -- Cold Chain. UNICEF launches auto-destruct syringes. *Technet News -- Logistics for Health* 1992; 92.2:6.