

Letter to the editors

Adverse events following immunisation (AEFI) attributable to measles vaccine are rare (Duclos and Ward, 1998). These include mild, self-limiting illness to potentially serious but uncommon events like thrombocytopenia (Beeler, Varricchio and Wise, 1996) and anaphylaxis. AEFI's may also result from errors in handling, preparing and administering vaccine. Despite frequent measles campaigns for measles mortality reduction and regional elimination (UNICEF, 2001), few campaign-related AEFI's are described in the published literature (Pless, Bentsi-Enchill and Duclos, 2003). This letter reports a cluster of vaccine-associated abscesses that occurred in Nahrin District, Afghanistan, following a national measles vaccination campaign.¹

From December 2001–December 2002, the Ministry of Health (MoH) of the Transitional Islamic State of Afghanistan conducted a nationwide measles vaccination campaign with assistance from international organisations. The campaign targeted all children aged between six months and 12 years (CDC, 2003) and reached 11 million children nationwide. In Nahrin District, 20,607 children were vaccinated between 23 September and 10 October 2002. On 28 October, Expanded Program on Immunization (EPI) workers involved in routine polio eradication activities in Nahrin District observed abscesses among children vaccinated during the measles campaign and reported these to the provincial EPI management team.

From 10–22 November, the MoH, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) investigated these reports via health record reviews, active case finding and interviews with community members, parents of case patients and vaccination team workers. A questionnaire was administered to parents and guardians of affected children to obtain information on the case patient's history of vaccination and other injections, the name of the vaccinator during the campaign, the date of onset of swelling, the treatment history and the final outcome of the illness. All case patients with persisting abscesses were referred to a MoH physician for treatment. Because no specimen processing laboratories were available in the region, cultures were not taken from abscesses. Furthermore, information on vaccine lot numbers by village could not be traced. On 9 February 2003, a follow-up visit was conducted; this included an interview with the local vaccination team leader who had previously fled the area fearing community reprisals.

One hundred and fifty-two patients with campaign-related abscesses were reported in the four affected villages; no associated deaths were reported. Despite a search of surrounding villages, no additional cases of campaign-related abscesses were identified. Questionnaires were administered to parents or guardians of 67 case patients (44 per cent of total cases) from three villages; the remaining case patients could not be located due to difficult access and population mobility. Four (six per cent) of the 67 case patients investigated were less than one year of age, nine (13 per cent) were between

12 and 23 months, seven (10 per cent) were between 24 and 59 months and 47 (70 per cent) were aged between five and 12 years. Thirty-five (52 per cent) case patients were female. All 67 (100 per cent) case patients interviewed complained of fever and an abscess at the injection site following measles vaccination.

The mean time between vaccination and symptom onset was approximately 2.5 days (range: one to seven days). Sixty-five (97 per cent) of the 67 case patients interviewed sought treatment at a MoH or private health facility. Of these, 56 (86 per cent) underwent abscess drainage and 52 (80 per cent) were prescribed oral antibiotics. All vaccinations were administered in the deltoid region of the upper arm. All case patients reported being vaccinated by the same team and named the leader, an experienced MoH vaccinator well known in the community. None of the cases had received other injections in the six weeks prior to symptom onset. Interviews with health workers involved in the campaign revealed the possibility of 'poor aseptic precautions with inadequate cleansing of children's arms' and a shortage of mixing syringes and diluents. The latter led to the local purchase of sterile water for use as a diluent. In addition, pressure to complete the vaccination of the target population rapidly resulted in the team leader allowing untrained team members to administer the vaccine.

Although this investigation was limited by the inability to culture abscesses or to verify vaccine lot numbers, existing information suggests the use of untrained vaccinators, poor aseptic precautions and inappropriate diluent as explanations for this cluster of abscesses, pointing to gaps in pre-campaign training and campaign supervision. Despite the lack of an AEFI reporting system, this cluster of abscesses was detected within three to six weeks of symptom onset. The resulting investigation and follow up appear to have limited the damage to community confidence. However, a smaller cluster of abscesses may not have been detected.

AEFI may damage community confidence in immunisations and impact negatively on coverage. Lessons learnt from this incident highlight the importance of the following steps in vaccination campaign preparation and implementation:

- providing sufficient training in vaccine handling and administration;
- ensuring adequate campaign supervision;
- recording vaccine lot numbers by location of use;
- avoiding shortages of vaccine, diluent and other supplies; and
- implementing an AEFI reporting system. AEFI reporting should be seen as a learning exercise, and clarifying that the MoH is responsible for all AEFI will avoid apportioning blame to any one individual or group.

In spite of this cluster of abscesses, the measles campaign in Afghanistan can be considered successful: more than 11 million children were vaccinated and an estimated 25,300 measles deaths were averted.² The achievements of the campaign must now be sustained by strengthening routine immunisations while ensuring immunisation safety.

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Endnotes

- ¹ The findings and conclusions are those of the authors and do not necessarily represent the views of the agencies where they are employed.
- ² Personal communication with Lara Wolfson, WHO, December 2003.

References

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