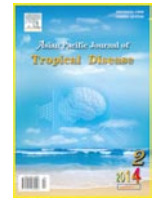




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Massive outbreak of measles in Sri Lanka, 2013

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To the editor,

The measles incidence in Sri Lanka was 87 per 100 000 populations in the year 1982. Measles containing vaccine was first introduced into the Expanded Programme of Immunization (EPI) of Sri Lanka in 1984 as a single dose vaccine. Since this introduction, there was a gradual decline in the disease incidence, morbidity and mortality due to measles in Sri Lanka (Figure 1a). In the years 1999–2000, Sri Lanka experienced an outbreak of measles with more than 15 000 reported cases^[1]. In year 2002 another measles containing vaccine was added to the EPI (measles–rubella at 3 years), making it a two–dose schedule. In 2012, Sri Lankan EPI schedule was revised with the introduction of measles, mumps, and rubella vaccine at 12 months of age.

In 2013, around 16 months after the introduction of new measles schedule, Sri Lanka experienced a large outbreak of measles. At present, measles is only a clinical diagnosis and only a fraction is sent to the medical research institute for confirmation. The notification is based on the clinical suspicion and expected to be using the surveillance case definition for measles^[2]. Data from the Weekly Epidemiological Reports which published the Epidemiology Unit of Sri Lanka shows that until the 30th week of 2012, only sporadic cases of measles were reported from Sri Lanka and it never exceeded 2 cases per week from the whole country. From 31st week 2012, reported number of cases showed slight increase with consistent reporting of at least one case a week until the end of year 2012. Steady increase of reported cases started in the 8th

week of 2013 and exponential increase of cases observed from April 2013, reaching the peak in the third week of July (Figure 1b). Even at the 52nd week (end of 2013) reported case numbers were 40 times higher ($n=45$) than the baseline case numbers for last 10 years showing that the outbreak is continuing. The total number of reported cases of measles in 2013 was 3995, compared to 77 cases in 2012. The reported incidence of measles in year 2012 and 2013 was 0.39 per 100 000 population and 20.0 per 100 000 population respectively. Cumulative incidence of measles in 2013 was more than 5/100 000 population in five provinces of Sri Lanka. Highest incidence of measles was reported from the Sabaragamuwa Province with 35.2 cases per 100 000 population ($n=676$), a 225 times increase in incidence compared to 2012 ($n=3$, 1.7/100 000) (Figure 1c). In the northern province, only 19 cases were reported with an incidence of 1.8/100 000, only a 2.7 times increase of cases compared to 2012 ($n=7$). However, a preliminary analysis of notification data in the first 20 weeks shows that up to the 19th week, 63.9% of reported cases (241/377) were infants and this proportion drops to 39.2% (51/130) in the 20th week^[3]. Further, infants aging 9–11 months contributed to 40% of the caseload among infants during the first 20 weeks^[4]. The estimated cumulative incidence of measles in 2013 among infants, infants aging 9–11 months and those aging >12 months were 210.9, 337.4 and 2.7 per 100 000 respectively.

Though we reported nearly 4 000 cases, this might be only the tip of the iceberg. The accurate clinical diagnosis of measles might have been difficult as the clinicians in Sri Lanka (at least those who started practice

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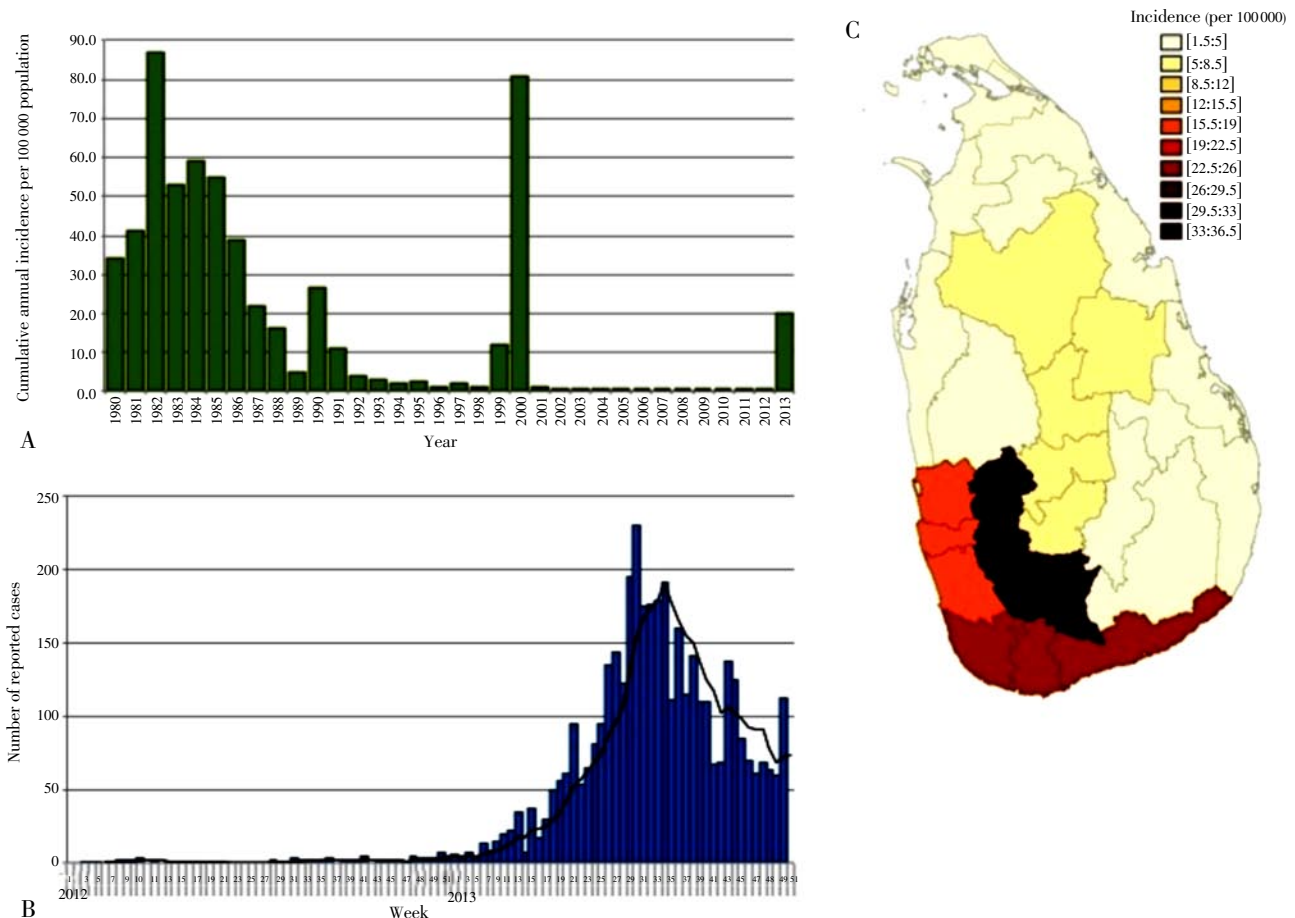


Figure 1. Tempo-spatial distribution of measles outbreak in Sri Lanka 2013.

A: Cumulative annual incidence of measles in Sri Lanka, based on cases reported to the national surveillance system, 1980–2013; B: Epidemic curve of measles 2012–2013; C: Spatial distribution of measles cases of 2013 outbreak.

after 1999–2000 outbreak) are not much familiar with the disease due to the low incidence of disease in the past few decades. Further, notification system only reports symptomatic measles patients who fulfill the criteria of measles case definition but the patients with mild disease or asymptomatic cases would have been missed which is a known phenomena[5]. The response to this outbreak was mainly through awareness and on 5th July 2013, Sri Lanka launched a supplementary immunization activity for 6–12 months old infants[4]. In spite of this supplementary immunization, the outbreak seems to have progressed over the recent months. This suggests that even after removing the susceptible infants from the population, there are large number of susceptible adult population in this community. Despite having a largest reported outbreak of measles, clinical, microbiological or epidemiological studies on this outbreak are still not available to characterize the outbreak and to explore other probable factors contributing to this outbreak. We encourage all health professionals to look into this outbreak as the incidence of measles seems continuing in Sri Lanka. In addition, proper investigation of this outbreak, especially to elucidate whether the triggering factor was recent change in immunization schedule is more important at global settings for future decision making.

Conflict of interest statement

We declare that we have no conflict of interest.

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