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Commentary: Accelerated measles control/measles elimination in southern Africa

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The World Health Organization (WHO) has developed a global plan for accelerated measles control which calls for implementation of a strategy based on that used to successfully control measles in the Americas—a ‘catch-up’ campaign providing measles vaccine to all children (usually 9 months [or 1 year] to 14 years of age) regardless of prior history of immunization or disease, followed by high levels of routine coverage with measles immunization (‘keep-up’), and periodic ‘follow-up’ campaigns targeting all children 1–4 years of age.¹

The article by Uzicanin *et al.* is an exciting and impressive preliminary report on the short-term impact of adoption of this strategy, starting with a ‘catch-up’ measles immunization campaign in South Africa.² The dramatic results seen in the short-term are to be expected, particularly since routine measles coverage before the ‘catch-up’ campaign was sufficiently high to have prolonged the inter-epidemic cycle of measles in South Africa. As the authors point out, the real test of long-term control/elimination will be the ability of the country to maintain high levels of routine coverage with measles vaccine along with periodic ‘follow-up’ campaigns to provide a second opportunity for

measles vaccine for all young children. Nonetheless, the striking reduction in average annual morbidity and mortality gives cause for optimism about the longer-term impact of the programme.

In addition to the obvious short-term impact of the campaign, two other aspects are notable—the concurrence of two different systems of surveillance and the ability of the campaign to reach children who had not previously been vaccinated (the ‘hard to reach’).

In the absence of a case-based reporting system backed up by laboratory confirmation, there are always questions about the accuracy/representativeness of passive reporting systems such as existed in South Africa until recently. The fact that hospital admission data closely paralleled reported morbidity increases confidence that the morbidity reporting system at least reflected trends in incidence. Given the fact that not all cases of measles seek medical attention and that, even for those who do seek attention, medical care providers do not always report cases as they should, the number of cases reported almost certainly underestimates reality unless there are major confounders from other illnesses such as rubella.

It is clear that case reporting includes many non-measles illnesses, as manifested by the fact that, after the campaign, only approximately 10% of reported ‘measles’ cases were positive for

measles-specific IgM antibody. In the face of this confounding, it is highly likely that the campaign resulted in an even greater reduction in true measles morbidity than is reflected by reporting. One could even make some 'guesstimates' about the true impact. If only 10% of currently reported cases are truly measles and there was a 90% reduction in total reported cases, the true reduction in measles incidence may have been of the order of 98% assuming a constant incidence of non-measles disease reported as measles. Introduction of individual case investigation supported by laboratory testing makes it possible to become more confident about the true level of circulation of measles virus.

The authors report a 'strong negative correlation' between individual districts' rankings for routine measles immunization coverage and coverage attained during the campaign, suggesting that the campaigns were reaching children who had previously been missed ('hard to reach'). In Mpumalanga province routine coverage was 71% whereas the campaign coverage was reported as 104% (partly reflecting population flows across provincial and international borders).³ This finding is similar to that in other countries, where mass campaigns (either for polio or measles) commonly reach children who had been missed by routine services. For example, Zuber *et al.* found that, in urban settings in Burkina Faso, where only 57% of children 9–59 months of age had received measles vaccination through routine activities, 78% of previously unvaccinated children (and 81% of previously vaccinated children) received measles vaccine during National Immunization Days.⁴

A strategic plan for accelerated measles control in southern Africa has been developed, based on the strategy developed in the Americas and seven countries in southern Africa have brought about dramatic reductions in reported morbidity and the mortality due to measles even in the face of markedly improving surveillance.⁵ Although the data presented by Uzicanin *et al.* cannot demonstrate the lasting impact of the campaign, there is strong corroborating evidence, subsequent information from South Africa and other countries in southern Africa which have undertaken aggressive approaches to accelerate measles control/elimination. During January–April 2002 there were only 369 reported suspected measles cases in the seven southern Africa countries that have launched measles elimination. Of

these 357 (97%) were investigated and 71 of 333 cases with laboratory results available were confirmed as having measles. Sixty-six of the 71 laboratory-confirmed cases occurred in Namibia as a result of spread from an outbreak in Angola, demonstrating the importance of maintaining high routine immunization coverage and effective 'follow-up' campaigns.⁶

Uzicanin *et al.* have shown that, in countries with good access to hospitals, retrospective searches for measles cases at district hospitals are a useful tool for strengthening measles surveillance and building the communication links between hospital infection control nurses/disease surveillance clerks and the health department. The study itself was a training component that helped develop case-based surveillance in the two provinces.

The WHO estimates that there are still 770 000 deaths due to measles each year, with half of these occurring in sub-Saharan Africa.⁷ These early results are very encouraging about the prospects of effective control of measles in sub-Saharan Africa and the possibility that measles elimination could be achieved as a step toward global eradication.⁸

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