

Pneumococcal carriage and serotypes distribution pre- and post- PCV vaccination campaign in Adjumani refugee camps, Uganda

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Background

In July-September 2014, MSF conducted a mass vaccination campaign (MVC) among children aged between 6 weeks and 23 months in Adjumani settlements using pneumococcal conjugate (PCV-10) vaccines. We aimed to examine the impact of the MVC on pneumococcal carriage and serotypes circulation.

Methods

Three nasopharyngeal (NP) pneumococcal carriage household surveys (respectively in July 2014, March and June 2015) were carried out among residents (all ages). *Streptococcus pneumoniae* was cultured from NP swab specimens. All pneumococcal isolated were serotyped using the Quellung method in Epicentre Mbarara-Uganda Laboratory, in order to describe pneumococcal serotyping distribution in Adjumani population before and after the PCV mass vaccination campaign. In addition, MSF conducted a vaccination coverage cluster survey among children aged between 6 weeks and 23 months in October 2014.

Results

Among children in the age range for vaccination, 96% (95%CI 94-98%) received at least one dose of PCV-10 and 43% (95%CI 39-47%) received 3 doses of PCV-10. Overall pneumococcal carriage increased from 58% (95%CI 56-61%) in the first survey to 67% (95%CI 64-69%) in the third, and from 86% (95%CI 83-90%) to 92% (95%CI 90-94%) among children younger than 24 months. Vaccines

serotypes decreased from 37% (95%CI 34 – 40%) to 15% (95%CI 14-18%) overall, and from 49% (95%CI 44-54%) to 17% (95%CI 14-21%) among children less than 24 months.

Conclusion

Following the PCV-10 mass vaccination campaign, NP carriage increased. A significant and rapid replacement of vaccines serotypes by non-vaccines serotypes was observed in all age groups, including non-vaccinated age-groups. Non-vaccines serotypes are expected to be less invasive. Improvement of surveillance of invasive pneumococcal disease is required, together with serotypes circulating in order to monitor the impact of PCV mass vaccination.

Nasopharyngeal pneumococcal carriage increased among the overall population of Adjumani settlements, following a PCV-10 mass vaccination campaign organized between July and September 2014. A significant and rapid replacement of vaccines serotypes by non-vaccine serotypes was observed in all age groups, including non-vaccinated age-groups.