

Vaccination has been shown to be one of the most effective public health interventions. In the past ten years, many new vaccines have become available to low- and middle-income countries. The London School of Hygiene & Tropical Medicine carried out two studies, in collaboration with partners in eight countries, one exploring national decision-making processes around new vaccine adoption and another on the impact of new vaccines on country health systems.

Introducing MenAfriVac and PCV13

Mali

Study 1 Decision-making for new vaccine adoption

As new and improved vaccines become available, countries need to make decisions on which vaccines to adopt into their routine programmes. Mali is in the 'meningitis belt' of sub-Saharan Africa and has experienced large epidemics of serogroup A meningococcal disease. Mass vaccination with meningococcal polysaccharide vaccine has had limited effectiveness, so in 2008, the World Health Organization (WHO), PATH and the Bill & Melinda Gates Foundation collaborated to develop a novel serogroup A meningococcal conjugate vaccine, MenAfriVac. Following licensure, a mass vaccination strategy was designed in Mali, Niger and Burkina Faso, and implemented. MenAfriVac was introduced in Mali in September 2010. This was followed by the introduction of the 13-valent pneumococcal

conjugate vaccine (PCV13) in March 2011, with the support of funding from the GAVI Alliance. This study investigated processes of national decision-making for new vaccine adoption and sought to understand the factors affecting these decisions in Mali.

Methods

Interviews were conducted with 15 key informants in March 2011, including officials from the Ministry of Health, Ministry of Finance, international agencies, academics and clinicians. Interviews focused on the decisions to adopt MenAfriVac and PCV13 vaccines.

Findings

Main actors

Only a small number of actors were involved in decision-making and Ministry of Health officials played a key role, as expected. The WHO was considered an important actor, providing advocacy and support, particularly for MenAfriVac. The adoption of MenAfriVac involved the establishment of an international partnership to support its development and commitment from the Minister of Health to fast-track its adoption. National advocacy also helped get new vaccines on the agenda, particularly by the Centre for Vaccine Development. Although GAVI funding calls were a key cue, discussions about the pneumococcal vaccine preceded the GAVI call.

Key drivers of the decision

- Disease burden was an important driver of decisions to adopt new vaccines, especially in the case of meningitis, which was an epidemic disease
- Importance of local evidence, Mali has substantial epidemiological surveillance capacity
- Immunisation was a key political priority and one of Mali's strategic national health targets
- Reaching Millennium Development Goal 4 on reducing child mortality was felt to be important in Mali
- Availability of GAVI funding was a critical driver, especially in the case of PCV13
- Advocacy by international agencies, such as the WHO

CONCLUSION: The decision to adopt new vaccines in Mali was driven by different factors. The burden of disease and political prioritisation of immunisation were important drivers. The availability of GAVI funding was important in the adoption of PCV13.

Study 2: Impact of new vaccine introductions on the health system

It is often hoped that introducing additional vaccines may help to strengthen immunisation programmes and health systems more broadly. There are also concerns, however, that such additions may prove to be an additional stressor where resources are already overstretched. This study evaluated the impact of two new vaccine introductions, MenAfriVac and PCV13, on Mali's existing immunisation programme and health system.

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Photo: Sergio Torres Rueda

"people are so afraid of meningitis they all mobilise, population and staff... unlike other vaccines for which we have problems on the ground"

District level interviewee

"at health facility level, there is an impact (on other activities) because these have only two staff in most cases...the workload is much increased and some activities are reduced because all the staff is involved (in the campaign)"

District level interviewee

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Study 2a: Impact of MenAfriVac introduction on the health system

Large epidemics of serogroup A meningococcal disease have occurred in Mali as in other countries of the "meningitis belt" of sub-Saharan Africa. The last serious epidemic in Mali occurred in 1997 with 11,228 reported cases and 1126 deaths.¹ Mali introduced the meningococcal vaccine, MenAfriVac, through mass immunisation over 3 separate campaigns targeting the population aged 1–29 years old, between September 2010 and November 2011.

Methods

The study used a mixed methods approach and data were collected during July and August 2011, ten months after MenAfriVac was introduced. Semi-structured interviews with 31 key informants were conducted at the national, provincial and district levels. Data were collected at national level and in the Bamako and Koulikoro regions, in which the second phase of the MenAfriVac campaign took place. A total of 18 health facilities in three districts of each



Photos: Sandra Mounier Jack

of the two regions were visited and structured questionnaires were completed with a staff member from each. Routine data on the number of antenatal visits and children vaccinated one month before, during campaign days, and one month after the campaigns, were collected from health facilities. Data collection tools and data analysis were structured using the WHO health system building blocks framework.²

Findings

The introduction of MenAfriVac had many positive effects on the building blocks of the health system, including governance and collaboration, communication and social mobilisation, surveillance and the strengthening of skills. However, it had no effect on many of the building blocks and negative effects in terms of continuity of routine service.

- Interruption or reduction in routine vaccination services during the 10 days of the campaign
- Reduction of other health services reported
- Sharp decrease in meningococcal disease enabled a shift from epidemic response to prevention; cost effective for the health system.
- Training provided the opportunity to refresh knowledge
- Enhanced equity reported by some e.g. those affected by sickle cell anaemia.
- Strengthening of national and sub-national Adverse Effects Following Vaccination surveillance capacity but no change in reporting
- MenAfriVac approval was expedited and bypassed regulatory procedures
- New collaborations were established or strengthened between national institutions involved in the introduction
- Cold chain was strengthened in 4 regions in 2010 in the run up to the two new vaccines being introduced

Study 2b: Impact of PCV13 vaccine introduction on the health system

Between 2002 and 2007, streptococcus pneumonia infections accounted for 23–30% of deaths in 0–16 year olds in Mali.³ Mali introduced the new pneumococcal conjugate vaccine (PCV13) to its routine immunisation program in March 2011 and it was phased in across the whole country over 12 months. The vaccine was given to infants with the pentavalent vaccine.

Methods

The study used a mixed methods approach and data were collected between March and June 2012, 12 months after PCV13 was introduced. Semi-structured interviews with 53 key informants were conducted at the national, provincial and district levels. Three districts in each of three regions (Bamako, Sikasso and Kayes) were selected for data collection.

Structured questionnaires were completed with staff at 27 health facilities. Routine data on the number of antenatal visits and number of children vaccinated 12 months before and after PCV13 introduction were collected from the health facilities. Data collection tools and data analysis were structured using the WHO health system building blocks framework.²



Photo: Peter Casier

Mali

"PCV gave a new breath to the EPI programme, because in some health facilities the EPI was very weak"

Regional interviewee

"It is a shame that those responsible for child-related activities were not involved in the new vaccine introduction"

National interviewee



Photo: Sandra Mounier Jack

Findings

The PCV13 vaccine was well-integrated into Mali's routine vaccination programme with little impact on the building blocks of the health system.

- No major change in the provision of routine health services was reported
- A perceived increase in the number of children attending vaccination with half of facilities reporting that the new vaccine had helped catch defaulters
- Routine data showed increase in pentavalent vaccine coverage following the introduction of PCV13, although this was not sustained over time
- Interviewees reported a positive effect on awareness of vaccine benefits across the population
- Interviewees said that the new vaccine improved equity – notably among specific groups e.g. those affected by sickle cell anaemia.
- Training provided for the vaccine introduction enhanced health workers' skills
- Cold chain was strengthened in 4 regions in 2010 in the run up to the two new vaccines being introduced
- No evidence of an integrated approach to pneumonia

CONCLUSION: *The two new vaccines had a number of positive effects on the EPI and more marginal effects on the health system. Among those were enhanced health worker skills, greater population awareness of the benefits of vaccination and reduction of disease. The main negative effect was related to the interruption to routine activities during the MenAfriVac campaign.*

References

- 1 WHO, Dr Kassibo Sira Diarra. Rapport d'évaluation de la campagne de vaccination contre la méningite avec le vaccin MenafriVac, 2ème phase. 2011.
- 2 World Health Organization, *Everybody's business: strengthening health systems to improve health outcomes. WHO's Framework for Action*. Geneva: World Health Organization. 2007.
- 3 République du Mali. Plan pluri-annuel complet du PEV 2012-2016. 2012.