Background

New and enhanced surveillance activities, combined with increased advocacy and emerging results from clinical research studies, have increasingly prompted JE endemic countries to consider programs to protect vulnerable populations through immunization. All of this new information brings a greater awareness of JE and the solutions to control it, so countries can develop strategies for introducing safe and affordable JE vaccines.

Several countries with long-term existing JE control programs also are considering advancements in JE vaccines, as new and improved candidates move further along in clinical development. These new options may call for programmatic updates and potential transition from the traditionally used inactivated, mouse brain–derived JE vaccine, of which supply continues to decrease as international manufacturers cut back or halt production.2

In recent years, forward-thinking national governments have led the way in introducing or transitioning to use of the live, attenuated SA 14-14-2 JE vaccine, providing models for other countries to follow in their footsteps and learn from their experiences. Development of new JE vaccines continues, including promising products from Intercell and Sanofi Pasteur, encouraging a healthy market and eventually more options for countries ready to implement JE immunization.3

Introduction of SA 14-14-2 JE vaccine

Following a severe JE outbreak in India and Nepal in 2005 that roused international attention and claimed thousands of children’s lives, policymakers in both countries rapidly advanced JE immunization planning. Because leaders in each country had already begun developing national JE control strategies, both were at an opportune stage to quickly initiate JE vaccination campaigns to protect vulnerable children before the next year’s monsoon season struck. PATH provided technical assistance in both countries, from strategy development through program implementation and evaluation.

In India, the government committed to a five-year strategy to vaccinate more than 100 million children aged 1 to 15 years in high-risk districts. Areas that held campaigns would then begin providing the vaccine in routine immunization services to protect new birth cohorts. By the end of 2010, more than 100 million children will be vaccinated.4 Communications barriers between state and national levels and limited vaccine supplies for safe immunization and assembled an expert team on surveillance data showing an expansion of JE to new districts. As adults in these areas may have waning immunity or may not have developed natural immunity from exposure to JE in the environment, they also were among the at-risk population. Nepal expanded the vaccination campaigns’ reach to additional districts in following years as well, and subsequently introduced JE vaccine into routine immunization services.4

In the Democratic People’s Republic of Korea, PATH partnered with the Ministry of Health, the Academy of Medical Sciences, Christian Friends of Korea, and Global Solutions for Infectious Diseases to support JE vaccination campaigns in 2009 to immunize nearly half a million children. PATH provided supplies for safe immunization and assembled an expert team that offered technical assistance on campaign planning and monitoring. Evaluation of the campaign’s success will inform the national government’s future JE immunization planning.

Transition to SA 14-14-2 JE vaccine: Sri Lanka

The Government of Sri Lanka introduced the inactivated, mouse brain–derived JE vaccine in 1988 through phased vaccination campaigns in high-risk districts, and the program achieved a significant decrease in JE incidence. In following years, however, outbreaks began to be recorded in districts without JE immunization and surveillance data revealed the need for national expansion. Additionally, surveillance for adverse events following immunization (AEFIs), established and enhanced in the 1990s, recorded an increasing trend of AEFIs following JE vaccination as compared to other routine vaccines.
Finally, cost considerations and an unreliable supply of the inactivated vaccine prompted a search for an alternative vaccine.

National immunization managers reviewed available information about the live, attenuated SA 14-14-2 JE vaccine, including WHO reports, scientific literature, cost-effectiveness data, and evidence of impact in other countries. PATH assisted with local studies on the vaccine’s safety and immunogenicity and a cost-effectiveness analysis, which bore positive results. Beginning in July 2009, the SA 14-14-2 vaccine was introduced in routine immunization services in 18 districts. The cost-savings made possible by the vaccine transition will allow for program sustainability, budget for other new vaccines, expansion of JE immunization nationwide and to vulnerable adults in high risk areas, and the potential to add a second dose of JE vaccine, if necessary.5

A model project on vaccine transition: Shaanxi Province, China

In collaboration with the Chinese Center for Disease Control and Prevention, PATH assisted with a model project to transition from the inactivated JE vaccine to the live, SA 14-14-2 JE vaccine in three counties of Baoji Prefecture, Shaanxi Province. An ancillary part of the project, conducted in 2007, helped to set up active JE surveillance and strengthen JE laboratory and diagnostic testing at the county, prefecture, provincial and national levels.

Upcoming milestones

Additional countries are planning or expanding JE immunization programs, boosted by crucial surveillance data and lessons learned from the experiences of regional pioneers. In Cambodia, the SA 14-14-2 JE vaccine was integrated into routine immunization services in three provinces in October 2009, with plans for national expansion. The Government of Vietnam plans to expand its geographically targeted JE immunization program, nationwide by 2011 using a locally produced, inactivated vaccine.6

Key lessons learned

- The experiences of countries introducing JE vaccine can be important models for other countries in the region planning JE control strategies. Lessons learned, guidelines for implementation, and relevant data should be shared with the regional and global communities.
- When a new vaccine is introduced, communication between district, state, and national levels is critical to ensuring successful implementation and sustainability of campaigns and routine immunization services.
- New vaccine introduction and evolution of immunization strategies (including vaccine transition) offer opportunities to assess and improve health system infrastructure, enhance disease surveillance, and strengthen AEFI monitoring.

ENDNOTES