

Navigating vaccine introduction: a guide for decision-makers
JAPANESE ENCEPHALITIS (JE)

Module 5

**CAN MY COUNTRY
AFFORD A JE
VACCINATION
PROGRAM?**

 **PATH**

5



ABOUT THIS GUIDE

Japanese encephalitis (JE), a viral infection of the brain, is transmitted to humans by mosquitoes. Because these mosquitoes usually live in areas with standing water, such as rice fields, and the pigs and birds that are part of the JE transmission cycle are common in the countryside, people in rural areas are most at risk. It begins like the flu and can progress to a brain infection, killing up to 30 percent of its victims and leaving up to half of its survivors with permanent brain damage such as memory loss, impaired cognition, paralysis, seizures, the inability to speak, and other mental disorders. Providing lifelong care for survivors is a significant financial strain on families and on government health care systems. Although there is no treatment to cure JE, several safe and effective vaccines are available to prevent infection. In areas where JE is recognized as a public health priority, the World Health Organization (WHO) recommends implementing a one-time JE vaccination campaign focused on the at-risk population followed by incorporation of JE vaccine into routine immunization.¹

The modules in this guide are designed to help country decision-makers understand the evidence around when to consider introducing JE vaccines, the potential benefits, how to incorporate JE vaccines into their country's immunization program, and how to monitor and evaluate the vaccines after introduction. The resources and evidence included focus on JE vaccines that are WHO-prequalified.



KEY TAKEAWAYS • Module 5

- Determining the costs and requirements to finance a new JE vaccination program is the final, essential step in deciding to introduce JE vaccine into a national immunization program.
- Before introduction, countries should analyze and update comprehensive multi-year plans, budgets, and financing plans to include JE vaccines.
- The World Health Organization (WHO) provides several useful and standardized tools for performing vaccine introduction costing analyses, which focus on affordability and sustainability.
- Affordability focuses on a country's ability to cover up-front costs, whereas financial sustainability looks at the long-term financial impact of adding new vaccines on the immunization budget. Both are important for all countries to consider.

MODULE

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Can my country afford a JE vaccination program?

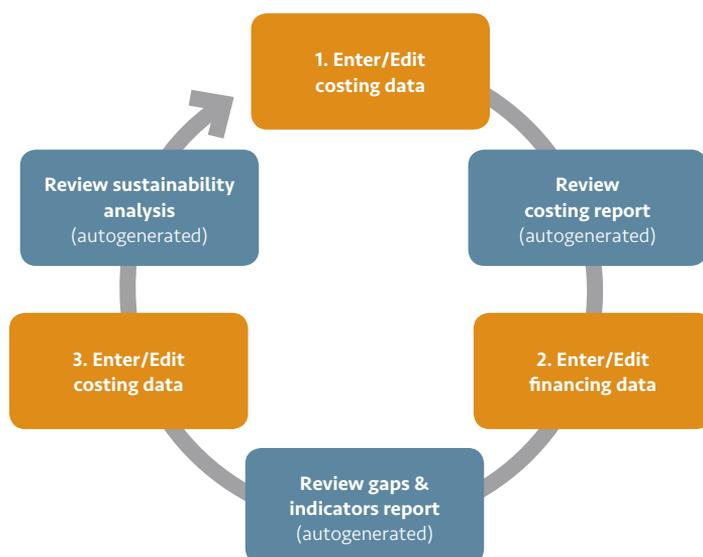
After developing a plan for JE vaccine introduction, the final steps in decision-making are to analyze the affordability and sustainability of JE vaccination and determine how your country will finance the plan. WHO recommends that decision-makers carefully evaluate the potential short- and long-term financial impacts of adding new vaccines to the national immunization program (NIP) budget.² This module provides an overview of how to estimate JE vaccine introduction costs, assess affordability and long-term financial sustainability, and update relevant budgets and policies.

Conducting a costing analysis

While you likely considered the cost-effectiveness and return on investment of a JE vaccination program (see *Module 2: Is JE vaccination cost-effective?*), JE vaccine introduction usually depends on being able to make an initial investment. By conducting a costing analysis, you can determine the costs of adding JE vaccine to the NIP and its effect on the budget over time. Costs are specifically based on your country's chosen vaccine and integration plan (see *Module 3: Which JE vaccine should my country introduce?* and *Module 4: How should my country introduce JE vaccines?*). If the costing analysis reveals suboptimal sustainability, your country should revise its integration plan and reanalyze, leading to a revision cycle of planning and budgeting that can improve long-term sustainability (Figure 1). Several standardized tools, such as WHO's electronic costing tool for comprehensive multi-year plans (cMYPs) for immunization,³ are available to help countries estimate costs.

FIGURE 1. DESIGN OF THE cMYP COSTING TOOL.

Source: WHO 2014.



Estimating the costs of JE vaccination

The first step in a costing analysis is to estimate the costs associated with introducing JE vaccine. The WHO cMYP costing tool includes common cost inputs needed to successfully deliver vaccine and make necessary program changes as your country

outlined in its JE vaccine introduction plan (see *Module 4: How should my country introduce JE vaccines?*). Your country's JE vaccine introduction plan may include components such as additional health workers or immunization sessions, new delivery strategies, cold chain improvements, and expansion of disease surveillance and program monitoring that may be required to ensure JE vaccination coverage remains high (Figure 2). These costs must also be taken into account in the costing estimate.

FIGURE 2. COSTS TO INCLUDE WHEN ESTIMATING FUNDING NEEDS FOR JE VACCINE INTRODUCTION²

Source: WHO 2014.

- ✓ Cost of procuring vaccine and supplies.
- ✓ Training of all relevant health workers on Japanese encephalitis (JE) disease and vaccine introduced.
- ✓ An increase in personnel, such as Expanded Program on Immunization (EPI) staff or health workers, to handle additional work load.
- ✓ An increase in the number of EPI sessions due to the extra time needed to administer JE vaccine and/or an increase in demand for immunization services generated by the new vaccine.
- ✓ Expansion of the cold chain, dry storage, and vaccine transport systems and associated inputs.
- ✓ Repairs, expansion, or addition of waste management facilities to handle the additional waste generated by JE vaccines.
- ✓ Development and implementation of microplans and an effective social mobilization plan for JE vaccines.
- ✓ Costs of new delivery strategies, such as school-based vaccination campaigns or sub-national introduction, that may result in new costs.
- ✓ Revision and printing of child health cards, immunization forms, vaccine stock forms, guidelines, and procedures.
- ✓ Pre-introduction visits to districts to monitor readiness for the introduction and immediate post-introduction supervisory/monitoring visits to identify and resolve issues affecting the introduction.
- ✓ Support for overall program monitoring and evaluation, such as a vaccine coverage survey and a post-introduction evaluation.
- ✓ Strengthening safety surveillance, reporting, and management for JE vaccines.

While vaccine cost is generally the first and most frequently discussed budget item, a costing analysis that takes into account all costs of JE vaccine introduction may identify other components that can significantly increase the cost of introduction. In Myanmar, for example, a costing analysis of a JE vaccine introduction plan that included a catch-up campaign followed by routine immunization found that operational costs were larger than the cost of purchasing and shipping the vaccine.⁴ Similarly, an analysis conducted for a JE vaccination campaign in Bali, Indonesia, also found that operational costs significantly exceeded the cost of the vaccine.⁵

Gavi support covers a portion of the vaccine and operational costs per child in the target population for vaccination campaigns.⁶ In addition, Gavi-eligible countries receive a one-time vaccine introduction grant to cover the operational costs of transition to

routine immunization and may receive cofinancing of vaccine used for routine immunization.⁷ Although Gavi support will cover most of the operational costs for the campaign and vaccine introduction costs, countries will need to estimate the costs that will exceed Gavi's support and should develop a timeline and budget for transition to routine JE immunization.

Assessing affordability and sustainability of JE vaccination

FIND OUT MORE



How is the affordability of new vaccine introductions measured?

To determine whether adding a new vaccine to your country's immunization program is affordable, the financial costs of the new vaccine introduction can be compared to the overall government health budget or overall economy. Affordability can also be evaluated by the per capita cost. Commonly used indicators include:²

- Share of the new vaccine cost as a percentage of total NIP costs or total vaccine costs.
- Program costs with and without the new vaccine as a proportion of the total government health budget or expenditures for a particular year.
- Per capita estimates of program costs with and without the new vaccine.
- Program costs with and without the new vaccine as a proportion of gross domestic product.

Once you have estimated the costs of your country's JE vaccination plan, the next step in a costing analysis is to determine its affordability and sustainability according to established standards. Affordability focuses on the ability of the health system to cover the initial introduction costs, while financial sustainability looks at the long-term impact of adding a new vaccine to the NIP budget.²

A new vaccine is considered affordable if it can be introduced and absorbed into the NIP budget without significantly affecting available resources for other vaccines or public health priorities.² Using standard indicators, the affordability of introducing JE vaccines should be compared to other public health interventions or programs to get a better sense of their relative impact on the budget. If the program-specific costs with a new vaccine represent a substantial share of the total government health budget or expenditures in a particular year, the program may be pushing the limits of affordability, requiring significant efforts to mobilize resources and sustain the new vaccine in the coming years.

To analyze financial sustainability, the cost of introducing JE vaccine should be compared with current and future financing. Any gap between costs and available funds for a certain year (referred to as the annual funding gap) should be estimated for the next several years.^{2,3} The WHO cMYP costing tool calculates the funding gap based on current and projected financing and breaks it down by program components, such as vaccines, personnel, and transport.³ The funding gap can change significantly, however, based on timing of the introduction. For example, one analysis conducted for Myanmar suggested that delaying introduction of JE vaccines by five years could increase costs by up to 115 percent due to various factors, including increases in the price of the vaccine and a growing target population.⁵ Additionally, it can be useful to perform a more comprehensive budget impact analysis that includes the benefits of JE vaccination (e.g., averted health care costs), which offset some of the costs of vaccine introduction.

Long-term financial sustainability of a JE vaccination program should be a major consideration before introduction. If the use of JE vaccine is suspended due to a lack of funding, it can have serious implications for disease control and health outcomes.² Additionally, if funds are diverted from other health programs to pay for the new

vaccine, it can potentially affect other important programs. Careful planning is needed to ensure that other important health programs and services are not adversely affected. To ensure financial sustainability of JE vaccines, countries can increase the reliability of funding, improve program efficiency to minimize the additional resources needed, and/or mobilize additional resources. Additional resources can come from expansion of the health budget, leveraging of existing resources, or external donations or loans. For example, to help cover initial introduction costs and improve long-term sustainability of its JE vaccination program, Nepal leveraged resources that were established and used in its polio program as well as applied for a loan from the World Bank. After Gavi funding for JE vaccination became available, Nepal used Gavi funding to expand JE vaccination to additional districts in 2016.⁸

Updating immunization plans, policies, and budgets

If the decision to introduce JE vaccine is made and the program's affordability and sustainability are evaluated positively, the national budget, cMYP, and NIP budget and financing plan need to be updated to include all costs associated with JE vaccine introduction as outlined in the costing analysis. Updating the cMYP to include JE vaccine presents an opportunity to identify weak areas of the immunization program and health system that may impede successful introduction or progress of the overall immunization program and to make plans to strengthen these areas. Additionally, all plans and budgets need to specify the sources of the funding and whether new resources mobilization strategies will be needed.

Countries applying for Gavi support for JE vaccination campaigns need to provide a cMYP that includes JE as well as a New Vaccine Introduction Plan (see *Module 4: How should my country introduce JE vaccines?*). If the current cMYP does not yet include JE vaccination, countries must submit a timeline for updating the cMYP.³

References

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- 7 Gavi board decisions 22-23 June 2016 page. Gavi, the Vaccine Alliance website. Available at: <http://www.gavi.org/about/governance/gavi-board/minutes/2016/22-june/>. Accessed July 7, 2016.
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Developing a comprehensive, sustainable plan to finance the introduction and maintenance of a JE vaccination program is the final, key step in deciding and preparing to introduce vaccine. To determine how your country can finance JE vaccination, it is recommended to:

1. **Estimate the comprehensive costs associated with adding JE vaccines to your country's NIP and assess affordability and long-term sustainability.** Expenses include not only the cost of the vaccine but all programmatic costs involved with training, planning, and delivery. These costs should be compared with the cost savings that will result from fewer JE cases once the vaccination program is in place as well as with your country's current budgets. WHO provides several standardized tools that can help account for all program costs associated with the introduction.
2. **Modify plans for integrating JE vaccines into the EPI as needed to improve sustainability.** If an initial costing analysis reveals that introduction of JE vaccine would not be affordable or sustainable, the integration plan should be revisited and modified to optimize program efficiency and minimize resources needed. Once you have a revised plan, the costing analysis should be reconducted. This cyclic process should be repeated until your country has a viable JE vaccine integration plan that is both affordable and sustainable.
3. **Analyze and update comprehensive multi-year plans, budgets, and financing plans for JE vaccines.** Budgets and plans should be developed and modified based on the results of affordability and sustainability analyses. All budgets should indicate the sources of the funding, and new resource mobilization strategies may be required. WHO provides templates, checklists, and other tools to help countries develop their own customized budgets and plans.





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