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Gavi's Transition Policy: Moving From Development Assistance To Domestic Financing Of Immunization Programs

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ABSTRACT Gavi, the Vaccine Alliance, was created in 2000 to accelerate the introduction of new and underused vaccines in lower-income countries. The period 2000–15 was marked by the rapid uptake of new vaccines in more than seventy countries eligible for Gavi support. To stay focused on the poorest countries, Gavi's support phases out after countries' gross national income per capita surpasses a set threshold, which requires governments to assume responsibility for the continued financing of vaccines introduced with Gavi support. Gavi's funding will end in the period 2016–20 for nineteen countries that have exceeded the eligibility threshold. To avoid disrupting lifesaving immunization programs and to ensure the long-term sustainable impact of Gavi's investments, it is vital that governments succeed in transitioning from development assistance to domestic financing of immunization programs. This article discusses some of the challenges facing countries currently transitioning out of Gavi support, how Gavi's policies have evolved to help manage the risks involved in this process, and the lessons learned from this experience.

Gavi, the Vaccine Alliance, was created in 2000 to increase access to lifesaving new and underused vaccines and to rapidly scale up the use of those vaccines in poor countries. Gavi invites applications for support from governments of countries whose gross national income per capita is below Gavi's eligibility threshold. It purchases vaccines through its procurement agencies, primarily the United Nations Children's Fund (UNICEF), and provides these to governments whose applications have been approved. From the beginning of Gavi support, governments are expected to cofinance vaccines by financing and procuring a fraction of the needed doses. Gradually, as national income levels grow, cofinancing levels for participating governments increase. Once countries' incomes exceed the eligibility threshold, Gavi support

phases out over five years, and governments assume the full cost of continuing vaccine programs that were initiated with Gavi support.

There is increasing interest among development partners in identifying strategies to help countries transition out of development assistance. There is limited evidence of which approaches might be most effective.

This article discusses financial and programmatic challenges that countries may face as they transition out of Gavi support, and how Gavi's policies and programs have evolved to help manage the inherent risks associated with this process.

Gavi's Catalytic Funding Model

Gavi has two major policies designed to help countries achieve sustainable immunization fi-

nancing: the eligibility and transition¹ and cofinancing² policies. The former sets a clear limit on eligibility, linked to a government's ability to afford new vaccines as measured by gross national income per capita.³ In 2000 Gavi's threshold for eligibility was set at US\$1,000 per capita. Countries below this threshold—seventy-four at the time—were eligible to apply for support. Gavi soon ended support to four countries (Albania, Bosnia and Herzegovina, China, and Turkmenistan) whose gross national incomes per capita increased above the threshold. The remaining countries continued to receive support. In addition, three new countries have become eligible since 2000—East Timor, Kiribati, and South Sudan—thus creating a cohort of seventy-three eligible countries. These countries have had access to Gavi support for a range of vaccines such as pentavalent, pneumococcal, rotavirus, human papillomavirus, and yellow fever. Between 2000 and 2015 Gavi supported more than 300 introductions and campaigns with these and other vaccines in its portfolio. The per capita income threshold has been adjusted for inflation several times. In 2015 it was US \$1,580, and support is phasing out for nineteen out of the seventy-three countries whose gross national incomes per capita have exceeded this threshold.

To avoid an abrupt change that could threaten the continuity of national immunization pro-

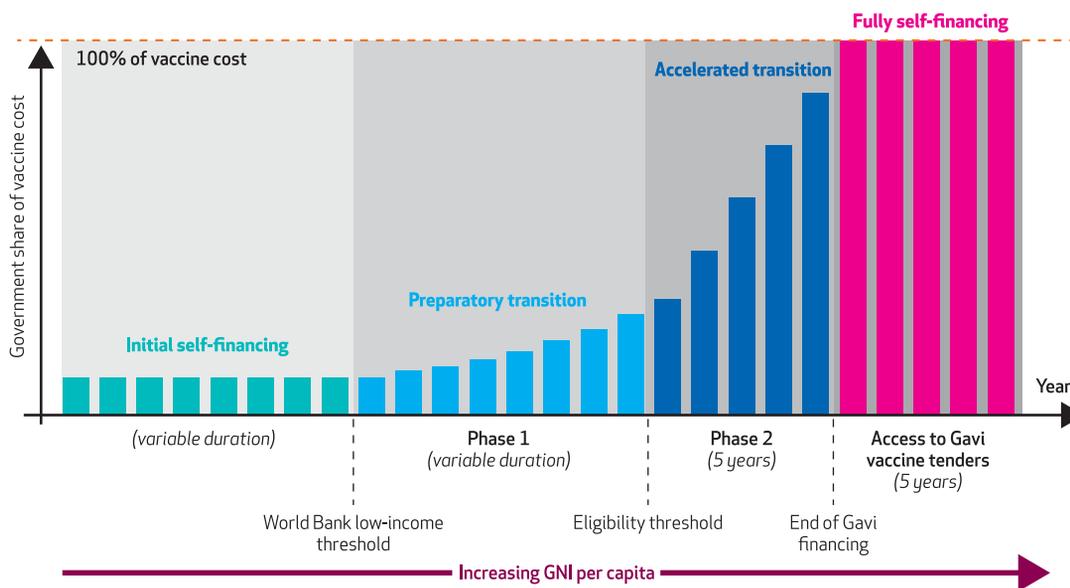
grams, Gavi does not terminate support immediately for countries whose incomes exceed the threshold. Instead, Gavi support is phased out in a gradual transition process that starts after countries exceed the World Bank's threshold for status as a low-income country, which is currently US\$1,045 per capita—well below Gavi's eligibility threshold. The transition is achieved through changes in national cofinancing of Gavi-supported vaccines.

The cofinancing policy requires governments to share in the costs of Gavi-supported vaccines by domestically financing a portion of the doses needed to cover the target population. Thus, in practice, cofinancing is coprourement of vaccine doses. The objectives of the policy are to prepare countries for full self-financing of vaccines by the end of Gavi support and ensure the financial sustainability of Gavi's investments.

When a country's gross national income per capita is below the World Bank's low-income-country threshold, the government's contribution is a flat amount (US\$0.20 per dose) for any vaccine it receives from Gavi.⁴ This contribution is intended primarily to reinforce country ownership and build procurement capacity, without discouraging new vaccine adoption. After a country's gross national income per capita has surpassed the World Bank's low-income-country threshold, the government's contribution increases by 15 percent per year. This is

EXHIBIT 1

Model Of A Country's Transition From Gavi Support For Vaccines To Fully Self-Financing



SOURCE Gavi. **NOTES** "WB low-income threshold" is the World Bank's threshold for status as a low-income country. GNI is gross national income. "Gavi vaccine tenders" are tenders issued primarily by UNICEF, Gavi's procurement agency, that invite vaccine manufacturers to submit offers to supply Gavi-supported vaccines for Gavi-supported countries.

known as the preparatory transition phase, or phase 1 (Exhibit 1).

After a country's income exceeds Gavi's eligibility threshold, its government can no longer apply for new support,⁵ and existing support decreases rapidly. During this accelerated transition (phase 2), the government is required to increase its share of vaccine costs from the level it had reached during the previous phase to 100 percent of the cost, over a period of five years.

In the subsequent period of full self-financing, Gavi no longer provides financial support. However, for an additional five years, the government can opt to have its vaccine needs included in tenders issued by UNICEF for the supply of Gavi-supported vaccines ("Gavi vaccine tenders"). The government pays the full cost of the vaccines. Through this mechanism, it has continued access to the prices that Gavi pays, which can be much lower than elsewhere in the market.

A Vision For Successful Transition Out Of Gavi Support

Sustainability is one of the principles reflected in Gavi's strategy and underlies the rationale for mandatory cofinancing. In June 2015 the Gavi Alliance Board adopted a vision for the period after Gavi support, "the vision that, when countries transition out of Gavi support, they have successfully expanded their national immunisation programmes with vaccines of public health importance and sustain these vaccines post-transition with high and equitable coverage of target populations, while having robust systems and decision-making processes in place to support introduction of future vaccines."¹¹ Critical enabling factors include the following: the availability of sufficient financial resources in government budgets for vaccine procurement and other immunization costs; sufficiently strong health systems to provide equitable coverage and support future vaccine introductions; and adequate institutional capacity and processes to support procurement, product registration, and evidence-informed policies and decisions on the full range of vaccines recommended by the World Health Organization (WHO).

Challenges Facing Governments As They Transition Out Of Gavi Support

Today Gavi supports 265 routine vaccines across seventy-one countries,⁶ reaching an estimated eighty million children per year.⁷ The use of these vaccines, combined with others that will be launched in the coming years, in 2016–20 is

projected to avert five to six million future deaths.⁸ Nearly half of this projected impact would result from vaccine programs in countries where Gavi will be phasing out its contributions during this time. Achieving this impact therefore depends directly on the success of the governments of these countries in scaling up their vaccine budgets.

In 2015 Gavi conducted a detailed assessment of factors that may affect the likelihood of a successful transition. The organization found that countries face a variety of financial and institutional challenges as they transition to full domestic financing of their immunization programs. These challenges are sometimes caused or exacerbated by very rapid income growth, as discussed below. Gavi also found that among countries in the preparatory transition phase, there was relatively low awareness both of the fact that they were about to enter the final phase of Gavi support and of the financial implications of that fact. This low level of awareness was particularly evident among senior government decision makers.

FINANCIAL CHALLENGES Among the twenty-seven countries whose incomes have exceeded Gavi's support threshold or are projected to have done so by 2020, a number of factors drive and contribute to the financial burden related to vaccines (Exhibit 2). Not surprisingly, the more vaccines a country adopts with Gavi support, the greater the costs that country must assume following the end of the support. For countries currently approaching their transition out of Gavi support, the projected number of vaccines adopted by the time support ends ranges from one to eight.⁹

However, the size of the vaccine portfolio alone does not explain the variation in costs across countries. With the exception of human papillomavirus (HPV), all routine vaccines supported by Gavi are infant vaccines. Therefore, an important driver of vaccine costs is the size of the birth cohort relative to the total population. Gavi countries vary significantly in this regard.

For example, both Angola and Armenia will have adopted three vaccines of similar costs by the time their Gavi support ends. Angola has a total fertility rate of 6.0, compared to Armenia's rate of 1.5.¹⁰ As a result, the cost of vaccines per capita (to control for country size) for Angola will be US\$1.09, while the cost for Armenia will be US\$0.34 (Exhibit 2).

Total fertility rate, as a proxy for relative birth cohort size, is indeed strongly correlated with higher vaccine costs after Gavi support ends (Exhibit 3). High-fertility countries that adopt a large number of vaccines with Gavi support are likely to face the greatest financial burden.

EXHIBIT 2

Drivers And Determinants Of Financial Burden Of Vaccines In Twenty-Seven Countries Whose Incomes Have Passed Gavi's Eligibility Threshold Or Are Projected To Do So By 2020

Country	Drivers of financial burden				Determinants of financial burden (projected)			
	GNI per capita, \$ (2014)	Vaccines adopted with Gavi support ^a	Estimated total fertility rate, % (2015)	GGHE as share of GGE, % (2013) ^a	Vaccine costs per capita, \$ ^a	Increase in vaccine costs per capita during accelerated transition phase, \$	Vaccine costs as share of projected GGHE, % ^a	Vaccine costs as share of projected GGE, % ^a
Ghana	1,620	8	4.1	11	0.90	0.70	1.6	0.17
Côte d'Ivoire	1,550	7	4.9	9	0.94	0.74	2.2	0.18
Sao Tome and Principe	1,570	7	4.5	6	0.90	0.74	2.0	0.11
Nigeria	2,950	6	5.6	18	1.10	0.93	1.5	0.26
Solomon Islands	1,830	6	3.9	13	0.84	0.71	0.7	0.10
Sudan	1,740	6	4.3	11	1.06	0.84	3.4	0.39
Zambia	1,760	6	5.3	13	1.22	1.03	1.8	0.23
Lao PDR	1,600	5	2.9	3	0.52	0.42	2.0	0.07
Vietnam	1,890	5	2.0	9	0.41	0.34	0.7	0.06
Congo, Republic of the	2,680	4	4.8	9	0.89	0.80	0.8	0.07
Papua New Guinea	2,020	4	3.7	13	0.56	0.38	0.6	0.08
Uzbekistan	2,090	4	2.4	10	0.55	0.51	0.6	0.06
Angola	5,300	3	6.0	8	1.09	0.85	0.7	0.06
Armenia	3,810	3	1.5	8	0.34	0.21	0.4	0.03
Georgia	3,720	3	1.8	7	0.26	0.13	0.3	0.02
Moldova	2,550	3	1.2	13	0.29	0.22	0.2	0.03
Azerbaijan	7,590	2	2.3	3	0.26	0.10	0.3	0.01
Bolivia	2,830	2	2.9	10	0.52	0.07	0.4	0.04
Guyana	3,970	2	2.5	14	0.58	0.23	0.3	0.04
Honduras	2,190	2	2.3	12	0.65	0.32	0.8	0.10
Kiribati	2,280	2	3.7	10	0.43	0.33	0.3	0.03
Nicaragua	1,830	2	2.2	21	0.56	0.29	0.5	0.09
Bhutan	2,390	1	2.0	7	0.26	0.06	0.5	0.03
Indonesia	3,650	1	2.4	7	0.17	0.13	0.3	0.02
Mongolia	4,320	1	2.6	10	0.49	0.28	0.3	0.03
Sri Lanka	3,400	1	2.1	7	0.11	0.02	0.2	0.01
Timor-Leste	3,120	1	5.6	3	0.23	0.22	0.3	0.01

SOURCE Authors' analysis of Gavi internal data for projected vaccine introductions and projected costs of vaccine introductions and of data from the following sources. For estimated gross national income (GNI) per capita: World Bank. Gross national income per capita, Atlas method, annual estimate released in July 2015. Washington (DC): World Bank; 2015 Dec 16. For demographic data: UN Department of Economic and Social Affairs, Population Division. World population prospects (Note 10 in text). For projected government expenditures: (1) International Monetary Fund. World economic outlook database [Internet]. Washington (DC): IMF; 2015 Apr [cited 2015 Dec 21]. Available for download from: <http://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx>. (2) World Health Organization. Global health expenditure database [Internet]. Geneva: WHO; c 2014 [cited 2015 Dec 21]. Available from: <http://apps.who.int/nha/database/Select/Indicators/en>. **NOTES** All dollar amounts shown are US dollars. Countries are listed in order by number of vaccines adopted with Gavi support. Projections are based on authors' calculations using source data. GGHE is general government health expenditures. GGE is general government expenditures. Lao PDR is the Lao People's Democratic Republic. ^aIn the (projected) first year without Gavi support.

It is difficult to assess precisely to what extent vaccine costs pose a fiscal challenge for a country. However, that challenge is plausibly related to the shares of overall government spending and of government health spending that these costs represent (Exhibit 2).

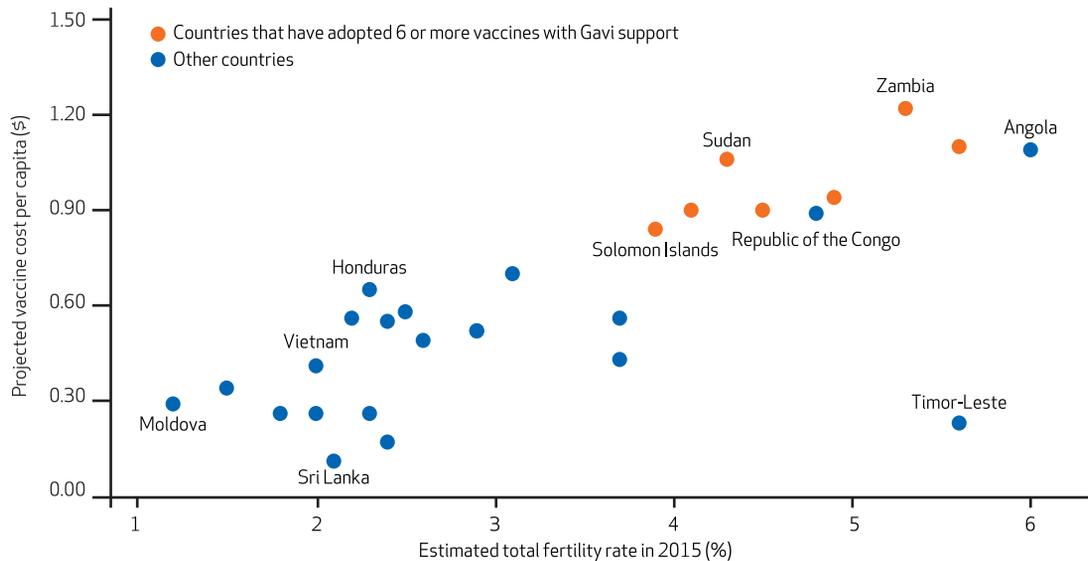
The pace of the required increase in domestic financing during the accelerated transition (phase 2) can also be challenging for some countries. Some vaccine program managers have commented that although their governments may ultimately be able to create the required "fiscal space" (budgetary room) for vaccines, the steep annual budgetary increases during

the accelerated transition phase are particularly challenging.

How steep this increase is depends on both the ending point (the total cost of the vaccines in the absence of Gavi support) and the starting point (the level of domestic vaccine financing at the start of the accelerated transition). Since the share of costs borne by countries increases every year during the preparatory transition (phase 1), countries that have spent a longer time in this phase will already be paying a greater share when they enter phase 2. They thus will have a smaller gap to bridge in phase 2. In contrast, countries whose economies grow rapidly during phase 1

EXHIBIT 3

Estimated Total Fertility Rate in 2015 And Projected Cost Per Capita Of Gavi Vaccines In The First Year Without Gavi Support, Selected Countries



SOURCE Authors' analysis of Gavi internal data for projected vaccine introductions and projected costs of vaccine introductions and of United Nations Department of Economic and Social Affairs, Population Division. World population prospects (Note 10 in text) for demographic data. **NOTES** Projections are based on authors' calculations using source data. All dollar amounts shown are US dollars.

will spend little time in this period and will face a steeper change in cofinancing during phase 2. Recent changes to Gavi's transition policy provide some protection for countries in this situation, as discussed below.

Online Appendix Exhibit A1 shows, for four selected countries, how the absolute increase in domestic financing for vaccines during the accelerated transition varies with country size and number of vaccines introduced.¹¹ Appendix Exhibit A2 shows, for the same countries, that a greater increase in costs per capita (which is a better proxy for financial burden than absolute costs are, since it controls for country size) is associated with more vaccine introductions and higher fertility rates.¹¹

Governments can create fiscal space for increasing vaccine costs by increasing the overall health budget, which could be financed by economic growth, strengthened tax administration, or efficiency gains. Notably, the required percentage scale-up in domestic vaccine financing during the accelerated transition phase for many countries will exceed projected economic and health budget growth rates over the same period, which may necessitate the reallocation of funds from other sectors or within the health budget. The latter could be challenging, since most Gavi-supported countries face compelling and growing demands on their health budgets from other programs, including family planning; maternal and neonatal health; treatment of childhood ill-

nesses; and treatment and prevention of malaria, tuberculosis, HIV/AIDS, and noncommunicable diseases.

Key to Gavi's model is its ability to buy vaccines (through its procurement agents) at lower prices by pooling demand from all Gavi-supported countries and using predictable long-term donor financing and innovative contracting terms to procure large volumes of vaccines on those countries' behalf. Following their transition out of Gavi support, governments could face large increases in vaccine prices, which could threaten the sustainability of immunization programs. The next-lowest available price of vaccines in the open market can be up to four times the price that Gavi pays. If Ghana, for example, did not have access to Gavi prices after completing phase 2 and had to pay the next-lowest available prices, its projected vaccine expenditures in the first year without Gavi support would increase from approximately US\$30 million to US\$80 million.¹²

To mitigate this risk, Gavi gives governments the opportunity to participate in the tendering process for Gavi-supported countries for five years after Gavi's financial support ends. This helps ensure price continuity in the medium term. But the risk of price increases returns when this five-year period ends.

A healthy market that provides vaccines at affordable prices is therefore critical for the long-term sustainability of vaccine programs in coun-

tries formerly supported by Gavi. It is the ultimate goal of Gavi's market-shaping activities to create healthy vaccine markets that meet the needs of countries before, during, and after their transition out of Gavi support. In addition, there are several other initiatives intended to make vaccine prices for middle-income countries more predictable and affordable, including the WHO's Vaccine Product, Price, and Procurement (V3P) Web Platform¹³ and the recent strategy developed by the WHO-convened MIC (Middle Income Country) Task Force.¹⁴

PROGRAMMATIC AND INSTITUTIONAL CHALLENGES Adequate vaccine financing is necessary, but it is not sufficient for a successful transition out of Gavi support. Seven countries transitioning out of Gavi support in the coming years (Bhutan, Cuba, Indonesia, Sri Lanka, Timor-Leste, Ukraine, and Vietnam) will not have introduced pneumococcal vaccine by the time they lose Gavi funding; nine (Azerbaijan, Bhutan, Cuba, Indonesia, Mongolia, Papua New Guinea, Sri Lanka, Timor-Leste, and Ukraine) will not have introduced rotavirus vaccine. Some of these countries made deliberate evidence-based decisions not to introduce certain vaccines, but others lacked the capacity to apply for and introduce desired new vaccines within their window of opportunity for accessing Gavi support. These countries may have an easier time transitioning out of that support because their Gavi assistance is less than that of other countries. However, they may face greater financial challenges in the years to come than they face now if they introduce additional vaccines on their own.

A few countries, including Côte d'Ivoire, Nigeria, and Papua New Guinea, are at risk of exiting Gavi with low vaccine uptake (referred to as "coverage") and low-performing immunization programs. Several countries transitioning out of Gavi support also have limited procurement capabilities and weak vaccine regulatory capacity. For example, they may lack formal surveillance for adverse events following immunization. In addition, some countries lack institutionalized independent expert advice for immunization program decisions, such as a National Immunization Technical Advisory Group to provide objective evidence-based guidance to policy makers and program managers (Appendix Exhibit A3).¹¹

IMPACT OF RAPID INCOME GROWTH Changes in gross national income per capita are sometimes hard to predict and can occur quite suddenly, particularly in commodity-driven economies. As a result, governments of Gavi-supported countries may be faced with a change in eligibility status sooner than expected. Fast progression to the accelerated transition (phase 2) may not

allow them adequate time to introduce new vaccines and strengthen their programs to the same degree as countries with slower and steadier growth.

Some Gavi-supported countries are indeed losing eligibility faster than was expected (Exhibit 4). A notable case is Ghana, whose income crossed Gavi's eligibility threshold about fifteen years earlier than was predicted in 2009, based on International Monetary Fund projections at the time.¹⁵ (IMF projections were recently evaluated and found not to be consistently biased in one direction or the other, or to be better or worse than alternative projections.)¹⁶ Ghana will soon be faced with a rapid decline in Gavi support, which comes at a difficult moment as the country's economy is under severe stress. More details on the case of Ghana can be found in Appendix Exhibit A4.¹¹

Status Of Countries Transitioning Out Of Gavi Support

In 2015 the following twenty Gavi-supported countries were in the preparatory transition (phase 1): Cameroon, Côte d'Ivoire, Djibouti, Ghana, India, Kyrgyzstan, the Lao People's Democratic Republic, Lesotho, Mauritania, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Sao Tome and Principe, Senegal, the Solomon Islands, South Sudan, Sudan, Yemen, and Zambia.¹⁷ Some of these countries face financial, programmatic, or institutional challenges. For example, seven countries in this group (Côte d'Ivoire, Djibouti, Ghana, Lesotho, Pakistan, Papua New Guinea, and South Sudan) met their 2014 cofinancing requirements only in 2015. Immunization coverage in these twenty countries averaged 83 percent in 2014,¹⁸ with low

EXHIBIT 4

Eight Gavi-Supported Countries That Are Losing Eligibility Status More Rapidly Than Was Projected In 2009

Country	2009 projection of when country would cross Gavi's threshold and lose eligibility	2015 projection of when country would lose eligibility based on current policies
Côte d'Ivoire	After 2030	2018
Ghana	After 2030	2017
Lao PDR	2029	2017
Nicaragua	2028	2016
Papua New Guinea	After 2030	2016
Uzbekistan	2027	2014
Vietnam	2021	2015
Zambia	2022	2017

SOURCE Authors' analysis of the items listed in Exhibit 2 source information. **NOTES** Projections are based on authors' calculations using source data. Current policies are explained in the text. Lao PDR is the Lao People's Democratic Republic.

rates in Côte d'Ivoire (67 percent), Nigeria (66 percent), and Papua New Guinea (62 percent). Five of the countries (Ghana, Nicaragua, Nigeria, Papua New Guinea, and the Solomon Islands) had gross national incomes per capita that were above Gavi's eligibility threshold. However, following a new Gavi policy discussed below, their time in phase 1 has been extended.

Also in 2015 the following nineteen countries were in the accelerated transition (phase 2), meaning that their Gavi funding will end completely within the next five years: Angola, Armenia, Azerbaijan, Bhutan, Bolivia, Republic of the Congo, Cuba, Georgia, Guyana, Honduras, Indonesia, Kiribati, Moldova, Mongolia, Sri Lanka, Timor-Leste, Ukraine, Uzbekistan, and Vietnam. In most of these countries, increases in domestic expenditures for vaccines have kept pace with the decline in Gavi funding, and the financial burden on governments has been limited. This is partly linked to the fact that these countries have introduced fewer vaccines and tend to have lower fertility rates than countries in earlier phases.

Most countries in this group have relatively high immunization coverage rates and perform well on indicators of institutional readiness. However, some are missing important vaccines in their immunization schedules, such as pneumococcal and rotavirus vaccines. They will need to fully self-finance these vaccines if they introduce them in the future.

Two countries in this group, Angola and the Republic of the Congo, have struggled to meet their cofinancing requirements in recent years, which has led to undersupply and stock-outs of vaccines. Because they have introduced more vaccines and have larger birth cohorts than the other seventeen countries, they face steeper financial challenges as they approach the end of Gavi support. Their immunization programs also have significant weaknesses. For these two countries, a successful transition out of Gavi support is uncertain.

Recent Changes In Gavi's Policies And Programs

Gavi's policies have recently been adjusted in recognition of some of the risks to successful transition. Under its new eligibility and transition policy, Gavi uses the average gross national income per capita of the previous three years (instead of that for the most recent year) to determine whether a country's income is below or above the eligibility threshold. This will help avoid unanticipated changes in eligibility as a result of modest surges in gross national income per capita, so governments can more effectively

prepare for their entry into the accelerated transition (phase 2). The new policy draws on similar approaches by other financing agencies that use gross national income per capita thresholds, such as the World Bank's International Development Association—which changes a country's lending status only when it has been above a threshold for three consecutive years, among other factors. The new policy also provides some flexibility for countries with more extreme increases in gross national income per capita, including from what is known as rebasing.¹⁹

Members of the Gavi Alliance Board varied in their assessment of the challenges experienced by different countries in transition, and in their views on the most appropriate policy changes to address these challenges. Consensus was reached on a set of rules with the following provisions. First, two additional years of Gavi support are provided for countries (for example, Papua New Guinea) that experienced a single-year increase of 20 percent or more in gross national income per capita in the five years before their income surpassed the eligibility threshold and that have low immunization coverage rates (defined as take-up of the third dose of pentavalent vaccine at less than 90 percent). Second, two additional years of support are provided for countries (for example, Ghana) that experienced increases of 30 percent or more in gross national income per capita, regardless of their immunization coverage rates. The new policy thus enables some tailoring of transition pathways while maintaining a rules-based approach, albeit with more complexity.

Gavi is also stepping up technical assistance to support transition planning by governments—for example, through transition assessments conducted in countries approaching the eligibility threshold. These multipartner assessments aim to identify impediments to a successful transition, such as weak procurement processes or insufficient community demand, so that Gavi's support in the remaining years can be focused on addressing those gaps.

Lessons Learned

MEASURING GOVERNMENTS' ABILITY TO PAY
Gavi's transition model is rooted in the idea that as countries grow wealthier, they have increasing resources available for vaccine procurement, and development assistance for immunization can be phased out. Compared with other organizations, Gavi uses a relatively simple approach to transition. Both countries that implement the approach and donors have welcomed its clarity and fairness through the use of uniform rules. However, this simplicity has its downsides.

Gross national income per capita, the indicator on which Gavi relies, has the advantages of being transparent, comparable across countries, and regularly updated, unlike alternative income measures. Importantly, it correlates reasonably well with government expenditure. However, it is not perfect. Projections of economic growth in lower-income countries—and thus predictions of transition timing—are particularly uncertain. Yet predictability is critical for governments preparing for a successful transition.

Sudden large changes in reported gross national income per capita resulting from rebasing can push a country over the eligibility threshold unexpectedly, leaving little time to prepare for the end of Gavi support. Even real economic growth, if unexpectedly rapid, can take time to translate into additional resources for health. Thus, gross national income per capita can be a poor reflection of a government's ability to mobilize additional resources in the short term. This is particularly true when gross national income per capita grows very rapidly, as is often the case in commodity-driven economies.

Gavi's review of alternatives concluded that gross national income per capita remains the most acceptable among a range of indicators that all have important drawbacks (Appendix Exhibit A5).¹¹ Nonetheless, the measure's shortcomings reinforce the importance of assessing individual country needs early in the transition process.

ASSESSING THE RISK THAT COUNTRIES WILL FAIL TO SUSTAIN VACCINE PROGRAMS Vaccine costs are often viewed as the cost per child immunized. However, to understand the costs for national governments, a better measure is the cost per capita. The relevance of high fertility rates as a key driver of national immunization costs becomes clear when one considers cost per capita. As noted above, it is not easy to determine the extent to which these per capita expenditures pose a fiscal challenge for governments, but the challenge is likely related to the expenditures' shares of government spending, both overall and for health.

In addition, the rate at which immunization budgets must be scaled up to meet Gavi's requirements can be a challenge. This may be as important an indicator of fiscal burden as the level of financing that must be achieved by the end of the transition, since reallocating resources from other uses can be politically challenging. A successful transition out of Gavi support requires strong political commitment to health overall to create increased budgetary space for additional investments in immunization without sacrificing other critical health priorities.

Countries at comparable income levels differ

across other indicators that affect a transition to self-financing. Increasing expenditures for vaccines introduced with Gavi support requires finding space in budgets that are often quite rigid. This can be particularly challenging for countries that have introduced as many as five or six new vaccines and have therefore taken on a large financial commitment.

No country has yet transitioned fully out of Gavi support, but several of the nineteen countries now in the accelerated transition (phase 2) are close. In 2016 Bhutan, Honduras, Mongolia, and Sri Lanka will become the first fully self-financing countries.²⁰ Many of the countries in accelerated transition have built strong immunization programs and mobilized domestic resources to pay for vaccines as Gavi financial support declines. However, a few countries are struggling to incorporate the costs of vaccines into their own budgets. There is a risk that some will fail to sustain the programs begun with Gavi support, putting children at risk of preventable death.

While we can assess potential drivers of this risk as described above, it is difficult to evaluate the likelihood of failure, as there is no historical precedent for the withdrawal of donor support for health commodities on this scale. Absence of strong political commitment to immunization is likely to be an important risk factor. Indeed, some immunization program managers have expressed concern that immunization may drop off the political radar after Gavi support ends. While Gavi provides some support for activities to strengthen political commitment in several transitioning countries, its capacity to engage in this area is relatively limited. Gaps may remain for some countries after the end of Gavi support, and further work by the organization's partners and other development agencies to support these countries in their continued transition will likely be needed.

BALANCING THE RISK OF FAILED TRANSITIONS The Gavi Alliance Board considered several ways to mitigate the risk that transitions might fail. Discussions highlighted differences among Gavi's stakeholders in their views on both the likelihood of failure and the trade-offs involved with such mitigation. Overly stringent transition policies could jeopardize the continuity of immunization and put people in Gavi countries at risk of vaccine-preventable disease, while too much flexibility could weaken incentives for governments to step up domestic investments in vaccines and undermine the integrity and clarity of Gavi's model.

On balance, the board felt that there was insufficient evidence that governments would fail to find the necessary resources within the final

five-year transition period (phase 2) to justify an across-the-board lengthening of this phase, which was one of the risk-mitigation options considered. Instead, the board decided on more limited policy changes that provide some flexibility to countries that experience the fastest growth and therefore have the least amount of time to prepare for transition. The coming years will show whether the revised policy strikes the right balance.

Conclusion

The ultimate success of international development assistance for health should be measured in its gradual disappearance, after having left a lasting positive impact on populations and strengthened the foundations of further economic development. Gavi's experience, and the continuing evolution of its policies, may provide valuable lessons not just for global health but for international development more broadly. ■

Coauthors are listed in alphabetical order.

NOTES

- 1 Gavi, the Vaccine Alliance. Eligibility and transition policy: version no.: 2.0 [Internet]. Geneva: Gavi; 2015 [cited 2015 Dec 21]. Available for download from: <http://www.gavi.org/Library/GAVI-documents/Policies/Gavi-Eligibility-and-Transition-Policy/>
- 2 Gavi, the Vaccine Alliance. Co-financing policy: version no.: 2.0 [Internet]. Geneva: Gavi; 2015 [cited 2015 Dec 21]. Available for download from: <http://www.gavi.org/Library/GAVI-documents/Policies/Gavi-Co-financing-policy/>
- 3 In most countries the financing of vaccines of public health importance is a government responsibility, and immunization is provided free to the target population (unlike medicines, which are often purchased in the private sector and paid for out of pocket). Therefore, measures of a government's ability to pay are more appropriate for determining a country's eligibility for Gavi support than are indicators of households' ability to pay.
- 4 This applies to vaccines used in national routine immunization programs. Vaccines used in onetime campaigns are fully financed by Gavi.
- 5 Governments have a final opportunity to apply for new support in the first year of phase 2, known as the grace year.
- 6 Two of the seventy-three countries—Cuba and Ukraine—do not currently receive vaccine support.
- 7 This is the estimated number of children reached with the first dose of pentavalent vaccines in 2015, according to the Gavi Secretariat. Gavi internal data, based on analyses of administrative coverage data provided by governments in their 2014 annual progress reports.
- 8 For Gavi's methodology for estimated impacts, see Gavi, the Vaccine Alliance. Summary of definitions and mission and strategic goal level indicators in GAVI Alliance strategy 2011–2015 [Internet]. Geneva: Gavi; [updated 2013 Oct; cited 2015 Dec 21]. Available for download from: <http://www.gavi.org/library/documents/gavi-documents/strategy/definition-of-performance-indicators-for-gavi-strategy-2011-2015/>
- 9 Some of the differences can be explained in part by the recent expansion of Gavi's portfolio to include the human papillomavirus, measles-rubella, and Japanese encephalitis vaccines, since the first countries that entered the accelerated transition phase missed the opportunity to apply for Gavi support for these vaccines.
- 10 United Nations Department of Economic and Social Affairs, Population Division. World population prospects, the 2015 revision [Internet]. New York (NY): UN; [cited 2015 Dec 21]. Available from: <http://esa.un.org/unpd/wpp/>
- 11 To access the Appendix, click on the Appendix link in the box to the right of the article online.
- 12 For projected prices of vaccines, authors' analysis of Gavi internal data; for demographic data, authors' analysis of data from UN Department of Economic and Social Affairs, Population Division. World population prospects (Note 10).
- 13 World Health Organization. Vaccine Product, Price, and Procurement (V3P) Web Platform [Internet]. Geneva: WHO; c 2015 [cited 2015 Dec 21]. Available from: http://www.who.int/immunization/programmes_systems/procurement/v3p/platform/en/
- 14 World Health Organization. Sustainable access to vaccines in middle-income countries (MICs): a shared partner strategy report of the WHO-convened MIC Task Force [Internet]. Geneva: WHO; 2015 Mar [cited 2015 Dec 21]. Available from: http://www.who.int/immunization/sage/meetings/2015/april/Cernuschi_MIC_Strategy_SAGE_Apr2015.pdf
- 15 We modeled countries' eligibility for Gavi support, starting with per capita gross national income in 2009–10 and applying World Bank income growth projections.
- 16 Genberg H, Martinez A. On the accuracy and efficiency of IMF forecasts: a survey and some extensions [Internet]. Washington (DC): Independent Evaluation Office of the International Monetary Fund; 2014 [cited 2015 Dec 21]. (Background Paper No. BP/14/04). Available from: <http://www.ieso-imf.org/ieso/files/completedevaluations/BP-14-04.pdf>
- 17 Based on July 2014 World Bank estimates of gross national income per capita in 2013. World Bank. Gross national income per capita, Atlas method, annual estimate released in July 2014. Washington (DC): World Bank; 2014 July 1.
- 18 World Health Organization. WHO-UNICEF estimates of DTP3 coverage [Internet]. Geneva: WHO; c 2015 [cited 2015 Dec 21]. Available from: http://apps.who.int/immunization_monitoring/global_summary/timeseries/tswucoveragedtp3.html
- 19 Rebasing is a way to improve gross domestic product (GDP) estimates so that they better reflect changing prices in and the structure of an economy. The International Monetary Fund recommends that national statistical offices carry out a rebasing of GDP every five years, at a minimum. This is particularly important for countries that are undergoing rapid economic development and experiencing large changes in relative prices. World Bank. Rebasing [Internet]. Washington (DC): World Bank; Jan 2015 [cited 2016 Jan 14]. Available from: http://www.worldbank.org/en/topic/macro_economics/brief/rebasing
- 20 Albania, Bosnia and Herzegovina, China, and Turkmenistan stopped receiving Gavi support in 2004 before the introduction of Gavi's transition policies.