

SUSTAINABLE FINANCING FOR IMMUNIZATION

Introduction and value proposition

The IA2030 vision of "A world where everyone, everywhere, at every age, fully benefits from vaccines for good health and well-being" will only be possible with sustainable financing for immunization. The term "sustainable financing for immunization" refers to the allocation and use of resources to support the achievement of immunization goals within the framework of overall health financing. Such financing may come from a mix of domestic and external resources, depending on the country's national income and reliance on external financing. While external revenue raising (fundraising) may be earmarked for immunization, domestic revenue-raising ability is not unique to any health intervention or disease, but instead is a product of overall macroeconomic and fiscal capacity and the prioritization that governments give to health in their resource-allocation decisions.

Advances in vaccine technology and innovative public–private partnerships are expanding the number of vaccines available to protect individuals across the entire life cycle, resulting in countless lives saved, illnesses prevented, costs averted, and livelihoods improved.^{1 2} The COVID-19 pandemic has demonstrated that investing in vaccines is not just important for health security, but is a prerequisite for economic security, which calls for action from the international community, development partners, the private sector, and country governments to jointly invest in global public goods, such as surveillance, outbreak prevention, vaccine development and immunization services. Only with this collective action and commitment can the vision of IA2030 be achieved.

Immunization is one of the best uses of public finance, resulting in a high return on investment. But countries can only reap the benefits of vaccines with adequate and predictable funding for immunization, affordable vaccine prices, and strong, publicly funded primary health care services that ensure timely and quality delivery of vaccines to all individuals. Countries can accelerate progress to the IA2030 vision

-
1. Sim SY, Watts E, Constenla D, Brenzel L, Patenaude BN. Return on Investment From Immunization Against 10 Pathogens in 94 Low- And Middle-Income Countries, 2011-30. *Health Aff.* 2020;39(8):1343-1353. doi: 10.1377/hlthaff.2020.00103.
 2. Bloom D. The Value of Vaccination. In: Curtis N, Finn A, Pollard A (eds). *Hot Topics in Infection and Immunity in Children VII*. *Advances in Experimental Medicine and Biology* (Vol. 697). 2011. New York: Springer.

by increasing spending on primary health care (PHC), and by using those funds efficiently and equitably. Investing in PHC, including immunization, will not only propel countries towards the goal of universal health coverage (UHC) by 2030, but will also contribute to many other Sustainable Development Goals (SDGs).³

Strategic Priority Goal and Objectives

Goal

All countries have a reliable supply of appropriate and affordable vaccines of assured quality, and sustainable financing for immunization programmes.

Objectives

- To build and maintain healthy global markets across all vaccine antigens (SP6 Supply Security Annex).
- To ensure sufficient financial resources for immunization programmes in all countries.
- To increase immunization expenditure from domestic resources in aid-dependent countries and, when transitioning away from aid, secure government funding to achieve and sustain high coverage for all vaccines.

Context and challenges

Mobilizing resources for health and allocating to PHC and immunization.

Domestic public expenditure on health faces pressures in almost all countries, but it is most constrained in low-income countries, where countries spend an average of US\$10 per capita (p.c.). Almost 30% of overall health expenditure was from external sources in 2017 (Table 1).⁴ Equivalent figures for lower-middle income and upper-middle income countries were US\$60 p.c. (with 12% of overall health expenditure from external sources), and US\$277 p.c. (with 4% of overall health expenditure from external sources), respectively. Domestic government expenditure on health in high-income countries was an estimated US\$2,021 p.c.

Lower levels of government revenue generation and lower prioritization of health in government budgets are two key factors contributing to lower levels of public spending for health in low- and middle-income countries, which translates to low spending on PHC and immunization, and high out-of-pocket expenditure.⁵ Achieving the IA2030 vision in these countries will therefore require additional resources for health and reallocation to PHC, including immunization.

3. WHO and Public Health Agency of Canada. Health Equity Through Intersectoral Action: An Analysis for 18 Country Case Studies. 2008. Available at: https://www.who.int/social_determinants/resources/health_equity_isa_2008_en.pdf?ua=1

4. WHO. Global Spending on Health: A World in Transition. Global Report. 2019. Geneva: WHO. Available at: https://www.who.int/health_financing/documents/health-expenditure-report-2019/en/

5. World Bank Group. High-Performance Health Financing for Universal Health Coverage: Driving Sustainable, Inclusive Growth in the 21st Century. 2019. Washington, DC: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/641451561043585615/Driving-Sustainable-Inclusive-Growth-in-the-21st-Century>

However, a key challenge is that since 2000, the main drivers of health spending in low- and middle-income countries have been economic growth and increased government revenues (along with increased development assistance in low-income countries).^{6 7} Reprioritization of government spending towards health, while important, contributed only one-fifth of the increase in public spending in low- and middle-income countries between 2000 and 2017,⁸ although it accounted for the bulk of increased spending in high-income countries, given that those countries have already made progress on revenue generation.

It is therefore concerning that, with less than a decade remaining until 2030, the world is facing the deepest economic recession in eight decades, tipping many millions back into poverty, and putting increased pressure on governments at a time when they need to increase spending to respond to the COVID-19 pandemic, to mitigate the secondary impact of COVID-19 on essential services, and to prevent any backsliding in gains that have been made on coverage of essential services, including immunization. Increased prioritization of health and essential services will undoubtedly help to mitigate the impact of COVID-19, but of utmost importance is the need to protect financing for immunization given the broader health and economic benefits it confers.

External support for PHC and immunization will also continue to play an important role. This funding comes from a range of channels, including Gavi, the Global Financing Facility for Women, Children and Adolescents (GFF), the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the Global Polio Eradication Initiative (GPEI), multilateral credits and loans, and direct bilateral support. Countries that are transitioning from Gavi and GPEI support face the challenge of sustaining and extending immunization programme achievements. As of 2020, 25 countries had already transitioned or are in the final years of transitioning from Gavi support. It is still unclear how the global recession will impact the number of countries approaching transition in the medium term, and how donor flexibilities may smooth the transition to self-reliance. For example, Gavi has already granted some flexibilities to countries, including reallocations of financial support and changes to Gavi policies.⁹

The amount needed for sufficient allocation to immunization depends on the size and growth of the target population, number of vaccines a country has in its schedule, coverage rates, and the prices paid for vaccines, among other factors. Affordable vaccine prices are of concern in all countries, but countries that are eligible for Gavi support and have previously been Gavi-eligible can benefit from preferential pricing. Middle-income countries lacking access to these preferential prices have been less likely to introduce new vaccines than countries that have benefited from Gavi support.

-
6. Tandon A, Cain J, Kurowski, C. Intertemporal Dynamics of Public Financing for Universal Health Coverage: Accounting for Fiscal Space Across Countries. World Bank Discussion Papers. 2018. Washington, DC: World Bank Group. Available at: <https://elibrary.worldbank.org/doi/abs/10.1596/31211>
 7. Saxenian H, Bharali I, Ogbuoji O, Yamey G. A quantitative analysis of sources of changes in government expenditures on health, 2000 to 2015: what can we learn from experience to date? *Gates Open Res* 2019, 3:5. <https://doi.org/10.12688/gatesopenres.12900.1>
 8. Tandon A, Cain J, Kurowski C, Dozol A, Postolovska I. From slippery slopes to steep hills: Contrasting landscapes of economic growth and public spending for health. *Soc Sci Med*. 2020;259:113171. doi: 10.1016/j.socscimed.2020.113171.
 9. Gavi. Bold engagement to respond to COVID-19 vaccine. 2020. <https://www.gavi.org/news/media-room/gavi-board-calls-bold-engagement-respond-covid-19>

Strengthening the effectiveness, efficiency and equity of health spending.

There may be considerable scope to increase cost-efficiencies through better and more effective procurement, innovations in service delivery, vaccine technology, and cold chain equipment. Immunization has benefited from detailed microplanning to identify the unreached, engage communities and improve reach through public–private partnerships and these features could serve as a platform for improving equity of other PHC services. In fact, in many countries, immunization may be the first and only contact that mothers and young children have with the health system, making it an important platform for provision of other services.¹⁰

In addition, health reforms and transition plans are highlighting the importance of streamlining certain programme functions, such as integrating immunization data systems with wider health information systems, as Gavi is now emphasizing across all its eligible countries. In a post-COVID-19 recovery period, it will be paramount to restart services quickly and to take advantage of opportunities such as outreach and campaigns to provide multiple vaccines and other services.

Financing can also be used to influence efficiency. It can build incentives into the service delivery system that encourage preventive and primary health care, for example, through the design of referral mechanisms, or through provider payment mechanisms that emphasize certain outcomes (prevention over treatment, provision of the full immunization schedule). Blended payment mechanisms such as fee-for-service payments added onto capitation can encourage prevention services.¹¹ In high-income countries, more sophisticated models of payment, such as population-based payments, pay-for-coordination, or bundled payments, introduce incentives for teams of providers working across community, primary health care and higher levels of care to encourage provision of health promotion and prevention. Finally, weaknesses in public financial management can lead to several inefficiencies, such as leakage of resources or delays in releases that lead to poor budget execution.

Making the case for immunization and the importance of data for decision-making.

Governments need to allocate scarce resources across multiple sectors and programmes, and evidence can be powerful in informing these choices. While country-specific evidence regarding disease burden, cost-effectiveness and availability of funding guides decision-making around new vaccine introductions, a growing body of evidence is available to support the case for sustained financing for immunization (both to maintain and increase coverage of existing vaccines and to introduce new vaccines), to highlight the costs of inaction, and to counter "vaccine fatigue". Immunization is not only one of the most cost-effective health interventions, but also a wise economic investment. The economic benefits of immunization include savings in treatment costs and increased lifetime earnings by averting premature death and disability.

10. US Centers for Disease Control and Prevention (CDC). Strengthening Immunization Systems Factsheet. 2015. Atlanta: CDC. Available at: <https://www.cdc.gov/globalhealth/immunization/docs/isb-factsheet.pdf>

11. OECD. Better Ways to Pay for Health Care (OECD Health Policy Studies). 2016 Paris: OECD. Available at: <http://dx.doi.org/10.1787/9789264258211-en>

12. Nandi A, Shet A. Why vaccines matter: understanding the broader health, economic, and child development benefits of routine vaccination. *Human Vaccines Immunother.* 2020 Jan 24;1-5. doi: 10.1080/21645515.2019.1708669.

A recent analysis yielded a potential return on investment of US\$20 per US\$1 invested for a group of 94 low- and middle-income countries and ten antigens over the period 2021–30.¹

Even these numbers do not capture the full benefits of immunization. For example, vaccine-preventable disease in early life has long-lasting repercussions. Immunization leads to healthier children who have higher educational attainment and cognition,¹² improving long-term productivity and economic growth. Immunization can also contribute to poverty reduction by reducing the impoverishing impact of high out-of-pocket expenditure on medical care.¹³ Ministries of health, civil society and development partners could therefore do more to advocate the multisectoral benefits that come from investing in immunization.

Key Areas of Focus

Sufficient, predictable resources

Ensure that funding from all sources is sufficient to procure and deliver recommended vaccines universally.

Key evidence and gaps

The body of data on the costs of vaccines and delivery is growing and can improve planning, budgeting and advocacy.¹⁴ Costing data are essential for informing budget requirements, choice of delivery strategy (e.g. school-based versus facility), and cost-effectiveness analyses, all important for vaccine introduction decisions and advocacy. A compendium of delivery costs can be found in the Immunization Delivery Cost Catalogue (ICAN)¹⁵ and elsewhere,¹⁶ while vaccine market trends and prices are available online from UNICEF Supply Division,¹⁷ PAHO's Revolving Fund,¹⁹ and WHO's MI4A website.²⁰

Budgetary needs for immunization are growing with expansion of coverage, particularly in underserved areas. Increasing coverage will require more investment. Expansion to underserved areas often carries a higher price tag. These areas may include isolated communities, marginalized populations, migrants and displaced populations, and those affected by conflict, political instability and natural disasters.

-
13. Griffiths U, Dieye Y, Fleming J, Hajjeh R, Edmond K. Costs of meningitis sequelae in children in Dakar, Senegal. *Pediatr Infect Dis J*. 2012;31(11):e189-95. doi: 10.1097/INF.0b013e3182615297.
 14. Vaughan K, Ozaltin A, Mallow M, Moi F, Wilkason C, Stone J et al. The costs of delivering vaccines in low- and middle-income countries: Findings from a systematic review. *Vaccine* 2019;2:100034. doi: 10.1016/j.jvacx.2019.100034.
 15. Immunization Costing Action Network (ICAN). Immunization Delivery Cost Catalogue. <https://immunizationeconomics.org/ican-idcc>
 16. Portnoy A, Vaughan K, Clarke-Deelder E. et al. Producing Standardized Country-Level Immunization Delivery Unit Cost Estimates. *PharmacoEconomics* 2020;38(9):995-1005. doi: 10.1007/s40273-020-00930-6.
 17. UNICEF. Pricing Data. <https://www.unicef.org/supply/pricing-data>
 18. UNICEF. Market Notes and Updates. <https://www.unicef.org/supply/market-notes-and-updates>
 19. PAHO. Revolving Fund. <https://www.paho.org/en/resources/paho-revolving-fund>
 20. WHO. Market Information for Access to Vaccines: Vaccine purchase data. https://www.who.int/immunization/programmes_systems/procurement/mi4a/platform/module1/en/

Vaccines are an important component of immunization funding requirements; these costs vary across countries. Data from the WHO/UNICEF Joint Reporting Form (JRF) for 2017 show that government expenditures on vaccines, expressed per surviving infant, were US\$3 for low-income countries, US\$19 for lower-middle income countries, US\$107 for upper-middle income countries, and US\$421 for high-income countries. Numbers vary because of the differing vaccines in the national schedule, prices paid, the age distribution of the population, coverage levels, and external assistance that complements government spending. While the number of WHO-recommended vaccines has increased over the past decade, prices for some vaccines, such as pentavalent, have fallen considerably.

Table 2 shows the vaccine costs to fully vaccinate a child to age 18, using 2020 prices, for Comoros, Zambia, Iraq, and the USA according to the country's national immunization schedule. Costs vary markedly, from US\$9 in Comoros, to US\$31 in Zambia, US\$110 in Iraq and US\$2,230–US\$3,350 in the USA. Comoros and Zambia are supported by Gavi and benefit from preferential prices. Comoros has introduced the fewest vaccines of the countries shown. The USA has introduced all WHO-recommended vaccines as well as some additional ones, and pays the highest prices of the countries shown.

Health accounts estimates for PHC and immunization are an emerging source of data to inform monitoring and policymaking. In some countries, health accounts now include domestic government expenditures on PHC and, more specifically, on immunization, as well as expenditure from external sources, which can complement JRF data. For example, in 2016/2017 domestic government spending on health that was devoted to PHC was 65% in low-income countries, 55% in lower-middle income countries, and 42% in upper-middle income countries.²¹ As these data are expanded and strengthened, they could be used to track spending, feed into JRF data, and increase accountability of governments to adequately finance PHC and immunization.

Sources of financing for immunization

Immunization is a global public good that requires public funding.²² Countries need to guarantee access to immunization services to the entire population irrespective of employment status, income, or enrollment in health insurance. If left to the free market, herd immunity would not be achieved, putting everyone at risk. Public goods require collective action, and this is no more apparent than in the context of the COVID-19 pandemic, where governments, philanthropists, multilateral institutions, scientists, the private sector, health organizations, businesses, and civil society, have joined forces for a global response based on unity and solidarity. Strong collective action is essential for reaching the call for investment of US\$31 billion needed for diagnostics, therapeutics and vaccines (including US\$18 billion for vaccines) in order to protect health systems and restore societal and economic activity.²³

21. WHO. Global Spending on Health: A World in Transition. Global Report. 2019. Geneva: WHO. Available at https://www.who.int/health_financing/documents/health-expenditure-report-2019/en/

22. Soucat A. Financing Common Goods for Health: Fundamental for Health, the Foundation for UHC. *Health Syst Reform*. 2019;5(4):263-267. doi: 10.1080/23288604.2019.1671125

23. WHO. ACT-Accelerator Update. June 2020. <https://www.who.int/news-room/detail/26-06-2020-act-accelerator-update>.

Out-of-pocket spending on immunization. At the country level, domestic government funding is typically used to finance immunization for vaccines included in the national schedule, with contributions from donor financing for the poorest countries. In some countries there is modest funding of immunization from domestic private sources (out-of-pocket spending and, in some countries, private insurance).

However, there is wide consensus that publicly financed vaccines should not be subject to user fees or co-payments, explicit or implicit, as they are considered a global public good that carry benefits that extend across the population, across countries, and across generations.²⁴ User fees can create barriers to access and reduce coverage, particularly for the poor.²⁵

Where private financing for immunization is used, it tends to fill gaps in public financing. A three-country study from Benin, Malawi and Georgia found that in Benin and Malawi, when fees were charged in private facilities, clients paid nominal fees for vaccination cards and services; fees were less commonly charged for vaccines. In Georgia, where immunization is done by publicly contracted private providers under their universal health care system, clients paid registration fees when they were not registered with the provider and paid fees to obtain vaccines outside of the national schedule.²⁶ Households paid for these fees primarily from out-of-pocket spending rather than private insurance reimbursement.

Removing financial barriers to immunization and other services will require increased public funding. While most user fees in theory exclude immunization, policies that remove user fees need to be backed by adequate financing to avoid informal or indirect fees, or to prevent implicit rationing. For example, some households need to purchase syringes in order to receive vaccination when health facilities lack these supplies.

Furthermore, households may encounter other financial access barriers that prevent them from using services. In Guinea-Bissau, for instance, caregivers (usually mothers) incurred time and transport costs equivalent to 3.3% of average monthly household income to get their child vaccinated against measles. Mothers often had to go to the health facility more than once to get their child vaccinated due to restrictive measles vial opening and age policies.²⁷

Countries can address these obstacles by ensuring predictable immunization services that are designed to minimize travel and other barriers as much as possible. Countries can also address financial barriers through various policies, including vouchers to cover transportation costs or conditional cash transfers

-
24. Yamey G, Jamison D, Hanssen O, Soucat A. Financing Global Common Goods for Health: When the World is a Country. *Health Syst Reform*. 2019;5:4,334-349. doi: 10.1080/23288604.2019.1663118
 25. McPake B. User charges for health services in developing countries: a review of the economic literature. *Soc Sci Med*. 1993;36(11):1397-1405. doi:10.1016/0277-9536(93)90382-e
 26. Levin A, Munthali S, Vodungbo V, Rukhadze N, Maitra K, Ashagari T et al. Scope and magnitude of private sector financing and provision of immunization in Benin, Malawi and Georgia. *Vaccine*. 2019;37(27):3568-3575. doi: 10.1016/j.vaccine.2019.05.023.
 27. Byberg S, Fisker AB, Rodrigues A, Balde I, Enemark U, Aaby P et al. Household experience and costs of seeking measles vaccination in rural Guinea-Bissau. *Trop Med Int Health*. 2017;22(1):12-20. doi: 10.1111/tmi.12793.

to increase demand for services. However, such schemes need to be carefully designed and implemented.^{28 29}

Ways to create budgetary room for PHC and immunization requirements will differ by country income level. Table 1 presents a broad view of approaches to increasing PHC expenditures, including immunization, differentiated by country income group.

In low-income countries, increased funding for PHC would need to be from a combination of increased domestic government expenditures on health, increased donor funding on PHC, and reallocations of donor funding towards PHC.

For lower-middle income countries and upper-middle income countries, increased domestic government spending on health is needed, but there is likely to be more scope within the existing envelope for reallocation towards PHC. In lower-middle income countries, with relatively more access to donor assistance than upper-middle income countries, reallocation of donor funding towards PHC would also help.

In high-income countries, the main route to increase PHC spending is often through prioritization of health spending and reallocation of resources. However, given the deep recession brought on by COVID-19, countries will need to ground their health-financing strategies in the realities of the macroeconomic and fiscal context. Expansionary fiscal policies and health reprioritization will be critical for ensuring public financing is protected and increased to maintain effective service coverage and financial risk protection – the goals of UHC.

Country-level immunization-specific earmarked taxes or trust funds have yielded limited results. With very few exceptions, efforts to mobilize new resources through immunization-specific earmarked taxes or trust funds have yielded few sustainable benefits.³⁰ While health-related taxes are used to change behaviour and raise government revenue (e.g. taxes on tobacco, alcohol and, increasingly, sugar-sweetened beverages), earmarking on the expenditure side requires careful consideration of the trade-offs.³¹ All countries will need to choose their own approach to increasing public financing, without bringing more fragmentation and administrative cost into the health system.

Sustainable financing for immunization will require prioritization by sub-national governments and strong governance arrangements. With the exception of vaccine procurement, the majority of financing for PHC and immunization is executed by subnational governments. Thus, strong governance arrangements are needed to ensure adequate resources reach front-line providers and promote accountability.

28. Huntington D. The impact of conditional cash transfers on health outcomes and the use of health services in low- and middle-income countries. 2010. Geneva: WHO. Available at <https://www.who.int/elena/titles/commentary/cash-transfers/en/>

29. Barham T, Maluccio J. Eradicating diseases: the effect of conditional cash transfers on vaccination coverage in rural Nicaragua. *J Health Econ.* 2009;28(3):611-21. doi: 10.1016/j.jhealeco.2008.12.010.

30. Results for Development. Immunization Financing: A resource guide for advocates, policymakers, and program managers. 2017. Washington DC, USA: Results for Development. Available at: https://www.r4d.org/wp-content/uploads/Immunization_Financing_Resource_Guide_2017_FULL.pdf

31. Cashin C, Sparkes S, Bloom D. Earmarking for health: from theory to practice (Health Financing Working Paper No. 5). 2017. Geneva: WHO. Available at: <https://apps.who.int/iris/handle/10665/255004>

Subnational governments are often dependent on block grants or other transfers from the national government. How the federal government designs those transfers can influence what is allocated to health and whether regions receive sufficient financing to compensate for differences in health needs or costs of providing services. For example, the use of conditional grants can bring greater attention to priorities such as public health, prevention and immunization, or health more generally.^{32 33} Even when local governments prioritize PHC and immunization sufficiently in their budgets, weak financial management practices and strong influence from local interest groups may mean that resources are not used as intended. Public financial reforms are often beyond the scope of the health sector, but are critical for ensuring efficiency of funds at the local level.

Strategic interventions

Increase domestic public funding for health and reallocate to PHC. Increasing domestic resource mobilization for health in low- and middle-income countries is a high priority if countries are going to meet the spending needs required to achieve their UHC goals. Countries need to design health-financing strategies that prioritize PHC, and ensure their service delivery models incentivize the use of preventive services and public goods such as immunization.

Strategic plans for immunization that are closely linked to national health plans and the medium-term planning process will be an important part of any country's efforts to ensure sustainable financing for immunization requirements. According to the WHO Country Planning Cycle database, immunization strategies are aligned with national health sector plans in only 20% of countries. The health-financing strategy should include a revenue-raising plan, resource allocation prioritization, and strategic payment mechanisms to ensure the availability of sustainable funding for a package of essential services – including immunization – that will advance progress towards UHC.³⁴ The COVID-19 pandemic has demonstrated that pandemic preparedness and response planning is also needed to ensure resilience of health systems.

Use external assistance to invest in public goods, strengthen prioritization of primary health care, reduce financial barriers, and leverage domestic financing. At the global level, partnerships such as the Access to COVID-19 Tools Accelerator (ACT-Accelerator) are important for ensuring adequate investment and market shaping for a COVID-19 vaccine that reaches everyone, regardless of geography or other factors. At the country level, donors are encouraged to prioritize development assistance for the countries that need it most and do so in a way that aligns with government priorities, builds sustainable health systems needed for resilient, responsive primary health care, and addresses barriers (both financial and other).

32. Sabignosos M, Zanazzi L, Sparkes S, Mathauer I. Strengthening the Purchasing Function through Results-Based Financing in a Federal Setting: Lessons from Argentina's Programa Sumar (Health Financing Working Paper No. 15). 2020. Geneva: WHO. Available at: <https://www.who.int/publications/i/item/strengthening-the-purchasing-function-through-results-based-financing-in-a-federal-setting-lessons-from-argentina-s-programa-sumar>

33. Cotlear D, Alawode G, Muchiri S. Bridging the Gap Between the Ministries of Finance and Health in Decentralized Health Care Systems —A Comparison of Nigeria and Kenya. 2020. <https://medium.com/@HealthPolicyPlus/bridging-the-gap-between-the-ministries-of-finance-and-health-in-decentralized-health-care-systems-710b8c2f76c6>

34. Kutzin J, Witter S, Jowett M, Bayarsaikhan D. Developing a National Health Financing Strategy: A reference guide (Health Financing Guidance No. 3). 2017. Geneva: WHO. Available at: https://www.who.int/health_financing/tools/developing-health-financing-strategy/en/

External assistance can also be channelled in a way that leverages domestic financing. For example, the GFF helps to align development financing around a country's prioritized plan to fund interventions for reproductive, maternal, neonatal, child, and adolescent health (RMNCAH), while supporting the development of domestic financing. The partners aligning support can also use their particular strengths to address specific barriers related to demand and supply of RMNCAH interventions.³⁵

Assumptions and risks:

- Countries have many competing priorities at the national and subnational level and therefore strong evidence helps to make a persuasive case to increase funding for PHC and immunization.
- Economic instability and low or negative growth may make it more challenging to mobilize public resources for health, on which PHC and immunization depend. There also may be constraints in donor countries that result in cuts in external assistance, particularly in the face of an economic recession due to COVID-19. At the same time, spending needs are increasing as countries move to UHC. Countries should therefore identify all options to improve efficiency.

Good governance and value for money

Ensure good governance, stewardship and accountability of immunization programmes for optimal performance and best value for money

Effective public financial management

Sound public financial management is an enabling condition for the financing and delivery of PHC and immunization. In many countries, domestic funding for immunization is often unreliable due to weak governance and institutional capacity for planning, budgeting, disbursement of funds and accountability. Related to these problems, budgets may not be fully executed.

Low-income countries tend to have the weakest financial management processes, and external assistance is often channelled through parallel systems, resulting in lack of alignment with government priorities, duplication of resources, or substitution of domestic resources. A recent study found that improving the quality of financial management led to significant reductions in under-five mortality, particularly in countries where funds were channelled through the government system.³⁶

Immunization services depend on funding reaching the frontline. While the health sector cannot reform government-wide financial management systems, there may be specific issues that can be addressed within the health sector. These could include providing the flexibility to retain savings at the subnational

35. Global Financing Facility (GFF). Guidance Note: Investment Cases. 2016. Available at: <https://www.globalfinancingfacility.org/guidance-note-investment-cases>

36. Piatti-Fünfkirchen M, Smets L. Public financial management, health financing and under-five mortality: a comparative empirical analysis (Inter-American Development Bank Working Paper Series 976). 2019. Washington DC, USA: Inter-American Development Bank. Available at: <https://publications.iadb.org/en/public-financial-management-health-financing-and-under-five-mortality-comparative-empirical>

level, allowing output-based payment for providers, or providing flexibility to providers to enable them to shift resources as needed.³⁷

Large gaps exist in the understanding of how countries handle immunization in the health budget and of good practices.

Budget line items for immunization, or at a minimum for vaccines, are often seen as important for budget visibility, transparency and financial sustainability. Almost all countries report to the JRF that their government budgets have a line item for vaccines. Even so, a recent comparison of health budgeting in 33 sub-Saharan African countries found that more than 40% of countries did not have a budget line item for vaccine supplies.³⁸ However, the majority of countries did have many immunization-specific line items in their budgets (up to 42). Budget line items may increase transparency and accountability, but they also make reallocation of funding more difficult. There is no evidence that they help to ensure financial sustainability.

Budget formulation is evolving in most countries and, to sustain domestic funding for immunization, it is important to align with new budget formulations and structures. When budgets evolve to programme-based formulation, funding for immunization activities and vaccines needs to be integrated in broader budgetary programmes (e.g. at sub-programme or activity level). Performance monitoring frameworks that accompany programme budgets can also include immunization-related targets, to ensure that funding is linked to pre-identified outputs and monitored in an integrated way within existing financial and non-financial monitoring systems.³⁹

Immunization strategies and planning

Evidence-based immunization delivery strategies. Countries make choices about delivery strategies that affect how well resources are used. For example, HPV vaccination could be school- or facility-based or a combination, and the costs and coverage of different approaches vary by country context.

Strategies to reach the underserved are likely to incur additional costs. Community-based or door-to-door campaigns are intensive, time-limited actions to support accelerated disease control. The appropriate mix of campaigns (non-selective versus targeted) and routine services will vary by country context. However, some countries may rely too much on campaigns at the cost of strengthening routine services and averting outbreaks.⁴⁰ In addition, coordination across different types of campaigns is generally poor.⁴¹

-
- 37. Barroy H, Kabaniha G, Boudreaux C, Cammack T, Bain N. Leveraging Public Financial Management for Better Health in Africa: Key bottlenecks and opportunities for reform (Health Financing Working Paper No. 14). 2019. Geneva: WHO. Available at: https://www.who.int/health_financing/documents/workingpaper14/en/
 - 38. Griffiths UK, Asman J, Adjagba A, Yo M, Oguta JO, Cho C. Budget line items for immunization in 33 African countries. Health Policy Plan. 2020 May 27;35(5):e2020040. doi: 10.1093/heapol/czaa040.
 - 39. Barroy H, Dale E, Sparkes S, Kutzin J. Budget matters for health: key formulation and classification on issues (Health Financing Policy Brief No. 18.4). 2018. Geneva: WHO. Available at: https://www.who.int/health_financing/documents/making-budgets-work-uhc/en/
 - 40. Mounier-Jack S, Edengue JM, Lagarde M, Baonga SF, Ongolo-Zogo P. One year of campaigns in Cameroon: Effects on routine health services. Health Policy Plan. 2016;31(9):1225-31. doi: 10.1093/heapol/czw054.
 - 41. Camber Collective. Campaign Effectiveness Landscape and Case for Action. 2020. Seattle: Camber Collective. Available at: <https://taskforce.org/wp-content/uploads/2020/04/Campaign-Effectiveness-Landscape-and-Case-for-Action-February-2020-Public.pdf>

Better vaccine forecasting, budgeting and procurement. Improvements in vaccine forecasting, budgeting and procurement can have substantial impacts on the performance of immunization programmes. Inadequate budget allocations due to a disconnect between supply planning, forecasting and budgeting can lead to undersupply of vaccines. Late budget releases and weak procurement processes can delay procurement and lead to vaccine shortages, resulting in interruption of services.

Increasing programmatic efficiencies

Strategic purchasing can be used to create incentives for providers to increase immunization coverage and deliver high-quality services. A combination of flexibility and ownership of use of funds by providers, as well as the right incentives, can help to promote immunization objectives. For example, in Estonia, family doctors participate in a pay-for-performance scheme, which includes full immunization coverage at three years of age as a target.⁴²

Another mechanism for creating incentives in decentralized settings is through performance-based transfers. In Laos, where immunization is financed through district-level budgets, central government provides a performance-based grant to states based on district-level immunization coverage.⁴³ A recent review of the programme found that, over two years, immunization rates in the 50 targeted lagging districts increased by an average of 22% for measles-containing vaccine and 30% for third dose of pentavalent, compared to 1% and 4% increases over the same period in the remaining districts.⁴⁴

Efficiencies in integration. While some interventions, such as those necessary for disease control and eradication, need to remain vertical, there are good examples of programmes moving to greater integration of immunization with other PHC services (for services that are not already part of PHC delivery in facilities). For example, reforms in Laos have integrated immunization outreach with the outreach package for reproductive and maternal and child health. Campaigns have also included provision of other PHC services, such as deworming. Integration of health system functions can also deliver efficiency gains. Systematic analysis to identify duplication of functions across programmes can reveal opportunities to improve cross-programmatic efficiencies.⁴⁵

Evidence-informed decision-making. National Immunization Technical Advisory Groups (NITAGs) can help achieve value for money by providing evidence-based advice to inform new vaccine introductions, product choices and delivery strategies. Even in countries with well-developed health technology assessment (HTA) processes, vaccine assessments still tend to be handled by NITAGs because of the unique characteristics of vaccines. In many countries,

42. Habicht T, Reinap M, Kasekamp K, Habicht J, van Ginneken E, Webb E. Estonia: Health system review. *Health Syst Transit*. 2018;20(1):1–189.

43. World Bank. *Toward Sustainable Financing for Immunization Coverage in Lao PDR*. Policy Brief. 2017. Washington DC, USA: World Bank. Available at: <http://documents.worldbank.org/curated/en/680971512154814781/pdf/121810-REVISED-Policy-Brief-HFSA-11-12-17-v2.pdf>

44. World Bank. *Analysis of Lao DHIS2 data: preliminary findings*. 2020. Washington DC, USA: World Bank.

45. Sparkes S, Durán A, Kutzin J. *A system-wide approach to analysing efficiency across health programmes* (Health Financing Diagnostics and Guidance No. 2). 2017. Geneva: WHO. Available at <http://apps.who.int/iris/bitstream/10665/254644/1/9789241511964-eng.pdf>.

however, the position of NITAGs is still not well established, with the groups facing difficulties in mobilizing the time of busy experts, relying on limited resources, and drawing on insufficient local data.⁴⁶

Judicious product choices and procurement methods may deliver efficiency gains, when considered along with immunization delivery cost implications and programme goals.

Evolving health systems

Clarity is needed on roles and responsibilities for immunization, including financing, in complex health systems, particularly during UHC reforms.

Countries are taking different approaches to achieve UHC and different levels of government often play distinct roles. Funding responsibilities for immunization services may be shared across many budgets, with vaccine procurement typically retained by central government and the majority of funding for service delivery executed at subnational levels.

But in any arrangement, the health financing architecture needs to ensure funding for all immunization functions and therefore requires "unpacking" to understand the various elements of a programme. For example, some countries are introducing national health insurance, with responsibility for purchasing of health services assigned to a public entity.⁴⁷ Immunization services may be included in the benefits package or supplied by the ministry of health, depending on the country's model. National health insurance may not represent additional resources for immunization, as funds may be shifted from one budget to another.

Strategic interventions

In countries with weak public financial management, it may be more practical to strive for a gradual, problem-driven approach to strengthen financial management in health, rather than a full reform.⁴⁸ For example, mapping budgeting processes to identify root causes of budget execution problems could help to identify specific actions. A problem-driven iterative approach seeks to use real-world problem solving to achieve strong commitment to improving institutional capabilities.⁴⁹

Countries need to strengthen their human resource capacity in forecasting, budgeting and procurement in order to achieve procurement efficiencies and uninterrupted supply of affordable and quality products. Increased understanding of vaccine markets is needed to make informed decisions. The use of pooled procurement mechanisms (UNICEF Supply Division,⁵⁰ PAHO Revolving

46. Howard N, Walls H, Bell S, Mounier-Jack S. The role of National Immunisation Technical Advisory Groups (NITAGs) in strengthening the national vaccine decision-making: A comparative case study of Armenia, Ghana, Indonesia, Nigeria, Senegal and Uganda. *Vaccine*. 2018; 26 (37):5536-5543. doi: 10.1016/j.vaccine.2018.07.063.

47. Learning Network for Countries in Transition (LNCT). Considerations for Managing Immunization Programs within National Health Insurance. 2019. Available at: https://lnct.global/wp-content/uploads/2020/02/Considerations-for-Immunization-Programs-within-NHI_FINAL.pdf

48. UNICEF. UNICEF's Engagements in Influencing Domestic Public Finance for Children (PF4C): A Global Programme Framework. 2017. New York, USA: UNICEF. Available at: https://www.unicef.org/socialpolicy/files/UNICEF_Global_Programme_Framework_for_PF4C.pdf.

49. Andrews M. *The Limits of Institutional Reform in Development: Changing rules for realistic solutions*. 2013. Cambridge, UK: Cambridge University Press.

50. UNICEF. Procurement Services. <https://www.unicef.org/supply/procurement-services>.

Fund¹⁹) could be considered. Likewise, technical assistance to address supply-financing challenges can be accessed through the UNICEF Supply Division.⁵¹

Governments, with assistance from partners where appropriate, can strengthen surveillance and management information systems to help guide policymaking and management.

Generating and using evidence on the additional costs of reaching zero-dose children, cost-saving delivery strategies, and ways to improve vaccine acceptance and increase demand for services, particularly during the COVID-19 pandemic and after, will help improve programme performance.

Assumptions and risks:

- Public financial management reforms are complex, time-intensive, political and require much investment. They are also often beyond the control of the health sector.
- Deep-seated challenges with federal-state/provincial coordination may limit progress in decentralized countries.
- Countries may face unaffordable vaccine prices, especially for never-Gavi-eligible countries and transitioned Gavi countries (longer term, after price guarantees end).
- Improving performance and achieving value for money is challenging in fragile and conflict-affected countries, where governance systems may be weak.

Partner alignment

Streamline and align partnerships that provide immunization, primary health care, or integrated financing, and ensure effective global collaboration in which the roles, responsibilities, and accountability of all partners are clearly defined, transparent, and monitored.

Key evidence and gaps

Donor alignment. External assistance may be poorly coordinated at the country level and not well aligned with government plans. Despite several commitments to the aid effectiveness agenda, alignment of donor objectives to country priorities, country-owned results frameworks, and use of country statistics and monitoring systems have decreased for most development partners since 2016.⁵²

Global collaborations exist between Gavi, the Global Fund, the GFF and other partners. Gavi is also part of the Global Action Plan (GAP) for Healthy Lives and Well-Being for All, an effort by 12 multilateral organizations to accelerate country progress on health-related SDGs. One of seven "accelerators" focuses on health financing, supporting countries through aligned and collective action on domestic resource mobilization and prioritization of health plans toward PHC.

51. UNICEF. Vaccine Independence Initiative. https://www.unicef.org/about/execboard/files/2020-Vaccine_Independence_Initiative-EN-2020.01.23.pdf

52. Global Partnership for Effective Development Co-operation. Making development co-operation more effective. 2019 Progress Report. 2019. OECD/UNDP. Available at: http://effectivecooperation.org/wp-content/uploads/2019/07/GPEDC_2019-Report_Glossy_EN_web-1.pdf

Public–private engagement in immunization delivery. In some countries, not-for-profit and for-profit private providers play an important role in immunization, even when services are largely publicly funded. Their roles and responsibilities should be carefully defined and well understood to promote programme goals.

Governments may have agreements with private providers to deliver immunization services, as examples from Georgia, Indonesia and Sudan show.⁵³ Georgia, for example, relies almost entirely on private providers to deliver publicly financed immunization. In Indonesia, the role of private providers contracted by the national social health insurance programme for PHC has been evolving but initially, there was confusion over responsibilities under capitated payments and immunization was often omitted from services provided. In Sudan, the ministry of health supplies private providers with vaccines and injection supplies and, less commonly, cold chain equipment and in turn these providers are prohibited from charging for the vaccines they administer.

In some countries, private immunization providers are financed primarily by out-of-pocket spending and serve higher-income groups, but solid knowledge on the extent of this provision is lacking.

Strategic interventions

External assistance. Donors need to adhere to promises articulated in the aid effectiveness agenda, including aligning funding to a country's national plans, ensuring that funding is captured in government budgets and executed through government systems. Governments will need to strengthen their systems in order to allow for this.

Donors that finance primarily disease-specific programmes need to align their investments so that countries benefit from complementarities and synergies between different initiatives.

External assistance for immunization needs to be integrated into the broader health financing landscape. This can be achieved through joint investments, alignment and harmonization made possible through the GFF and the Global Action Plan.

Engagement with the private sector. Landscape analyses can help governments better understand the role of the private sector in immunization. They can be used to identify how governments might better engage with the private sector to achieve immunization programme goals, build on complementarities, and align efforts to maximize impact. Analyses would ideally also consider the role of the private sector in areas such as vaccine procurement and distribution.

Assumptions and risks:

- Donors may be unwilling to change their procedures in order to work within government planning cycles or in alignment with other donors. Countries may be unable to carry out the reforms needed to allow for channelling of external funds through national systems.

53. Learning Network for Countries in Transition (LNCT). Considerations for Managing Immunization Programs within National Health Insurance. 2019. Available at: https://lnct.global/wp-content/uploads/2020/02/Considerations-for-Immunization-Programs-within-NHI_FINAL.pdf

- Earmarked and rigid donor funding may impede implementation of efficiency measures through reprogramming or integrating for broader uses.
- Where government capacity is already stretched, improved oversight of the private sector in immunization may be judged a low priority.

Sustainable transitions

Ensure that mechanisms exist for countries to transition smoothly out of donor-supported programmes, while maintaining and enhancing their immunization programmes.

Key evidence and gaps

Development assistance for health began plateauing in 2010 after an unprecedented rise between 2000 and 2010. It was estimated at US\$26.2 billion in 2018.⁵⁴ Most global health initiatives base their eligibility and transition policies on factors such as income growth and changes in disease burden, and there is some overlap in the timing of transitions. A review of projected transition timelines for five global financing mechanisms (Gavi, the Global Fund, the World Bank's IDA arm, GPEI and PEPFAR) found that 11 countries are likely to face high fiscal risk from transitions during 2015–2040, and a further ten countries will face moderate fiscal risk.⁵⁵ However, the economic impact of COVID-19 may reduce the number of countries predicted to transition.

External assistance for immunization is channelled mainly through Gavi and GPEI (see Box). Gavi's transition policy outlines the different stages a country is expected to go through as its national income increases and specifies the threshold at which a country is expected to lose eligibility. A number of factors contribute to financial risk as countries transition from Gavi support. Factors affecting **resource needs** include vaccine prices, the size of the birth cohort and population growth rate.⁵⁶ Factors affecting **resource availability** include: economic conditions, such as levels of debt, the breadth and efficiency of the tax base, and economic growth; prioritization of health in the government budget; prioritization of immunization, PHC and vaccines in the health budget; and the funds available after human resources and other recurrent costs are paid. In 2020, 17 countries had transitioned from Gavi. Experience from these countries indicates that they have maintained their vaccine schedule (and in some cases introduced new vaccines), with one transitioned country experiencing a drop in DTP3 coverage.

In 2016, GPEI started preparing countries for transition, prioritizing 16 countries that account for over 90% of GPEI resources. National polio transition plans have been developed in these countries, outlining partner commitments and government requirements. In countries transitioning from GPEI, resource needs will be greater in

54. OECD. DAC Creditor Reporting System (CRS), April 2020 update. <https://stats.oecd.org/Index.aspx?DataSetCode=crs1>

55. Silverman R. Projected Health Financing Transitions: Timeline and Magnitude. Center for Global Development Working Paper 488. 2018. Washington, DC: Center for Global Development. Available at: <https://www.cgdev.org/publication/projected-health-financing-transitions-timeline-and-magnitude>

56. Kallenberg J, Mok W, Newman R, Nguyen A, Ryckman T, Saxenian H et al. Gavi's Transition Policy: Moving From Development Assistance To Domestic Financing Of Immunization Programs. *Health Aff.* 2016;35(2):250-8. doi: 10.1377/hlthaff.2015.1079.

countries that rely heavily on polio infrastructure and funding for key immunization functions. Reliance on external funding remains a reality in polio-endemic, outbreak and at-risk countries. The persistence of wild poliovirus and outbreaks of vaccine-derived poliovirus have slowed the pace of transition in many countries.

Strategic interventions

Donor transition timelines need to be predictable and clearly communicated.

Evaluations of transition experience to date underscore the importance of clear and predictable timelines for transition to support country planning. Policy transparency is also key to build a shared understanding of transition processes among partners and government stakeholders, and to promote greater alignment and joint planning. In-country dialogue is needed with multiple stakeholders, including ministries of finance and health, on the transition process and domestic funding requirements.

Estimates of resource needs should be realistic, transparent and feed into medium-term planning.

In Gavi-eligible countries, vaccine financing is typically the largest category of expenditure that a country needs to absorb. However, ministries of finance often do not fully understand the budgetary implications of donor transitions in advance. In recent years, Nigeria and several Pacific countries have ensured that estimates of resource needs for vaccines are included in government's medium-term planning framework, thereby enabling ministers of finance to factor vaccine costs into the budget process. Linking with the country's main planning tool seems to be a useful approach to securing budgetary resources. Early engagement is key to building strong health systems and to paving the way for successful transitions.

Transition plans need to be owned by country governments at all levels.

While donors have an important role to play in facilitating transitions, national governments can lead the way, outlining an overall vision and forming an alliance across sectors, different levels of government, priority programmes within the health sector, and with development partners, the private sector and members of civil society. Polio eradication has been a globally led programme, with minimal financial contribution from countries, leading to challenges with national ownership of transition plans.

One exception is India, where the Government, with domestic financing, is supporting the transformation of the WHO-led National Polio Surveillance Project (NPSP) to broader health and immunization functions, with a plan to fully take over these functions by 2026. During the COVID-19 pandemic, the strengths of the NPSP team – surveillance, data management, monitoring and supervision, and responding to local situations and challenges – are being used to strengthen COVID-19 surveillance. Similarly, the Ministry of Health and Family Welfare is gradually absorbing and self-financing essential GPEI activities, such as the community-level SMNet (Social Mobilization Network) in Uttar Pradesh and Bihar, to benefit other public health programmes.

As GPEI funding continues to ramp down during the Polio Endgame Strategy 2019–23, the impact on critical immunization functions, such as surveillance, will continue to require coordinated effort to ensure sustainable financing for these assets.

Assumptions and risks:

- Threats such as high levels of debt, poor economic growth, epidemics/pandemics, conflict, refugees and natural disasters can throw a country off track for sustainable transition.
- Programmatic challenges, such as weak capacity in demand forecasting, procurement, supply chain systems, programme management, lack of strategies to address vaccine hesitancy and to reach pockets of under-immunized children, can hinder successful transition.
- Countries that received sizeable assistance from GPEI in sustaining surveillance, outbreak response capacity, and other functions may find it challenging to maintain essential functions.
- Since 2016, Gavi-transitioned countries have been able to access prices similar to those obtained through Gavi. These assurances have been made for a period of 5–10 years, depending on the manufacturer. There is a risk that vaccines could become unaffordable over the longer term.

Figure 1. Key health expenditure indicators, 2017, and recommended approaches to increase PHC spending, by country income group

Key health expenditure indicators, 2017	Low (n=30)	Lower middle (n=45)	Upper middle (n=54)	High (n=58)
Health expenditure per capita (all sources) (US\$) 2017	\$41	\$130	\$471	\$2,937
Domestic public expenditure on health per capita (US\$) 2017	\$10	\$60	\$277	\$2,021
Health expenditure from external sources (% of health expenditure)	29%	12%	4%	*
Out-of-pocket expenditure (% of health expenditure)	41%	39%	32%	22%
Broad approaches to increase PHC spending				
Increase domestic public expenditure on health	✓	✓	✓	
Reallocate domestic public expenditure towards PHC		✓	✓	✓
Increase donor expenditure on PHC	✓			
Reallocate donor expenditure towards PHC	✓	✓		

Health expenditure information drawn from Table 1.1 in WHO 2019, *Global Spending on Health: A World in Transition, 2019*. Approaches to increase PHC spending drawn from Table 4.1 in WHO 2019, *Primary Health Care on the Road to Universal Health Coverage, 2019 Monitoring Report, Conference Edition*.

*Health expenditure from external sources is primarily from development assistance in low- and middle-income countries. In high-income countries, it is primarily cross-border health service financing, so is omitted from this table for that income group.

Figure 2. Comparison of vaccine cost per fully immunized child for national schedules in Comoros, Zambia, Iraq, and the USA, 2020 (US\$)

WHO-recommended childhood vaccines, all programmes	Comoros (2019 GNI p.c., \$1,420) (Gavi-eligible)	Zambia (2019 GNI p.c., \$1,450) (Gavi-eligible)	Iraq (2019 GNI p.c., \$5,740)	USA (2019 GNI p.c., \$65,760)
Hep B birth dose				
Hep B 2-3 doses				
Polio				
DTP-containing vaccines				
Hib				
PCV				
Rotavirus				
Measles 1 st dose				
Measles 2 nd dose				
Rubella				
HPV		Preteen girls		Preteen boys and girls
2020 vaccine cost/child	\$9 ¹	\$31 ¹	\$110 ²	\$1,355 CDC prices, roughly \$2,080 at private sector prices. ³
Additional vaccines				
Influenza				
Varicella				
HepA				
Tdap				
MenACWY-D/Men-ACWY-CRM				
Meningococcal B				
				\$2,230 CDC prices, roughly \$3,350 at private sector prices. ³

GNI: gross national income. About half the children in the USA receive vaccines through the Vaccines for Children Program, which uses the Centers for Disease Control (CDC) contract price. Costs for Comoros, Zambia and Iraq include transport to country, UNICEF fees (if applicable), wastage rates, safety boxes, and injection supplies. Costs for the USA are only the vaccine costs per dose.

1/ UNICEF Supply Division procurement, prices for Gavi countries.

2/ Mix of self-procurement and procurement from UNICEF Supply Division. Information on self-procurement provided by UNICEF staff.

3/ CDC and private sector prices as of March 1, 2020 available at: <https://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/2020/2020-03-01.html>.

Overview of Gavi and GPEI Approaches to Transition

Gavi. Gavi is the major source of external assistance for immunization globally, supporting 57 low- and lower middle-income countries in 2020, which together account for some 60% of the global birth cohort. This support includes subsidization of new vaccines, as well as cash grants and technical assistance for routine immunization, supplementary immunization activities, and health systems strengthening. Gavi's co-financing policy is designed to gradually build up a country's contributions to Gavi-supported vaccines to prepare it for eventual transition to full self-financing.

In 2020, 17 countries have transitioned from Gavi support, but some have faced performance issues. Gavi is therefore strengthening its focus on sustainability well before transition and, under Gavi 4.0, also opened a post-transition window to address country-specific needs and risks. Gavi's new strategy (Gavi 5.0) is expected to expand flexibilities to countries if necessary, for example in countries where coverage is lagging, and to provide additional support for systems building.

GPEI. The infrastructure over the past three decades to eradicate polio has been supporting broader cross-cutting functions. GPEI concentrates its country support primarily on remaining polio-endemic countries, on countries experiencing outbreaks of circulating vaccine-derived poliovirus, and a dozen at-risk countries (where low levels of immunity and surveillance leave the countries vulnerable to the return of the virus). These are primarily a mix of low- and lower middle-income countries. As the world moves close to eradication, GPEI resources will decline and eventually end.

Some countries depend on GPEI support for essential immunization functions that extend beyond polio, especially disease surveillance and data systems. GPEI has also funded and engaged with NGO and community networks which play important roles supporting efforts to reach mobile, marginalized, hard-to-reach and migrant populations. Functions determined by the government as essential to immunization programmes will need to be sustained by countries after GPEI resources are withdrawn.

Resources

Bloom D. The Value of Vaccination. In: Curtis N, Finn A, Pollard A (eds) Hot Topics in Infection and Immunity in Children VII. Advances in Experimental Medicine and Biology (Vol. 697). 2011. New York: Springer.

Immunization Costing Action Network (ICAN). Immunization Delivery Cost Catalogue. <https://immunizationeconomics.org/ican-idcc>

Johns Hopkins University International Vaccine Access Center (IVAC). Methodology Report: Decade of Vaccines Economics (DOVE) Return on Investment Analysis. 2019. Baltimore: IVAC. Available at: <http://immunizationeconomics.org/dove-roi>.

Kallenberg J, Mok W, Newman R, Nguyen A, Ryckman T, Saxenian H et al. Gavi's Transition Policy: Moving From Development Assistance To Domestic Financing Of Immunization Programs. *Health Aff.* 2016;35(2):250-8. doi: 10.1377/hlthaff.2015.1079.

Kutzin J, Witter S, Jowett M, Bayarsaikhan D. Developing a national health financing strategy: a reference guide (Health Financing Guidance No 3). 2017. Geneva: WHO. Available at https://www.who.int/health_financing/tools/developing-health-financing-strategy/en/

Ozawa S, Clark S, Portnoy A, Grewal S, Brenzel L, Walker DG. Return on Investment from Childhood Immunization in Low- and Middle-Income Countries, 2011-20. *Health Aff.* 2016;35(2):199-207. doi: 10.1377/hlthaff.2015.1086.

Results for Development. Immunization financing: a resource guide for advocates, policymakers, and program managers. 2017. Washington DC: Results for Development. Available at <https://www.r4d.org/resources/immunization-financing-resource-guide-advocates-policymakers-program-managers/>

Rutter PD, Hinman AR, Hegg L, King D, Sosler S, Swezy V et al. Transition Planning For After Polio Eradication. *J Infect Dis.* 2017;216(suppl_1):S287-S92. doi: 10.1093/infdis/jix026.

WHO. Global Health Expenditure Database. <https://apps.who.int/nha/database>

WHO-UNICEF Joint Reporting Form Indicators. https://www.who.int/immunization/programmes_systems/financing/data_indicators/en/