Sustainable Immunization Financing in Asia Pacific

October 2017
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Authors:
This report was prepared by Martha Coe, Jessica Gergen, Michaela Mallow, Flavia Moi, and Caroline Phily.

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**ACRONYMS**

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACIP</td>
<td>Advisory Committee on Immunization Practices</td>
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<td>BCG</td>
<td>Bacille Calmette-Guerin</td>
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<td>BPJS</td>
<td>Badan Penyelenggara Jaminan Sosial (Social Security Health Administrator of Indonesia)</td>
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<tr>
<td>DALY</td>
<td>Disability adjusted life year</td>
</tr>
<tr>
<td>DoH</td>
<td>Department of Health (Philippines)</td>
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<td>EPI</td>
<td>Expanded program on immunization</td>
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<td>Gavi</td>
<td>Global Alliance for Vaccines Initiative</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>HepB</td>
<td>Hepatitis B</td>
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<tr>
<td>HITAP</td>
<td>Health Intervention and Technology Assessment Program</td>
</tr>
<tr>
<td>HPV</td>
<td>Human Papilloma Virus</td>
</tr>
<tr>
<td>HTA</td>
<td>Health technology assessment</td>
</tr>
<tr>
<td>HTAi</td>
<td>Health Technology Assessment International</td>
</tr>
<tr>
<td>IFFIm</td>
<td>International Finance Facility for Immunization</td>
</tr>
<tr>
<td>INAHTA</td>
<td>International Network of Agencies for Health Technology Assessments</td>
</tr>
<tr>
<td>JKN</td>
<td>Jaminan Kesehatan Nasional (National Health Insurance mechanism)</td>
</tr>
<tr>
<td>LGU</td>
<td>Local government unit</td>
</tr>
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<td>MaHTAS</td>
<td>Malaysian Health Technology Assessment</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<td>MoHW</td>
<td>Ministry of Health and Welfare</td>
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<td>NCD</td>
<td>Noncommunicable disease</td>
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<td>NHI</td>
<td>National health insurance</td>
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<td>NHIA</td>
<td>National health insurance administration</td>
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<td>NHIP</td>
<td>National health insurance program</td>
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<td>NHSO</td>
<td>National Health Security Office</td>
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<tr>
<td>NIP</td>
<td>National immunization program</td>
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<tr>
<td>NITAG</td>
<td>National immunization technical advisory group</td>
</tr>
<tr>
<td>NUVI</td>
<td>New and underutilized vaccine introduction</td>
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<tr>
<td>OOP</td>
<td>Out of pocket payments</td>
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<tr>
<td>PCV</td>
<td>Pneumococcal Conjugate Vaccine</td>
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<tr>
<td>PPP</td>
<td>Public-private partnership</td>
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<tr>
<td>SHI</td>
<td>Social health insurance</td>
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<tr>
<td>THE</td>
<td>Total health expenditure</td>
</tr>
<tr>
<td>UCS</td>
<td>Universal coverage scheme</td>
</tr>
<tr>
<td>UHC</td>
<td>Universal health coverage</td>
</tr>
<tr>
<td>VAT</td>
<td>Value-added tax</td>
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<tr>
<td>VSS</td>
<td>Vietnam Social Security</td>
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<td>WHO</td>
<td>World Health Organization</td>
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EXECUTIVE SUMMARY

This report aims to understand immunization financing flows in six Asian Pacific countries and how financing challenges can be addressed to maintain prioritization of immunization programs. Countries across Asia Pacific are facing new financing challenges in their immunization programs. Shifting economies, demographics, health outputs, and political settings can all affect public immunization programs, both positively and negatively. It is important to ensure that these programs are prioritized and maintained through these transitions. To better understand the balance that countries must make between the value of vaccination and the affordability of vaccination programs, thus allowing for fruitful engagement on immunization financing, it is critical for stakeholders to have a more holistic understanding of the immunization financing space. This report is written for all stakeholders, inclusive of academics, practitioners, policy makers, and private industry, interested in fortifying and protecting national immunization programs (NIP).

Financing for immunization varies across Asia Pacific, from the number of vaccines included in national programs to the prioritization of funds to deliver these vaccines. National immunization programs vary greatly in size. In the set of six countries analyzed in this report, programs range from 8 to 14 antigens. Procurement of vaccines is only one part of program expenditures, however, and the size of the NIP does not always mirror the financial commitment of the country to prioritize and implement the program. In 2015 Indonesia dedicated 3.1% of its health budget to routine immunization while Vietnam budgeted only 0.5% to immunization (it must be noted that Vietnam reached 97% coverage of DTP3 with these funds, while Indonesia reached 81%). Absolute budget commitments to immunization programs in the region are increasing. However, per capita expenditures are stalled in low and lower-middle income countries. Financing gains must be protected and expanded across the region to continue increasing access to life-saving vaccines for all in Asia Pacific.

Our analysis revealed four distinct themes or drivers of immunization financing through in-depth examination of six countries within the region (Indonesia, Malaysia, the Philippines, Taiwan, Thailand, and Vietnam). These themes dictate how the public system sources financing, how it is prioritized and spent, and the decision-making processes that govern the programs.

Fiscal Space: Immunization programs range in their financing across Asia Pacific, from 0.5% of the health budget in Vietnam to 3.5% in Malaysia in 2015. Countries are financing to sustain and grow their immunization programs by both exploring new sources of domestic revenue and devising methods to spend budgets more efficiently. The Philippines and Taiwan have found great success through earmarked sin taxes. Revenues from sin taxes have been utilized in both countries to procure new vaccines for the national immunization programs. Other countries have experimented with efficiency gains as a method to increase fiscal space. Thailand has had success in utilizing evidence for decision made through strong health technology assessments (HTAs) and through strategic purchasing to increase the efficiency of its immunization program.

Prioritization: Prioritization is at two levels—prioritization of immunization programs within the overall health budget and prioritization of specific vaccines within the overall
immunization budgets. Prioritization of immunization in Asia Pacific has progressed, with financing for programs increasing over time and new vaccines being added to national schedules. Though the financing trend points to general prioritization of the immunization program, national immunization budgets as a percent of the health budget vary greatly. While Malaysia allocated 3.5% of its health budget to immunization in 2015, Vietnam only allocated 0.5%. Efficiencies may play a role in this spread though as Vietnam has high achievement of coverage and a schedule comparable to others in the region. Prioritization in public systems relies on political will, cost and budget implications, and evidence of need. Decision-making has predominately been a political exercise, although some countries have experienced an emergence of citizen voice and more active advocacy in immunization program decisions. Though budget implications play a major role in most countries’ decisions on new vaccine introductions, a growing number of Asia Pacific countries are utilizing health technology assessments to support their recommendations. Capacity to perform HTAs is varied across the region, ranging from Thailand housing a national HTA institution to the Philippines not having a formal body to request or perform HTAs. The influence that NITAGs have to wield this information for action is often limited outside of the Ministry of Health. However, the trend towards evidence-based decision-making is moving forward and is supportive of new vaccine adoption.

**Strategic Purchasing:** The global universal health coverage agenda has supported the founding and expansion of national health insurance mechanisms across Asia Pacific. Despite the entrance of new major players in health systems across the region, immunization is often kept as a vertical program. Currently, only Thailand purchases vaccines and immunization services through its national health insurance mechanism, though this may be a growing trend in the region. Vietnam is already discussing adding immunization to its national health insurance benefits package. Strong coverage of national health insurance in both Thailand and Vietnam support this move as any change will not hinder access. Indonesia and the Philippines may also head in this direction as coverage of health insurance schemes grow, though there is also the potential to utilize provider payments through insurance mechanisms as incentives for service provision.

**Decentralization:** Public health systems can be decentralized through fiscal, administrative, or political means and many in the region are a mixture of these options. Our findings show that decentralized systems are potentially positive models that function closer to local priorities though, without proper accountability and incentive mechanisms in place, they can be problematic for immunization and health programs. Decentralization has led to heavily fragmented systems that, in turn, perform poorly. The Philippines and Indonesia are the most heavily decentralized in our sample and both are having trouble delivering on program goals which is resulting in decreasing immunization coverage rates. These two systems do, however, offer greater autonomy at the local level and greater opportunity to make an impact on local and national priorities, as well as a potential to increase funding sources and budget allocation.
**INTRODUCTION**

The Asia Pacific region has experienced tremendous economic growth with the majority of countries in the region classified as middle income. Prior to the global financial crisis in 2008, the GDP growth in Asia Pacific was increasing year on year, reaching 8.6% in 2007.¹ Growth momentum has since lagged behind this rate, but holds steady at an average of 6.1% in the region since 2010.² Recent investments in regional infrastructure, strengthened by the opening of the Asian Infrastructure Investment Bank in 2016, are expected to prolong growth and increase domestic demand.³ Sixty eight percent of countries in Asia Pacific are now classified as middle income (42% lower-middle income and 24% upper-middle income) though six of the lower-middle income countries, including Indonesia and the Philippines, are nearing the upper-middle income threshold (Figures 1 and 2).⁴ The future looks positive, but in the medium term, an aging population and declining productive workforce may continue to slow economic growth rates.

**Figure 1. Income Classification is Predominately Lower to Upper-middle Income in Asia Pacific**

![Income Classification Chart](image)


Note: We define Asia Pacific as inclusive of both the WHO’s WPRO and SEARO regional countries that receive World Bank income classifications, with the addition of Taiwan. Total: 44 countries.

**Economic growth accompanies improved health outcomes and a shifting burden of disease.** Asia Pacific made impressive gains on its Millennium Development Goal targets prior to 2015, significantly lowering its maternal, infant, and under-5 mortality ratios. Improved health outcomes aid the increasing life expectancy in the region, up to 75 years in 2015 from 69 years in 1990. The aging population and success in curbing communicable diseases is increasingly shifting the burden of disease towards non-communicable diseases (NCDs). NCDs were responsible for 69% of disability-adjusted life years (DALYs) in 2015, a

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¹ International Monetary Fund (April, 2017a).
² Ibid.
³ International Monetary Fund (April, 2017b).
⁴ World Bank (2017a); World Bank (2017b).
significant rise from 51% in 1990.\textsuperscript{5} Over the same period, communicable diseases fell from 24% of DALYs in 1990 to 11% of DALYs in 2015.\textsuperscript{6} Some of the fall in DALYs from communicable diseases is attributable to successful vaccination programs, gains that must be maintained. There are also many vaccine preventable diseases that are still very present in Asia Pacific. Seventy percent of the global dengue burden is in Asia Pacific.\textsuperscript{7} Rotavirus also has a large presence in the region. It is the leading cause of severe diarrhea in Asian children under-5, causing 11% of deaths in this age group.\textsuperscript{8} Forty two percent of deaths of children under-5 were in Asia and 35% of hospitalizations for this age group in Asia Pacific are due to rotavirus.\textsuperscript{9}

**Figure 2. Countries Nearing World Bank Income Classification Transition**

Despite the positive economic context and improved health outcomes, countries across Asia Pacific are lagging when it comes to the introduction of new and underutilized vaccines (**Figure 3**). In relation to Latin America and Europe, Asia Pacific is behind on vaccines available through national immunization programs. The region has, on average, under 12 antigens included in a national program. This is below the European average of over 14 antigens, and well under Latin America’s average of 16.6.

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\textsuperscript{5} Institute of Health Metrics and Evaluation (2016).
\textsuperscript{6} Ibid.
\textsuperscript{7} WHO-SEARO & WHO-WPRO (2007).
\textsuperscript{8} Liu et. al (2012).
\textsuperscript{9} Tate et. al (2012).
Figure 3. Number of Vaccines included in the NIP by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Antigens</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>11.9</td>
</tr>
<tr>
<td>Europe</td>
<td>14.3</td>
</tr>
<tr>
<td>LATAM</td>
<td>16.6</td>
</tr>
</tbody>
</table>

Note: Numbers displayed are an average of the antigens included in individual country NIPs.
AP: Asia Pacific; LATAM: Latin America
Source: WHO (2017d).

Financing for immunization programs in Asia Pacific is increasing. In the previous four years that countries self-reported immunization expenditures to the WHO (2012-2015), expenditures, on average, increased annually (Figure 4).\(^\text{10}\) After a downturn in expenditure following the global economic crisis in 2009, the rebound of investment is positive. Even amongst middle and low-income countries in the region, health expenditure, as a % of GDP, is on the rise, despite the exit of external support.\(^\text{11}\) However, this has not translated into increased public health expenditures for immunization in LMICs and LICs. With waning external support, UMICs have grown their immunization budgets, but this has not held true in lower-middle and low-income countries where public expenditure on immunization has stalled in previous years (Figure 4b).

Figure 4. Average Total Expenditure on Routine Immunization in Asia Pacific (US$)

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\(^{10}\) WHO (2017b).
\(^{11}\) World Bank (2017b).
The positive trajectories for health and immunization investment in UMICs also need to be protected. Despite general upward trends in the region, routine immunization expenditure is low and the per capita expenditure is stalled in LMICs and LICs (Figure 5). There is significant room for growth and increased resources for immunization should be pursued to maintain and expand on program gains. Competing interests for public funds, as well as economic slow-downs in many countries across the region, could threaten the continued growth of sustainable immunization programs. The Gavi program defines sustainability as “the ability of a country to mobilize and efficiently use domestic and supplementary external resources on a reliable basis to achieve current and future target levels of immunization performance in terms of access, utilization, quality, safety, and equity.”^{12} With political, economic, and structural transitions occurring across Asia Pacific, the sustainability of immunization financing may also be shifting.

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^{12} UNICEF Health Section, Program Division (May 2014).
Despite increasing regional expenditures on immunization, investments vary greatly across countries. Per capita expenditures in 2015 ranged from US$0.17 in Vietnam to US$6.26 in Malaysia (Figure 6).\(^\text{13}\) Due to varying landscapes, levels of efficiency, and national schedule sizes, there is no benchmark for what countries should spend. Indonesia and Vietnam invest the least per capita (US$0.22 and US$0.17 respectively), but have very different outputs. While Vietnam has 97% coverage of DTP3, Indonesia is struggling with declining coverage rates. DTP3 coverage fell from 85% in 2013 to 81% in 2015. This fall aligns with a fall in financing per capita, down from US$0.27 in 2011. Thailand and Vietnam, on the other hand, have steadily increased their investments in immunization, as has Malaysia. The Philippines falls somewhere in the middle with fluctuating investments landing at US$0.57 in 2015.

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\(^{13}\) WHO (2017b).
Note: These figures are self-reported by countries to the WHO. It is unclear what led to such a jump in reported expenditures in Malaysia in 2015.
Source: WHO (2017b); World Bank (2017b)

Many countries in the region are undertaking structural reforms that affect how health and immunization programs are organized and financed and could potentially affect the sustainability of financing for immunization. These changes can affect how funds are sourced, spent, and managed within the health system. With ongoing systems changes and disease burdens ever shifting towards NCDs, immunization programs will need to compete for resources. To better understand the balance between the value and the affordability of vaccination programs it is critical for stakeholders to have a more holistic understanding of the immunization financing space and the factors that affect it.

This report has three objectives:

1. Improve understanding of health financing structures, flows, and innovations across a range of Asia Pacific middle-income countries (Indonesia, the Philippines, Taiwan, Thailand, Malaysia and Vietnam);

2. Deliver a deeper understanding of how political economy and prioritization processes impact overall health financing and immunization budget envelopes in these countries; and

3. Identify ways that stakeholders can work with countries in the region as thought partners to help share best practices/lessons learned in innovative financing and strengthen financing for sustainable health systems and immunization programs.
METHODOLOGY

To achieve these goals, the team at ThinkWell undertook an extensive cross-country analysis, compiling findings from six in-depth country profiles. These findings are based on an aggregate analysis of immunization financing and policy in six priority countries—Indonesia, Malaysia, the Philippines, Taiwan, Thailand, and Vietnam—focusing primarily on the public sector. The findings are based on a comprehensive document review and on interviews with various in-country stakeholders and immunization financing experts. The process was supported by MSD’s policy and regional teams, including intensive workshops in Philadelphia, Doha, and Singapore that helped to form the framework used in this report and the country profiles. MSD’s team was a thought partner throughout the development of this work and gave feedback on the final product. The conclusions reflect ThinkWell’s analysis based on the research conducted. The cross-country analysis and country profiles will be followed by three case studies that elucidate lessons learned in protecting and expanding financing through national policy and system changes in Thailand, Indonesia, and the Philippines.

Focus Areas of the Landscaping:

- Landscape of overall health financing status in six selected countries
- Understanding public sector revenue generation strategies and trends
- Assessing main public-sector financing agents for immunization
- Drivers of vaccine prioritization in the public sector

Out of Scope:

- Private sector financing
- Regulatory assessment
- Cultural and health systems barriers to access
- Stakeholder/actor analysis
- Domestic production and its impact on policy

CROSS-COUNTRY ANALYSIS AND THEMATIC FRAMEWORK

The six countries included in our analysis offer a representation of the region. They illustrate the economic, demographic, and epidemiological trends in the region while also offering unique examples of immunization financing pathways. The six countries, as in much of Asia Pacific, are experiencing steady growth, though growth rates are slowing (Figure 7). They are undergoing demographic transitions with aging populations and an increasing burden of NCDs (Figure 8). While each country supports the introduction of new and underutilized vaccines into their national immunization programs, each has room to grow in the scope of its package, though some prioritize increased coverage rates of the existing package over new introductions. All six countries have room to increase financing, but they vary greatly in the methods they employ to increase financing and access. From new insurance and governance structures to new policies and processes, each country offers a unique landscape for immunization financing.
Decisions to increase financing for immunization, or to add new vaccines to the national schedule, are influenced by numerous evolving contextual drivers. The primary purpose of this project is to not only to understand financing flows and mechanisms within immunization programs, but also to explore why certain decisions are made, and the processes that govern those decisions. To get at these questions one must understand the
external factors that affect health priorities and play a role in the changing immunization financing dynamics. Unveiling the contextual drivers will provide the foundation for improved engagement in the immunization space. These drivers are woven into the analysis and complement the immunization specific trends observed in the region for expanding and sustaining immunization financing.

The evolving political landscape requires that policy makers continue building accountable systems to deliver on promises. The political landscape in each Asia Pacific country is unique, but all are facing the pressure to deliver on their commitments to UHC. Coupled with the public’s burgeoning awareness of health topics and increasing engagement in the political agenda, there is demand for the public system to improve performance. The privatization of health markets is also driving political agendas on what public systems should offer, in addition to improvements in quality and service delivery. Governments are also grappling with the most efficient ways to handle governance and how to build administrations based on local needs. Decentralization is an effort to do this, though Asia Pacific countries have diverse approaches to this method. These shifting political dynamics will inform the prioritization process of health services. New and underutilized vaccine introduction (NUVI) may increasingly become a matter for public demand.

The Asia Pacific region is in the advanced stages of the demographic transition with declining fertility and a rapid increase in the population aged 65 or older (Figure 8). Stabilizing birth cohorts and an aging population are changing the demographics that will consume health care moving forward. Fewer children, as a proportion of the total population, need to be serviced and a larger elderly population may require a shift in the NIP and the introduction of new types of vaccines across the lifespan. Between 2005 and 2015, the population aged over 65 years grew across non high-income Asia Pacific from 6.9% of the population to 8.5% and will continue to increase. As this population grows, the cost-effective value of preventative health interventions across the lifespan will increase. The government and providers (both public and private) will be pressured to expand the current immunization schedule to accommodate the needs of an aging population. However, governments will also be pressured to accommodate the shifting burden of disease and program financing priorities might mirror this transition.

Expenditure on health is expected to increase, however the transition to limited external donor money and an increased role of the private sector, will shift how health financing is sourced. Donor support in the region is reducing as economies grow, and is now very limited in terms of total health spending. However, public health spending is likely to continue rising due to strong economic growth. In efforts to achieve UHC, countries are developing national health insurance schemes with independent purchasers. Other countries operating with fiscally or administratively decentralized governance have multiple levels of financing agents to consider. How countries are handling their health system financing is evolving, thus affecting immunization financing.

Continued pressure to increase coverage rates and expand national immunization programs to cover a broader scope of vaccines has significant budgetary implications. Though immunization coverage in Asia Pacific has greatly increased over the last decade, rates have stalled or even dropped in some countries like the Philippines and Indonesia, and high levels of geographic disparities remain. Certain programs will have to consider
local delivery capacity as well as infrastructure needs before additional financing can be focused on new vaccines. Indonesia and Vietnam will graduate from Gavi by 2019, adding additional pressure to introduce new vaccines while co-financing is available, despite domestic capacity and performance.

**Figure 9: Variable Routine (NIP) Immunization Schedules in Six Priority Countries**

<table>
<thead>
<tr>
<th>HEP-B</th>
<th>Philippines</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Taiwan</th>
<th>Malaysia</th>
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<tr>
<td>BCG</td>
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<tr>
<td>IPV (Polio)</td>
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<td>OPV</td>
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<tr>
<td>DTP-Hib-HepB</td>
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<td>Measles</td>
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<td>MMR</td>
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<td>Influenza</td>
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<td>Japanese Encephalitis</td>
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<td>Varicella</td>
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<td>Hep-A</td>
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<td>Pneumococcal</td>
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<td>Dengue</td>
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<td>Tetanus</td>
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<td>HPV</td>
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<tr>
<td>RotaVirus</td>
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</table>

*Note: Vietnam offers Cholera and Typhoid in limited areas.

* next to the X denotes that the vaccine is offered in limited areas of the country.

** first dose delivered to 500,000, but may be discontinued.**
Figure 10: Main Sources of Immunization Financing Shared Between National, Sub-National and Purchaser

<table>
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<tr>
<th></th>
<th>Indonesia</th>
<th>Philippines</th>
<th>Vietnam</th>
<th>Thailand</th>
<th>Taiwan</th>
<th>Malaysia</th>
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<tbody>
<tr>
<td>Vaccine Purchase</td>
<td></td>
<td></td>
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<tr>
<td>Supplies</td>
<td></td>
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<td></td>
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<tr>
<td>Supply Chain</td>
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<tr>
<td>Salaries</td>
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<tr>
<td>SIA</td>
<td></td>
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</tbody>
</table>

Note: External resources are usually funneled through ministries and are captured here under MoH budgets. In the Philippines, funds for the supply chain do not flow through the ministry budget and are captured here as “other”.

Understanding the variety of influencers on immunization financing, we found four major themes affecting this space in Asia Pacific.

1. **Fiscal space expansion**: Countries in Asia Pacific are increasingly reliant on domestic revenue to finance their health budgets. As their economies grow, external sources of funding are removing support. The growth in population and demographic transitions, the pressure to increase health budgets to cover expansion of benefit packages, and increasing cost of health care all require more resources and more efficient use of currently available resources. This has countries pursuing new and innovative ways to generate and utilize revenue for health and immunization programs.

2. **Prioritization**: Countries are slowly transitioning from political to evidence-based prioritization. Though several criteria weigh on decisions to increase funding for immunization programs or to add new and underutilized vaccines, there is a move towards more analysis of data, improved understanding of the local needs, and the added value of interventions, prior to decision-making. Prioritization is slowly becoming less political and more scientific and systematic.

3. **Strategic purchasing**: Asia Pacific is moving away from input financing towards strategic purchasing. With the international drive for universal health coverage (UHC) countries in Asia Pacific, which have the domestic resources, technical know-how, and governance structures, are developing national health insurance schemes. This is a step towards removing the financial burden of health services from the population and placing it on pooled resources that are spent strategically to gain efficiency in spending.
4. **Decentralization**: There is heterogeneity in where the locus of control lies in countries across the region. While the state can be decentralized administratively, and/or fiscally, there are varied combinations and levels of the practice across the region. Increased autonomy at the sub-national level opens doors for an increased number of actors to affect the prioritization of immunization programs as well as new challenges to ensure high performance on national priorities.

Each of these themes is playing out in different ways in the six countries included in our cross-country analysis, but they are all driving immunization financing dynamics (Figure 10). Findings from our four themes are discussed in detail below.

**Figure 11. Cross-Country Comparative Ranking, by Theme (Six Priority Countries)**
I. FISCAL SPACE

FISCAL SPACE FOR HEALTH

The UHC 2030 agenda has many countries considering new ways to bring in domestic resources for increased financial protection. The inclusion of a UHC target in the 2015 sustainable development goals has transferred some of the health focus on service delivery to systems strengthening. Countries are now considering what systematic developments they can make in the health sector to increase financial resources, increase access to a wider array of services, and limit the burden on individuals. Out of pocket payments (OOPs) are one such burden, creating financial barriers to health services and potentially pushing individuals into poverty through catastrophic expenditures. Increased domestic resources allocated to the sector offers the possibility of decreasing OOPs by placing more of the financial risk across a much larger national pool of resources.

There is a growing trend of countries diversifying revenue sources for health in an effort to increase domestic revenue. The more traditional form of domestic revenue generation is simply relying on tax systems to finance the public budget. However, this method is highly sensitive to economic shocks and political maneuvering. Should the growth of the economy drop or politics call for a re prioritization of funds, the health budget could be very responsive. For sustainability of financing for health programs, countries are pushing to diversify their sources so that funding levels are sustained and additional funds can always be found. Diversified sources can help to mitigate the risks of political maneuvering or economic downturns, as well as open avenues to increase the overall health budget.

Diversified revenue sources provide opportunities to tap into more fiscal space. Fiscal space can open in five distinct areas: 1) macroeconomic growth, 2) re-prioritization, 3) sector-specific funds, 4) external resources, and 5) efficiency gains. Macro-economic growth and re-prioritization refer to the growth and allocation of the public budget. While there is room for growth in financing health and immunization (especially in countries like Indonesia where the health budget represents a small percentage of the national GDP and public budget), countries are increasingly looking at more innovative options in sector specific funding and efficiency gains. These opportunities offer additional funding streams that, unlike re-prioritization, do not require another sector to lose funding.

Box 1. Areas of Fiscal Space

- **Macroeconomic growth**: How will macroeconomic conditions affect resource levels for immunization?
- **Re-prioritization**: How much fiscal space could be generated by increasing the immunization program’s share of the government budget?
- **Sector-specific funds**: Can additional taxes and other revenue sources be implemented and earmarked for immunization?
- **External resources**: How will future foreign aid flows affect the resource envelope for immunization?
- **Efficiency gains**: Can fiscal space for health be increased through more efficient use of current and future financial resources?

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14 UHC2030 (n.d.).
For health, there are four main sources of additional sector-specific revenue: user fees, earmarked taxes, private resources, and insurance contributions (Figure 12).

1. **User fees** are perhaps the simplest mechanism to generate revenue for health as they do not require additional funds from the government. Thus, they are often used to supplement public financing. However, user fees are considered by health economists to be inequitable and regressive and a deterrent to people from seeking care. This is a negative result for the patient who delays seeking and receiving care, and is negative for the public health system which must often provide more expensive curative care rather than the more cost-effective preventative measure.

2. **Insurance contributions** act much like user fees, with individuals paying for healthcare, but payments are made up front, thus eliminating the financial barrier at the point of service. Insurance pools also build on individual contributions with employer funding and government subsidies. National health insurance schemes are a strong option to bring in additional domestic revenue for health programs and, with the push for universal health coverage by 2030, many countries are developing them.16

3. **Earmarked taxes** for health are of interest to the international community, particularly sin taxes. They offer a mechanism that can bring in large amounts of revenue for health systems while also deterring unhealthy behaviors. Earmarked taxes have been placed on tobacco and alcohol as behavior change mechanisms in countries across the globe and have also been proposed on items like cars and motorbikes in an effort to limit emissions.17 Other items can be earmarked as well, including value added tax (VAT), lottery revenue, remittances, or even mobile phones.18 Care must be given to ensure taxes are equitable and do not disproportionately affect the poor.

4. **Private resources** are gaining momentum as a practical method for revenue generation, though they are still seldom utilized in practice. These investments can vary in form, from philanthropic donations, to business-driven public-private partnerships, to the publicly guaranteed social impact bonds or privately guaranteed development impact bonds. All options offer private actors opportunities to use private capital for public good.

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16 WHO et. al (December, 2014).
17 Cashin et. al (2017). Note: WHO has produced case studies on earmarking tobacco tax revenues in Botswana, Egypt, Iceland, Romania, Poland, the Philippines, Viet Nam, Thailand and Panama.
18 Madrid, Marie-Yvette (July 2017).
Efficiency gains frequently offer the greatest advances in fiscal space, but often remain untapped. Every country can improve efficiency in the health sector.\textsuperscript{19} Global evidence suggests improving efficiency is one of the greatest potential sources of fiscal space for health.\textsuperscript{20} Efficiency gains can be garnered by improved spending of funds, ensuring limited wastage, and improved allocation of funds, ensuring money goes where it is needed and will be used. Despite the great potential of efficiency gains, they often require increased use of data and improved system monitoring—administrative investments that can be difficult to prioritize in developing countries that have many other interventions to consider.

**FISCAL SPACE FOR IMMUNIZATION**

Immunization programs are often vertically funded and could benefit from an increased pool of domestic resources. Countries are encouraged by the WHO to create line items for the procurement of vaccines and supplies necessary for delivery.\textsuperscript{21} These vertical funding streams have signaled the prioritization of immunization in the country. However, the reliance on macroeconomic growth and political prioritization to feed these vertical funds is not always enough to sustain and grow an immunization program. The growth of national health insurance schemes provides an opportunity to pool resources for health and potentially increase financing for immunization. The nascent state of many insurance schemes has, however, limited this option from taking off in developing countries. With less than 100% financial coverage, countries often keep necessary public health programs, like immunization, as a vertical program so that it is accessible to all, even those without insurance. This leaves countries looking for other ways to increase domestic resources for immunization financing.

\textsuperscript{19} WHO (2010).

\textsuperscript{20} WHO (2017c).

\textsuperscript{21} WHO (2017b).
Innovative domestic revenue generation mechanisms for immunization are growing in global popularity. The growth of competition for financing of NCDs, the push from the Global Vaccine Action Plan to increase coverage, and growth of countries ineligible for Gavi financing has forced increased levels of creativity and focus in the revenue generation space. Trust funds for immunization are growing in number and have been used as a tool by countries, like Nepal and Bhutan, to fill the gap in funding after Gavi graduation (Box 2). Earmarked sin taxes are also gaining traction around the globe as sources of revenue for health, though it is rare that revenues are earmarked for immunization. On a global scale, the International Finance Facility for Immunization (IFFIm) has been extremely successful in blending government commitments and private financing to benefit immunization through Gavi (Box 3). The IFFIm model has been proposed, on a smaller scale, through the use of social and development impact bonds, but has found little traction in practice as an innovative financing option. More innovative options are explored in Annex A.

Box 2. International Examples of Innovative Revenue Generation for Immunization

Countries outside of our sample have applicable lessons to share on innovative financing. Earmarking has been used successfully across the world, including a VAT tax in Ghana earmarked to health and an earmark on lottery revenues in Costa Rica that go directly to immunization. In Ghana, 2.5% of the VAT goes towards funding the national health insurance scheme. This law, passed in 2003, coincided with the establishment of the scheme and its governing body.

Since 2005, Costa Rica has taken earmarking one step further, putting proceeds from the November lottery drawing into the National Immunization Fund to purchase vaccines and cover unforeseen expenditures. Bhutan established a similar fund in 2000, the National Immunization Financing Trust Fund, which protects revenue for immunization, as a health priority. The success of the trust fund can be connected to Bhutan’s small population, its political champions, flexibility, and good governance structures. Set up to cover co-financing requirements from Gavi, the trust fund has filled the gap left by Gavi funding since Bhutan’s graduation in 2016. The fund is now fed directly by Ministry of Finance contributions (funded by a salary tax for civil servants and salaried private sector employees), but with 75% in fixed deposits and 19% invested in government loan mechanisms, the fund brings in over US$1 million in interest annually. Other contributions from the informal sector are also being explored. Nepal also created a similar fund in 2016 in response to its pending graduation from Gavi.

Sources: Cashin et. al (2017); World Bank and Gavi Alliance (2010); Results for Development (2017)
Efficiency gains can provide positive growth in fiscal space for immunization. For immunization services, efficiency gains require data, analysis, and strong service delivery outputs. The availability of these three tools can be utilized to improve vaccine distribution, improve program forecasting and planning, reward results, and strengthen health technology assessments that identify cost-effectiveness barriers which can be used in price negotiations. Some of the most popular innovative mechanisms are related to procurement practices. Many countries look for increased fiscal space by increasing the efficiency of their procurement processes either through pooled procurement or through short term loans that allow for payments over time, offered by WHO’s Vaccine Independence Initiative.

**FISCAL SPACE FOR IMMUNIZATION IN ASIA PACIFIC**

Countries in Asia Pacific are prioritizing UHC and working to bring additional funds into the health sector that are not user fees, potentially affecting how national immunization programs are financed in the future. Co-payments are utilized in all countries besides Thailand and are being explored as an option for bringing in additional financing for the health sector there. However, health financing experts agree that co-payments can be restraining and even deter people from seeking care. Revenue options that allow the government to cover more costs and provide increased financial coverage and access to healthcare services are more positive models, when feasible. For this reason, each country in our review, with the exception of Malaysia, has established a national health insurance scheme that pools resources to cover healthcare costs for the population. Though Thailand and Taiwan have reached nearly 100% coverage, the Philippines, Indonesia, and Vietnam are continuing to pursue expanded financial coverage. These new mechanisms can affect how immunization is financed, as explored further in the strategic purchasing section. There is also limited movement of private investment in the six countries. The Formosa Foundation in Taiwan donated resources needed to procure the pneumococcal vaccine for the elderly. The Tahir Foundation in Indonesia has also been financially supportive of healthcare access.

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22 WHO (2010).
Decreasing external resources for immunization are putting pressure on governments to allocate increased domestic revenue to the program. The growth of Asian markets has resulted in dwindling external aid for countries in Asia Pacific. Of the six countries included in this landscape, only two were ever eligible for Gavi funding. Indonesia will be ineligible by 2018 and Vietnam will follow suit in 2019. Additional funds from other external sources are low. External resources account for 0-1% of total health expenditures except for Vietnam at 3% (set to decrease with the exit of Gavi funding).23 The percentage of externally funding is much higher for immunization programming in some countries. Up to 17% of Indonesia’s immunization program is financed by external resources.24 Vietnam’s program in 2015 was 44% financed by non-government sources.25 This gap will need to be filled upon the exit of Gavi funding. Countries in Asia Pacific, then, are increasingly reliant on domestic resources for finance their public health budgets.

Figure 13. Comparative Ranking by Degree of Diversified Domestic Revenues for Immunization

There is interest in earmarked taxes, but revenue rarely benefits immunization. Sin taxes, or taxes on items like tobacco, sugar, and alcohol, are in place in Indonesia, the Philippines, Taiwan, Thailand, and Vietnam. Of these four, only the Philippines and Taiwan funnel tax revenues directly into the immunization budget. Taxes on tobacco in the other three countries are earmarked to health, but go towards tobacco control programs or other preventative healthcare lifestyle programming. Despite falling short of supporting immunization, these examples provide positive precedence for potential earmarked taxes for other health programs, like immunization.

With political support, innovative initiatives for immunization resource generation have had large impacts. The Philippines tax on tobacco and alcohol was passed in 2012 after over a decade of advocacy. The bill set a fixed tax rate of 30 Pesos on all tobacco and alcohol products, with a gradual 4% increase per year for inflation.26 By 2016, incremental revenue from the tax comprised 57% of the Department of Health’s total budget.27 Eighty five percent of the revenues go to health

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23 WHO (2017a).
24 WHO (2017b).
25 Ibid.
26 Harvard Medical School (October, 2015).
27 Department of Health (2016).
programs, with a soft earmark for public health programming. These funds are allocated each year by the Department of Health and, traditionally, a portion has gone to immunization. In addition, sin tax revenues have funded the procurement of several NUVIs. In Taiwan, a vaccine fund was created to bring in additional revenue for immunization. The National Vaccine Fund (NVF) law was enacted in 2009 to pool revenues from various sources exclusively for vaccine procurement and immunization services. NVF receives funding from government subsidies (35%), philanthropic donations (5%), and health surcharges from tobacco and alcohol (60%). The NVF is the sole purchaser of vaccines and vaccine distribution. Since its inception, the fund has grown each year to accommodate the expanding immunization schedule and increasing number of patients utilizing immunization services.

Table 1. Sin Taxes in Asian Pacific Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year Passed</th>
<th>Taxed item</th>
<th>Amount for health</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>2007</td>
<td>Tobacco</td>
<td>2%</td>
<td>Health, social welfare, tobacco control, and drug trafficking prevention</td>
</tr>
<tr>
<td>The Philippines</td>
<td>2012</td>
<td>Tobacco and Alcohol</td>
<td>85%</td>
<td>PhilHealth premiums, Public Health, Infrastructure</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2002 (increased in 2009)</td>
<td>Tobacco</td>
<td>100% of the health surcharge goes to the MoHW while the tax goes to the central budget</td>
<td>National Vaccine Fund, National Health Insurance, cancer screenings, treatment of rare diseases, rural hospital infrastructure</td>
</tr>
<tr>
<td>Thailand</td>
<td>2001</td>
<td>Tobacco and Alcohol</td>
<td>2%</td>
<td>ThaiHealth Promotion Fund</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2013</td>
<td>Tobacco</td>
<td>1.5% (set to increase to 2% in 2019)</td>
<td>Vietnam Tobacco Control Fund</td>
</tr>
</tbody>
</table>

Ibid.  
Sources of the NVF in Taiwan ("NVF receives funding from government subsidies (35%), philanthropic donations (5%), and sin tax surcharges from tobacco and alcohol (60%)."). Annual CDC Report (2015)  
National Vaccine Fund Budget. (2015)  
NVF Annual Budget Reports (2012-2016)
Countries across Asia Pacific are tackling opportunities to expand fiscal space by improving technical efficiency—spending available funds better. One major trend in Asia Pacific is the establishment of a national health insurance mechanism. All countries in this landscape have some model in place, with the exception of Malaysia. Establishing strategic purchasing mechanisms through health insurance is one form of increasing technical efficiency. Another efficiency form is increasing the accountability of how funds are spent. Especially in decentralized countries, like Indonesia and the Philippines, there is currently limited accountability between central initiatives and local expenditures. Indonesia is developing a performance-based financing scheme to increase efficiency by connecting disbursements to output indicators, of which immunization rates will be one. The WHO manages an online database for cost-sharing, increasing transparency in vaccine procurement and country technical efficiency in the procurement process.

Allocative efficiency measures are also being utilized in Asia Pacific to ensure that funds go where they are most needed. Stakeholders in the Philippines have expressed the need for improved allocative efficiency. With full autonomy in the hands of the local government units (LGUs), there is limited communication with the central Department of Health. LGUs often do not fill out the necessary paperwork to request vaccines and delivery supplies. This dynamic has created a “push” system where the Department of Health (DoH) sends vaccines and supplies without information on local utilization and needs. This results in stock-outs and wastage. Other countries may deal with similar issues to varying degrees. Through work with Sabin Vaccine Institute, Indonesia and Vietnam expressed strong interest in increased resource tracking for decision-making. Addressing these problems can, in fact, open up fiscal space by reducing unnecessary spending on things the population is not using. The increase in the utilization of health technology assessments also supports allocative efficiency by ensuring funds go to interventions where they will have the greatest impact. Thailand’s reliance on HTAs and data has allowed them to make substantial efficiency gains in their system, pushing them to now consider new revenue generation mechanisms for increased fiscal space.

C O N C L U S I O N

A number of opportunities exist to catalyze innovation for immunization financing. Whether the goal is to increase financing for sustaining the current programming (protecting achievements) or expanding its scope (increasing coverage), increased revenue is of interest to all Expanded Program on Immunization (EPI) units. Especially in preparation for Gavi’s exit in Indonesia and Vietnam, there is an opening to have these conversations to cover any ensuing gap in funding. Interested stakeholders can engage through a variety of mechanisms:

Promote Dialogue: Countries in Asia Pacific are going through many of the same transitions, whether they be structural, demographic, or epidemiologic, and dialogue amongst them could produce fruitful discussions. Country-to-country exchanges on earmarked tax strategy
or the promotion of innovative immunization financing sources as agenda topics for regional and global join learning platforms (such as the Joint Learning Network or UHC 2030) could promote international support for the immunization financing agenda.

**Regional/Global Interface:** With strong private sector economic growth in the region, there are opportunities to explore, with local stakeholders, interest in vaccine funds or social/development impact bonds targeted towards financing immunization programs. These efforts could even be brought up to a global scale, though they would have to be differentiated from the IFFIm.

**Generate and Share Evidence:** A lot of support can be given to governments in the immunization space through evidence generation and promotion. There are a variety of topics in the sector that can still be explored, including reviews on the effectiveness of various immunization financing strategies (social health insurance, earmarking of taxes, improved accountability etc.), the feasibility of financing innovations, or even increased survey evidence. The Philippines has noted that there is limited reliable data on population numbers or delivered immunization services that are communicated from the LGUs to the DoH.

**Direct Government Engagement:** Of course, interested stakeholders can always engage directly with governments. Potential public-private partnerships regarding access and delivery can be explored at both central and local levels, depending on the autonomy at the local level of the country.

**No one option to increase domestic revenue for immunization guarantees success in creating a sustainable program.** The best way to garner increased revenue will vary depending on the country context. For each country, the revenue generation option must be equitable, be applicable in the political context, generate sufficient revenue, and, ideally, have growth potential. No option is perfect and often sustainability requires a combination of interventions. Incremental gains must be captured and built upon to create the finance base that will allow for immunization programs to consistently have the revenue available to fully immunize all children.
II. Prioritization

Priority Setting for Health

Allocations of government budgets to health vary, and other sectors are often prioritized over healthcare. Access to healthcare is viewed as a right in most countries and the benefits of investing in healthcare have been documented and are widely accepted. However, these investments must be balanced against competing interests. Across the six countries included in this landscape, government allocations to health in 2016 ranged from 5-10% of the public budget in the middle-income countries, except for Taiwan at a much higher level of 17% (Table 3). The targets for health expenditure are 15% of government spending, 5% of GDP, $86 per capita. These targets have been thoroughly discussed in public and political fora. Although the targets are well known, and many countries have committed to them, they are also rarely met, suggesting they do not resonate strongly enough with key decision-makers developing and executing country budgets. Sectors, like education and economic development, tend to receive higher allocations. Between 11-20% of the government budget was allocated to education in the set of six countries. The Philippines invests 32% of its budget in economic development—the highest percentage of the set—and only 10% to health.

Table 2. Allocations for Health and Other Particular Sectors in 2016 (% of National Budget)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>5%</td>
<td>8%</td>
<td>10%</td>
<td>17%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Education</td>
<td>11%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td>Social Security</td>
<td>9%</td>
<td>NA</td>
<td>5%</td>
<td>6%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Economic Dev</td>
<td>14%</td>
<td>11%</td>
<td>32%</td>
<td>14%</td>
<td>21%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Source: Republic of Indonesia, Directorate of Budget Preparation (2017); Ministry of Health, Malaysia Planning Division (2017); Department of Budget Management (2017); Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C. (Taiwan) (2016). Kingdom of Thailand Bureau of the Budget (2016); The Ministry of Finance of the Socialist Republic of Vietnam (2016).

Limited resources for health create tension for prioritizing how resources are allocated. The Ministry of Health relies on budget transfers from the Ministry of Finance or Bureau of the Budget, for which they must compete with all other public investments. Within the health sector, allocative decisions must be made between program and operational expenses, between different programs, and within individual programs themselves. These programs can vary between curative and preventative and include all interventions from oncology to family planning to immunization. Funds must also go towards healthcare worker salaries, performance incentives, infrastructure needs, data capturing, etc.—all expenses that can determine the quality of care provided. Where priorities lie can change and depend on numerous factors.

Sufficient data and evidence on the costs, effectiveness, and equity of health interventions and technologies are increasingly available, but there is a persistent disconnect between the available evidence and the uses of scarce public budgets for health. All governments

32 WHO (2011b).
face resource constraints and all sectors must compete for these limited resources. There is clear evidence that universal health coverage performance improves as countries increase public spending on health.\textsuperscript{33} As such, the health sector needs to frame its advocacy for increased public spending on health in terms that are more outcome-oriented, evidence-based, contextualized, and compelling to budgetary decision-makers. This requires understanding the underlying political landscape and tailoring approaches to the priorities and political and economic realities in each country.

Prioritization is done by political actors who often bring their biases to the process, leading many countries to call for a more evidence-based approach. The issues that accompany some political decisions, made without substantiating evidence to back up decisions, has led to an international move towards a more scientific method, using evidence and experts to make recommendations. The prioritization process for health has many entrenched interests. Yet too many countries lack the fair processes and institutions needed to make the connection between evidence and decisions on public spending and spell out the opportunity costs of one decision versus another, while managing the myriad interest groups and ethical conundrums that revolve around new technologies and scarce budgets.

More prioritization decisions are accompanied by assessments which ground health technology recommendations in disease burden and economic terms. HTA is the evaluation of the impacts of health technology (any intervention in the health system that can be used for health promotion, diagnosis, treatment, or rehabilitation) used to inform decision-making regarding health technologies.\textsuperscript{34} Evidence is usually gathered in three areas: clinical effectiveness, cost-effectiveness, and ethical, social, and legal issues.\textsuperscript{35} HTA can be conducted through a variety of methods by actors of varied disciplines. The lack of harmonization in the performance of HTA across, and even within, countries can make the process difficult to perform or follow as a stakeholder. Several international and regional organizations, including WHO, the International Network of Agencies for Health Technology Assessment (INAHTA), and Health Technology Assessment International (HTAi), support groups undertaking HTAs to ensure robust study and increased evidence-based decision-making.

**Priority Setting for Immunization**

For the immunization program, prioritization can refer to both the prioritization of the program within health budgets, or the prioritization of financing a new vaccine. The differentiation between product and program is important as they go hand in hand, but are often considered separately. New vaccines are prioritized as stand-alone interventions, though their delivery requires that programs, and the system that they rely on, function. Programs similarly require the necessary vaccines to respond to population needs. These two processes often have different influencing factors and different actors who determine how they are prioritized and financed.

Immunization programs are often protected in part by historical allocations and national commitments. Apart from the Philippines, national immunization schedules rarely contract. Most countries add vaccines to their schedule with a sustainable financing plan for procurement in place. Without sustainable financing and comprehensive roll-out plans, the

\textsuperscript{33} Jowett et. al (2016); Kutzin et. al (2016).
\textsuperscript{34} WHO (2010); INAHTA (2017).
\textsuperscript{35} Hutton et. al (2008).
Philippines has experienced some challenges with the consistent inclusion of certain vaccines in their schedule. As the majority of expenditures for immunization programs are on procurement of vaccines, operational needs can often be relegated in prioritization. Many programs can get by with the status quo while others that are going through architectural shifts may not have clarity on which actors pay for what needs (see strategic purchasing and decentralization sections). NUVI adoptions are often where expanded financing for immunization programs can be corralled.

Box 5. The Prioritization of ART Integration in Thailand
An independent, supplementary case study undertaken by the Faculty of Economics at Chulalongkorn University addresses the process that led to the prioritization, resource mobilization, and subsequent uptake of an HIV prevention and care health package amongst other competing priorities. The study offers insights into the political economy of Thailand’s prioritization process as well as lessons for future immunization advocacy. The case study will be published in the Fall of 2017 in conjunction with this landscape.

Changing demographics affect the prioritization of health programs. Existing immunization programs need to compete with emerging health contexts. With the increased control of vaccine-preventable diseases by vaccines, NCDs are increasing in their burden on populations. Countries with budget constraints must grapple with multiple interests and provide as comprehensive care as is possible. Aging populations will increase the burden of NCDs further, thus affecting how priorities are calculated.

For those countries undergoing a Gavi-funding transition or that have significant levels of external resources set to decline, priority setting is shifting to domestic stakeholders. Many lower-middle income countries depend on external resources to finance their health systems and many also rely on donors or other partners for technical assistance or implementation support.

In 2014, 32 countries in Asia Pacific relied, in part, on external financing for health.\(^{36}\) Half of these countries received funding from Gavi. In middle income countries, external funds averaged 21% of total health expenditure.\(^{37}\) The external influence adds an international dimension to the complexity of priority setting because relying on external financing and advice leaves countries’ domestic policy processes open to influence by donors and other international stakeholders (UNICEF, WHO, etc.). Lower-middle income countries are also vulnerable to the largesse of donors, which can dry up precipitously and, if this occurs, countries can be left scrambling and priorities must be rapidly recalibrated across diminished resources.

Priority setting for new products often depends on the recommendation of National Immunization Technical Advisory Groups (NITAGs). A NITAG is a technical resource for policy makers to ensure that their decisions regarding immunization priorities, policies, and technology introductions are evidence-based.\(^{38}\) These groups can be whatever size is locally required and can consist of members from a variety of backgrounds including government officials, policymakers, academics, health practitioners, pharmaceutical manufacturers, etc. Experts on the NITAG can help to institutionalize processes that add credibility to an

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\(^{36}\) WHO (2017a).
\(^{37}\) Ibid.
\(^{38}\) Duclos (2010).
immunization program, affecting not only public confidence in the program, but political confidence as well. NITAG activities can include, but are not limited to:

- Policy analysis and assistance in policy formulation
- Strategy on vaccine-preventable disease control
- Advise to national authorities on program monitoring needs
- Identification of data needs for policy making
- Technical assistance or health technology assessments.39

In their current immunization initiative, the Global Vaccine Action Plan, WHO calls for the establishment of NITAGs in all countries by 2020.40

The methods and criteria utilized by NITAGs, and the influence of their recommendations, is highly variable. NITAGs themselves are of varying levels of capacity depending on how much experience they hold, who sits on the committee, and the quality of national data available to them. NITAGs can vary from large bodies of appointed members to a couple of volunteers. Recommendations are not based on set criteria either—while some countries have dedicated HTA institutions that NITAGs can call upon to provide primary research regarding the cost-effectiveness of an intervention or which technology to utilize in a given intervention, other NITAGs must perform HTAs themselves. In this case, HTAs may be borrowed from neighboring countries with similar disease burdens and economic profiles. NITAGs might also skip HTAs if data is limited and provide endorsements based on WHO recommendations. Due to diverse criteria utilized and data available in different contexts, as well as policymaker interest in forfeiting some power within the decision-making process, NITAGs have varied levels of influence within health systems. Though they may have the ear of the MoH and be powerful advocates for immunization financing, they rarely have direct influence on financing. Their recommendations must be approved for inclusion by the MoH and funding by the ministry that controls the budget.

One of the challenges governments face with prioritization of new and underutilized vaccines is the choice of vaccines and the timing of introduction. As new and improved vaccines become available, governments must make decisions about the new vaccines. Informants in all priority countries report that NUVIs not included in the NIP cost the patient 3-4 times more than if they purchase an NIP vaccine OOP. New vaccines also come with additional logistical and operational support needs in addition to the procurement price. These issues make the decision to add new vaccines more complex as beneficial immunization interventions demand a large amount of resources.

39 Ibid.
Box 6. Prioritization Factors as Defined by Taiwan

The current CDC 5-year strategic document lays out five specific prioritization criteria for adopting the priority list of vaccines provided by the Advisory Committee on Immunization Practice (ACIP) into the NIP:

- the severity of the disease, sequelae, epidemiological trends, and other monitoring nodes;
- social costs of public health, medical costs;
- the protective effect of the vaccine;
- safety and stability of the supply sources;
- government budget funds (including forecasting).

Based on the ACIP prioritization process, it is suggested that the government adopt the following in preferential order to augment the existing schedule:

1. Infantile-type Streptococcus pneumoniae vaccine under the age of 5 (Pneumococcal Conjugate Vaccine; PCV), for children aged 1-2 years, 2015 included in the regular child vaccination program.

2. Streptococcus pneumoniae vaccine for elderly people over the age of 65


4. HPV for young people

5. Routine vaccination of rotavirus vaccine

Source: Taiwan CDC Strategic Plan 2016-2020

PRIORITY SETTING FOR IMMUNIZATION IN ASIA PACIFIC

Prioritization of immunization program financing across Asia Pacific varies greatly by country and over time (Figure 14). Malaysia’s prioritization of the program increased significantly between 2013 and 2015 from 1% of the health budget to 3.5%. Thailand and Vietnam have slowly increased the share of the health budget allocated to immunization while the Philippines has decreased over time, falling from 3.43% to 2% of the budget. The gap in the Philippines allocation is quickly being filled with sin tax revenue. Although the percentage dropped steeply in Indonesia from 5.2% to 3.1% in 2015, this may be attributable to the sudden growth of the health budget rather than a decrease in immunization prioritization. The current interest in NUVIs in Indonesia offers insights into how national prioritization of funds will increase in the near future.
In some countries, the prioritization process for new vaccination adoption is clearly laid out in strategic documents, in others its less transparent. NITAGs in Asia Pacific are inconsistent about priority setting. The Philippines does not have a NITAG. While Thailand utilizes a parastatal institution that specializes in health technology assessments (Health Intervention and Technology Assessment Program—HITAP) to aid in priority setting, other countries, like Indonesia, rely on the findings of its neighbors and WHO approvals to support their recommendations. An underlying reason for this difference in approach is Thailand’s strong base of population data to analyze disease burden and healthcare service utilization, among other things. Countries like Indonesia and the Philippines do not have reliable national data. There is a variety of methods and levels of transparency of decision-making and prioritization of vaccine inclusion in the national schedule. More and more countries are creating NITAGs to guide decisions around national immunization needs.

The prioritization of immunization is encountering several new influencing factors and stakeholders in Asia Pacific. New institutions like NITAGs, sub-national governments, strengthened civil society, and others are increasing their participation in the prioritization of financing both the immunization program and the introduction of new vaccines. While there are more and more actors in this space, there are three main influencing factors that affect financing decisions: political will, evidence of need, and costs and budget implications.
Political Will

Public opinion is a motivation for political leaders to introduce new vaccines and strong political will facilitates the introduction of new vaccines. Vaccination is often included as part of election campaigns and delivering on these commitments can facilitate the introduction of new vaccines. Demand from constituents or personal experiences with disease are often drivers for political leaders to introduce new vaccines. In countries where the immunization technical advisory groups are not well-established or do not have robust methodologies to make evidence-informed decisions, political will can be a major driver. In Indonesia and Thailand, the governments that instituted universal health coverage were elected, in part, on that platform.\(^4^1\) In the Philippines, vaccination has been part of national election campaign platforms and in Taiwan, local governments have supported vaccination pilot programs as part of local election platforms. Political will can be positive—increasing access for the population and placing high value on immunization; however, strong political push for new vaccines also raises concerns regarding transparency and sustainability.

As the capacity to produce vaccines domestically and regionally expands, due to political and private interests, there is an expectation that the competition will drive down prices and aid countries in adopting more vaccines. Domestic production of vaccines is variable in the six priority countries, but pressure to expand production capacity was observed in every country. In Vietnam, though the evidence is in place to support the need and cost-effectiveness of a new vaccine, the introductions have been delayed awaiting local manufacturing.

Figure 15. Comparative Ranking for Evidence-based Prioritization

Domestic production by the four state-owned enterprises is one of the strong determinants of vaccine adoption in Vietnam. The only vaccine Vietnam currently has in its schedule not produced by a domestic manufacturer is supported by Gavi funding and they are investing significantly into producing a local variant before the funding expires in 2019. Indonesia, similarly, has an exclusive procurement agreement with state-owned BioFarma. All vaccines for the national immunization program are sourced through the domestic manufacturer. Exceptions can be made if BioFarma does not have production capacity for a vaccine, though the

\(^{4^1}\) Evans et. al (2012); Economist Intelligence Unit (January, 2015).
NIP has not utilized this clause for a national roll-out. Indonesia and Vietnam both put priority on domestic production. Taiwan and Malaysia have limited capacity to produce their own vaccines but private interest groups in both countries are pushing the governments to favor domestically produced vaccines. In Taiwan, the government is neutral in priority setting between domestic and international vaccines, however there has been an expansion of domestically produced vaccines in their schedule in the last decade.

**Political prioritization has been the norm historically, and the process leading to introductions is not always systematic or transparent.** Political prioritization of the adoption of new vaccines can be positive—increasing access for the population and placing high value on immunization despite other constraints. However, the lack of systematic and transparent processes for recommending and introducing new vaccines has also resulted in many challenges for the introduction and sustainability of new immunization programs. For example, the Philippines which has no technical advisory board on immunizations, has had to withdraw new vaccines from its National Immunization Program resulting in part from the lack of a structured, robust decision-making process. In Malaysia, many speculate that NUVis are often politically driven, using informal HTA assessments and little cost-effectiveness evidence.

**Evidence of Need**

**There is slow movement from political to evidence-based prioritization.** Health technology assessments (HTA) which utilize data analysis to identify the value of different interventions, consider the disease burden, the effectiveness of the intervention, and the cost-effectiveness of the intervention. Countries in Asia Pacific utilize HTA to differing degrees with most still strongly considering political and budget implications but there is movement in the region towards a more evidence-based process. While this process is still young, NITAGs and HTA do not always hold great influence in decision-making processes, but as these agencies and their processes mature, they may eventually hold direct influence over financing decisions.

**Countries in Asia Pacific are investing in the generation of costing data and forecasting/budgeting tools as well as more program monitoring to support this effort.** The first step in this process is creating a national immunization technical advisory group (NITAG). With the exception of the Philippines, all countries in our sample have established NITAGs. The Philippines has expressed establishing a NITAG as a policy of interest. These groups usually consist of medical professionals, Ministry of Health employees, and others that can speak to the health needs of the population and make recommendations regarding actions to take. NITAGs often undertake health technology assessments or request such assessments be done by specialized institutions, if possible, to support recommendations. These institutions can be universities with strong health economic research programs or parastatal institutions. Thailand has HITAP to undertake HTAs, while Malaysia has MaHatas, the body routinely used to evaluate new vaccines, the Department of Pharmacy is the default entity for HTAs. HTAs for these countries can be very intensive, utilizing local data and primary research. Other countries that have begun to pursue HTA, like Indonesia, use their NITAGs to perform HTAs and rely on WHO recommendations and external evidence to a greater extent.
Many global initiatives focused on production of data and analytic tools are supporting the HTA movement in Asia Pacific. The establishment of NITAGs and increased evidence use in planning is a priority for international institutions like the WHO, which provides technical advisory services for developing NITAGs, and Gavi, which requires participating countries to utilize the comprehensive multi-year planning tool for descriptive program planning. Other established NITAGs and/or HTA institutions work together to build capacity in monitoring, data analytics, and undertaking HTAs. In Asia Pacific, HTAsiaLink is a community of HTA institutions that support each other by sharing findings, evidence, and processes. HITAP, the leading HTA institution in the developing world, supports other countries in the region through trainings. Through a partnership with HITAP, the Philippines performed an HTA on PCV.43

Table 3. Health Technology Assessment in the Region

<table>
<thead>
<tr>
<th></th>
<th>Indonesia</th>
<th>The Philippines</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Utilizes secondary data and findings</td>
<td>Newly established</td>
<td>Advanced</td>
<td>Advanced</td>
<td>Nascent</td>
<td>Not utilized routinely</td>
</tr>
<tr>
<td>Name</td>
<td>ITAGI</td>
<td>NA</td>
<td>ACIP</td>
<td>HITAP</td>
<td>NITAG</td>
<td>MaHTAS</td>
</tr>
<tr>
<td>Influence</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
</tr>
</tbody>
</table>

Cost and Budget Implications

Public NIP budgets are increasing in size, but external factors are putting pressure on the sustainability of this growth. Between 2014 and 2015, immunization budgets increased across the region (Figure 16). Managers of these budgets communicate comfort with the level of support they receive, citing the existence of immunization as a priority intervention in political platforms and the growth of funding.44 However, economic growth has stalled in many Asia Pacific countries (Figure 5). Limited new funding, and strong competition with sectors like infrastructure and education, may inhibit the sustainability of growth over time. Parallel to economic changes, the growing burden of NCDs and the needs of aging populations in the region will compete for resources with immunization. The Philippines has used revenue from its sin tax on tobacco and alcohol to introduce new vaccines in previous years, but strong opposition is voiced from a group of local doctors that see the burden of NCDs as a more pressing issue.

44 Department of Health (2016); BAPPENAS (2014).
With limited resources and many beneficial options, country governments (EPI units and the Ministry of Health) make careful consideration of vaccine prices. Traditional vaccines have been on the market for years and have multiple manufacturers, increasing competition and lowering prices. New and underutilized vaccines use new technologies and have limited manufacturers and typically have a relatively high price point. According to policy makers, new and underutilized vaccines cost 3-4 times more than the average vaccine price already included in the NIP. Prices are a key driver of adoption in Asia Pacific. Thailand has set price ceilings that must be reached for adoption consideration. Despite the prioritization of certain vaccines by the Minister of Health, adoptions have been denied until manufacturers meet the cost-effective price point determined by their health technology assessment institute, HITAP. For Indonesia and Vietnam, countries cycling off of Gavi financing, the lower prices available through Gavi have incited new adoptions before these prices are unavailable five or more years after graduation.

Box 7. Gavi Catalytic Financing for NUVI Introductions

Though both Indonesia and Vietnam strongly prioritize domestic production, they have, uncharacteristically, utilized Gavi financing to introduce new vaccines near the end of their eligibility for support. Fear of sustainability issues prevented more than two introductions in Vietnam, though a domestically produced rotavirus vaccine is now in production and will be introduced in 2019.

Indonesia has thoroughly employed the benefits of catalytic funding. The country is utilizing Gavi funds to demo three different vaccines at sub-national level. It is unclear if these exploratory steps will result in national programs, but strong preference for domestic production suggests that full roll-outs may wait for local capacity.
Countries have options available to them to help reach desirable price points, but some countries utilize them more than others. While Indonesia and Vietnam have access to reduced prices through Gavi, most countries in Asia Pacific utilize direct procurement through tenders. Thailand has been able to negotiate lower prices with the use of identified price points through HTAs. Another option that some countries pursue is utilizing pricing information from other countries to bolster the procuring agent’s position. The WHO has developed an online database, Vaccine Price, Product and Procurement (V3P) web portal, that displays what different countries pay for vaccines, per dose. Sharing knowledge is one way to build an evidence base. Others access lower prices by banding together in a pooled procurement mechanism. Increased sale volume, and thus increased negotiating power, can be successful in negotiating lower prices. A mechanism of this sort is not yet available in an Asia Pacific-specific manner, but Thailand has expressed interest in pursuing this idea. Still other countries, like Indonesia and Vietnam, push domestic manufacturing forward to secure supply and in the hopes of lower prices. Each of these actions can bring vaccines closer to affordable price points for countries that have not prioritized vaccines due to budget implications, but these actions also have potential effects on the broader vaccine market and vaccine supply stability.\textsuperscript{45}

Even with favorable procurement pricing, additional delivery costs can act as a deterrent. The introduction of a new vaccine encompasses several other costs outside of product procurement itself. Infrastructure requirements, including cold chain maintenance, transportation vehicles, etc. may need further investment to support an introduction. A study in Thailand considered the introduction of the rotavirus vaccine and found that, unless the smallest presentation of the vaccine was introduced, refrigerators used at sub-national levels were not big enough to fit the current schedule with the additional rotavirus vaccine and additional transportation would be required.\textsuperscript{46} This consideration often comes at a later stage in the adoption process, following the recommendation of the NITAG and expressed interest in adoption by the EPI unit/Ministry of Health/decision-making body.

Each country in Asia Pacific weighs the prioritization factors differently in its decision-making process. Despite similarities in the development of countries in Asia Pacific, the unique national contexts produce heterogeneity in the factors influencing prioritization (Figure 17). Political will, budget implications, and evidence of need all play a part in each country, but the level to which each factor is weighed is a unique calculation depending on the country system and the people in power. When working to understand the driving factors in vaccine introductions and the valuation of the immunization program, it is important to consider all of these factors.

\textsuperscript{45} USAID (2014).
\textsuperscript{46} Lee et. al (2011).
ConCussion

Although the context is unique in each country and there is room to grow, immunization is prioritized in Asia Pacific. Public expenditures on immunization grew across the region between 2014-2015 and programs often have strong central political support. Though priority setting is inherently political, there is an evident shift toward evidence-based decision-making and processes like HTA and the utilization of NITAGs will help to solidify this transition. With the exception of the Philippines, all of the countries in our landscaping had an established NITAG and some capacity for HTAs. However, the HTA process and the influence that NITAGs have to utilize HTA information is still vastly different across the region. Despite this shift, there are many other stakeholders involved in the space that should be engaged to ensure prioritization of both new products and the immunization program as a whole. Moving forward, countries rolling off external support will need to prioritize financing to maintain programs and all countries will need to prioritize the expansion of immunization to respond to population needs. To ensure prioritization of immunization through the ongoing economic, demographic, and institutional changes, stakeholders can support a variety of movements.

Build NITAG capacity: In countries without formal HTA institutions, full support should be given to the growth and increased capacity of local NITAGs to undertake HTAs and give sound recommendations. Stakeholders interested in supporting the movement towards evidence-based decision-making can work with global platforms to facilitate peer-to-peer exchanges on the subject. Knowledge can be shared on economic evaluations and budget impact analyses. INAHTA and HTAi are online global platforms working to facilitate this type of interaction and HTAsia exists for the region as well, but these groups rely heavily on virtual interactions and more could be done to facilitate workshops and peer-to-peer visits.

Produce Evidence: Stakeholders can work to generate evidence on the value of immunization interventions to be utilized by NITAGs. Additionally, many countries have limited clarity on how resources for immunization move through the health system. Efforts
to track resources can give a clearer picture of where improvements can be made. A system with strong data can build a better investment case for prioritization.

**Promote Dialogue:** With the number of actors involved in the prioritization process, from NITAGs, to HTA institutions, to the Ministries of Health and Finance, and purchasing agents, it is important to have open communication lines and an understanding of the prioritization process. Efforts will need to be internally driven, but there is room for increased collaboration and understanding between all decision-makers on the value of the national immunization program and potential interventions.

**Despite the positive shift towards evidence-based decision-making, the budget implications of new vaccine adoptions are a salient and pressing issue among country governments.** For countries in Asia Pacific, though their economies are growing, budget implications are still of great importance to their decisions. Most countries are very cautious of introducing NUVIs as the price per dose is steeper than the traditional vaccines in their national program. Still, immunization has been a priority in the region and countries have found fiscal space through multiple means to support it.
III. STRATEGIC PURCHASING

STRATEGIC PURCHASING FOR HEALTH

Health systems across the globe are moving away from passive purchasing to strategic purchasing. While passive purchasing follows a pre-determined budget based on norms and historical records, strategic purchasing entails the “continuous search for the best ways to maximize health system performance by deciding which interventions should be purchased, how, and from whom”. The increasing role of strategic purchasing for health is rooted in the idea that to improve quality of health systems and achieve universal health coverage, raising sufficient resources is essential, but not necessarily sufficient. The move towards strategic purchasing aims to ensure that efficiency, quality, and equity are achieved through price negotiations, selective contracting, and payment systems that incentivize higher quality.

Strategic purchasing for health usually takes the form of social health insurance, with a purchaser independent of the service provider. While a purchaser-provider split is not a prerequisite for strategic purchasing, achieving efficiency without such division is difficult. When the purchasing and the provider functions are undertaken by separate organization, expenditure risk is balanced between the two. Furthermore, this separation of roles facilitates the establishment of a contractual relationship, which favors efficiency gains through price negotiations. It creates incentives to improve quality through selective contracting and purposefully designed payment mechanisms. The move to strategic purchasing often coincides with the creation of a social health insurance (SHI) scheme because existing institutions are often difficult to change due to rigid public finance systems. On the contrary,

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47 WHO (2000).
49 Ibid.
independent purchasing agencies tend to benefit from greater flexibility as they are not subject to the same budget regulations as the Ministry of Health.50

**Strategic purchasers in the form of social health insurance schemes can be tax-based, contribution-based, or a mix of the two.** While tax-based social health insurance schemes are funded through taxation—whether it is general tax revenue or taxes earmarked for health—contribution-based schemes are financed by direct contributions from beneficiaries, which are usually matched by their employers for those beneficiaries that are employed in the formal sector. In contribution-based systems, the direct contribution is usually expressed as a percentage of the beneficiary’s salary. Social health insurance purchasers are often funded through a mix of tax revenues and member contributions. Governments striving for UHC often use tax revenue to subsidize premiums for the poor, the unemployed, and other vulnerable categories.

**Strategic purchasing offers the opportunity to expand outcome-based financing through carefully designed provider payment mechanisms.** Moving away from the input-based financing typical of passive purchasing towards the contractual relationship of strategic purchasing is the first step to designing contracts and payment mechanisms that incentivize better quality of health services. As they mature, strategic purchasers can move away from block contracts to employ activity-related costs and volume contract with increased product specification—such as diagnosis related groups.51 Stronger purchasers can also mandate reporting on quality and outcomes of health services, a stepping stone towards outcome-based purchasing.52 Outcome-based purchasing delivers payment to providers upon completion of a predetermined target.53 It is a promising mechanism to incentivize efficient and quality performance in improving health outcomes. Strategic purchasers can leverage payments against outputs or quality standards to offer such incentives.

**STRATEGIC PURCHASING IN ASIA PACIFIC**

**The strength of national purchasers varies widely in our priority countries.** In all our sample countries (with the exception of Malaysia), attempts at strategic purchasing took the shape of mandatory social health insurance but the maturity of the different schemes—defined by its purchasing power and the coverage level achieved—varies significantly. With two of the oldest schemes in the region, Thailand and Taiwan have very mature SHI schemes. Besides offering generous packages and having achieved universal coverage, the two schemes have very strong purchasers that finance over 50% of total health expenditure (THE).54 Conversely, despite dating back to 1995, The Philippines’ National Health Insurance Program (NHIP) has not achieved comparable maturity. Despite covering an extensive benefits package, Philippines’s NHI purchaser, PhilHealth, only accounts for 11% of THE, and has failed to achieve monopsony powers that would enable it to drive down costs and reduce out-of-pocket expenditure.55 Vietnam’s Social Health Insurance also provides a comprehensive benefits package, and while only slightly more than 70% of the population is currently covered, coverage among vulnerable groups—such as the poor, ethnic minorities, and children under 6—is estimated to be 100%.56 Moreover, Vietnam’s purchaser Vietnam

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50 Mathauer (2015).
51 Busse (2012).
52 Ibid.
54 Ministry of Health and Welfare, Taiwan (2016); WHO (2017a).
55 Picazo et. al (2016).
56 Oanh, TTM, and HT Phuong (2016).
Social Security (VSS) amounts to about one fourth of THE. Indonesia’s Jaminan Kesehatan Nasional (the national health insurance mechanism known as JKN) is surely the least mature social health insurance among the five. Founded only in 2014 and still rolling out coverage, JKN has coverage rates below 70% and its purchaser, BPJS, only amounts to about 12% of THE.

Table 4. Social Health Insurance Snapshot

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Indonesia</th>
<th>The Philippines</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchaser</td>
<td>BPJS</td>
<td>PhilHealth</td>
<td>NHIA</td>
<td>NHSO (for UCS)</td>
<td>VSS</td>
</tr>
<tr>
<td>Coverage</td>
<td>67%</td>
<td>82%</td>
<td>99.9%</td>
<td>100%</td>
<td>71.6%</td>
</tr>
<tr>
<td>Pool(s)</td>
<td>Single</td>
<td>Single</td>
<td>Single</td>
<td>Multiple</td>
<td>Single</td>
</tr>
<tr>
<td>Includes Immunization Services</td>
<td>Operational expenses through capitation payment</td>
<td>Birth doses of BCG and HepB</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Sources: BPJS Kesehatan (2017); Philippine Health Insurance Corporation (February 23, 2015); Wu et. al. (2010); Tangcharoensathien (ed.) (2015); Joint Learning Network (March 16, 2015).

Note: Coverage rates are for the following years – Indonesia (2017), The Philippines (2015), Taiwan (2010), Thailand (2015), Vietnam (2014). “Pool” refers to a mechanism where individual premiums are pooled to share risk across the group.

Most national health insurance schemes in Asia Pacific are funded through multiple sources. The National Health Security Office (NHSO)—the independent purchaser for the Universal Coverage Scheme (UCS), Thailand’s largest social health insurance scheme—is funded by central government tax revenue, through the approval of an annual budget bill. Independent purchasers in all other countries are based on a mixed-sources financing system in which contributions are paid by members in the formal sector and their employers, and general tax revenues subsidize premiums for some vulnerable groups. For instance, Vietnam’s VSS receives direct payroll contributions by public and private employee in the formal sector, while the government partly subsidizes premiums for the informal sector and fully subsidizes them for the poor. In Indonesia, BPJS receives funding from both central and local government budgets, as well as from payroll contributions and community-based contributions. Finally, Taiwan’s and Philippine’s NHI are funded through a mix of payroll and non-payroll contributions, as well as government subsidies and revenues from the tobacco tax. Seventy percent of PhilHealth’s premium is collected from members in the formal and informal sector, while the remaining 30% is covered by the

57 WHO (2017a).
58 Honda (2014).
59 Ibid.
60 Ibid.
61 Yeh et. al (2016).
Department of Health through general and sin tax revenue as part of the Sponsored Program.\footnote{Ibid.}

**Figure 18. Comparative Ranking for Maturity of Strategic Purchasing**

There is exploration of introducing immunization programs into public benefits packages but in each instance the decision maker differs. There is exploration of independent purchasers to control decisions related to the benefits package in the region. In Indonesia, the decision on what benefits are to be covered by JKN is made by the Ministry of Health (MoH) and local governments.\footnote{Hendrartini. (2015).} The benefits package is defined by law, making it very hard to change what is covered by JKN.\footnote{Trisnantoro et al. (2016).} Similarly, in Vietnam, the MoH is fully responsible for formulating the SHI benefit packages, although VSS is involved in developing the list of drugs reimbursed by the insurance scheme.\footnote{Oanh, TTM and HT Phuong (2016).} In the Philippines, PhilHealth is formally tasked with designing the benefits package. However, the process for updating the package is not systematic and it is prone to political influences.\footnote{Trisnantoro et al. (2016).} In Thailand, the NHSO is very influential, though the adoption of new benefits is highly systematic and is usually guided by health technology assessment. Finally, in Taiwan, while NHI is the key player in amending the benefits package, other stakeholders—such as private providers and health professional associations—are also consulted.

**Except for the Philippines, all countries use some form of capitation payments to pay for primary health care services.** Capitation payments come in the form of block grants that are used to cover the cost of care for the local population (can be based on the catchment area or registered users) for a set period of time. In Indonesia, primary health care facilities contracted into JKN receive capitation payments by BPJS, while Thai primary health facilities contracted through UCS receive both age-adjusted capitation payments and case-based payments. Taiwan’s NHI uses fee-for-service and diagnosis-related groups under a global budget to pay for primary health services, but capitation payments are currently being piloted. Similarly, while fee-for-service is still the predominant method of provider payment in Vietnam, capitation has been introduced at lower levels for curative care. In the Philippines, PhilHealth currently does not cover primary

\footnotesize{\begin{itemize}
  \item Hendrartini. (2015).
  \item Trisnantoro et al. (2016).
  \item Oanh, TTM and HT Phuong (2016).
  \item Trisnantoro et al. (2016).
\end{itemize}}
health services, but talks on including it in the package are underway. For immunization, even if procurement is done through the Ministry of Health, capitation payments offer some additional program financing for operational needs at the local level. The inclusion of immunization in capitated payments pulls in additional financing through health insurance schemes, but the hardline budget, based on the population, can potentially pose access issues as facilities ration care to avoid going over budget.

**Vietnam and Indonesia are in the early stages of integrating performance-based financing into their payment mechanisms.** Vietnam began an immunization incentive program in 2014, which offers 3,000 VND for each fully immunized child. Payments are calculated monthly and paid directly to facilities. Facilities have full autonomy in how these funds are used and most either split them amongst staff or host parties for staff and families. The program has been well received, but efforts are underway to have provinces cover at least half of the program costs. About 1/3 of provinces already do so through local revenue. In Indonesia, the MoH is developing a performance-based financing scheme for district block grants with districts judged and monetarily incentivized based on minimum service standards achievements. They hope to roll-out this program in the next couple of years, but the proposed decree has not been ratified by the Ministry of Home Affairs and stakeholders are dubitative of its implementation in the short term. The World Bank has taken interest in the initiative and could potentially leverage a loan for its ratification.

**STRATEGIC PURCHASING FOR IMMUNIZATION**

With few exceptions, immunization program costs continue to be financed by the Ministry of Health as a budget line item. While Thailand’s NHSO finances both vaccine procurement and immunization program costs, Malaysia, Vietnam, and Taiwan immunization delivery are fully financed by the Ministry of Health as a budget line item. In Indonesia, JKN capitation payments to primary health care facilities covers part of the program costs for immunization. However, only 20% of immunizations happens at primary health care facility level, with the remaining 80% taking place at the community facility level, which does not receive any JKN capitation payments for immunization services delivered. In the Philippines, PhilHealth currently only reimburses for birth doses of HepB and BCG which are delivered as part of the newborn care package. While PhilHealth does not subsidize any other vaccine, it has negotiated discounts, where patients pay out of pocket for vaccines not in the NIP. Key informants also maintain there are discussions to bring the National Immunization Program under the NHIP.

**Box 9. The effect of PBF on Immunization**

Performance-based financing (PBF)—a mechanism by which facilities and/or providers are paid incentives for achievement of predetermined service targets—has been gaining traction in the health sector as a now widely-used strategic purchasing instrument targeting improvements in both quantity and quality of health services. By our count, there are over 35 PBF programs being implemented globally in the health sector, with a majority of the programs including a performance indicator for fully immunized child. Several impact evaluations have found positive impacts on fully immunized children as a result of PBF (Tanzania, Burundi, Mozambique, Rwanda).

Source: Binyaruka et al. (2015); Rudasingwa et al. (2014); Basinga et al. (2011); Rajkotia et al. (2017).
The Ministry of Health is also typically responsible for vaccine procurement. Across the region, procurement of vaccines for the NIP remains highly centralized under the Ministry of Health. This holds true in countries where the health system is decentralized, like the Philippines and Indonesia. Of the six countries studied, Thailand is the only one in which the purchaser for the social health insurance scheme currently procures vaccines for the NIP. However, according to key informants, talks to bring the vaccine procurement responsibilities back to the Ministry of Health are currently taking place.

In Taiwan, a dedicated purchaser, the NVF, has been created to procure vaccines for the NIP. Taiwan’s National Health Insurance scheme does not include immunization in its benefits package. Immunization is offered free of charge to children up to 6 years old, but program costs are financed by the Ministry of Health as a central budget line item. Nevertheless, strategic purchasing for immunization is still employed in the procurement of vaccines, through the NVF—a dedicated purchaser created in 2008. The fund is fully independent from the NHI and it is managed by the Ministry of Health. As the fund’s independence from the NHI is stipulated by law, a change of policy to bring procurement of vaccines under the National Health Insurance scheme is highly unlikely.

**CONCLUSION**

Strategic purchasers have not been greatly involved in immunization in Asia Pacific, but offer potential benefits for immunization financing. The increasing purchasing power strategic purchasers in Asia Pacific presents a major structural change to how health systems are financed. Though immunization had remained vertical in the majority of our sample countries, there are potential positive implications of increased health insurance involvement in the program. Stakeholders can support a few initiatives to leverage social health insurance for sustainable immunization financing.

Promote incentive payments: An increased role of social health insurance, using incentive payments and performance-based financing could improve immunization coverage rates. Immunization services are still purchased passively in most countries, with program costs based on historical budgets rather than on performance indicators. An increased role for strategic purchasing in immunization could pave the way for greater use of performance-based purchasing. Given that Indonesia or Philippines are currently struggling with poor coverage rates, this model could provide the incentive for local providers to increase coverage rates.

Support research: There are a number of potential benefits to folding immunization under a national health insurance scheme. Adding immunization to the benefits package can present opportunities to expand the network of providers delivering NIP vaccines if both public and private providers are contracted under the scheme (as is the case in the Philippines, Indonesia, and Taiwan). This would also provide incentives for the private sector to actively advocate for the inclusion of new vaccines into the NIP, potentially paving the way for an expansion of the schedule. However, benefits would be context-specific and further research would need to be undertaken to fully understand the potential outcomes of further inclusion.

Regional Interface: There is ample room for further regional discussion around the role of strategic purchasing in immunization. Within our sample, five countries have established strategic purchasers, though their role within the immunization program ranges from fully encompassed (Thailand) to completely separate (Vietnam—though this is currently up for
discussion). There is much to be learned from the different models and regional actors could benefit from further interaction on the topic.

The decision on what entity should control the immunization budget depends on relative bargaining power and relative budgeting, planning, and program monitoring skills. Whether vaccine procurement should be moved under the jurisdiction of the independent purchaser, or stay within the Ministry of Health, is highly context dependent. A key determinant of efficient vaccine procurement is the procuring entity’s bargaining power vis-à-vis vaccine suppliers and the Ministry of Finance. The entity that has the greatest product expertise, that is best suited to control the product’s quality, and that is most able to maintain a successful relationship with vaccine manufacturers will be best placed to negotiate prices and achieve efficiency gains in vaccine procurement. While the routine budget is generally well-secured, new and underutilized vaccine introductions may require extensive advocacy within the Ministry of Finance. Finally, the procuring entity’s relative capacity to budget, plan, and monitor the program appropriately is also a key determinant of whether the Ministry of Health or the strategic purchaser should oversee vaccine procurement. Hence, the entity that is best equipped in these areas will be best placed to control the immunization budget.
IV. DECENTRALIZATION

DECENTRALIZATION IN THE HEALTH SECTOR

Three governance functions can be decentralized within a system: political, administrative, and fiscal. Drawing distinctions between these is useful for highlighting the many dimensions to the term “decentralization”. Political, administrative, and fiscal decentralization can appear in different forms and combinations across countries, within countries and even within sectors. Political decentralization means a change in accountability relationships, in which sub-national governments become more directly accountable to local citizens, and relatively less to central government ministries and/or political bodies. Administrative decentralization refers to the ability of sub-national governments to manage programs and, to some extent, make decisions regarding program structure and design. When a country is administratively decentralized, sub-national governments are still ultimately accountable to the central level and rely on them for funding and financing decisions. Fiscal decentralization gives sub-national governments more autonomy regarding the allocation and use of fiscal resources (whether these be locally-generated revenues or transfers from central government).

It is difficult to draw broad conclusions regarding links between decentralization and health delivery, or immunization, globally. The level of decentralization within a health system does not appear to be a key causal factor regarding overall performance. Rather, factors such as the quality of local government capacity to plan and budget, and the strength of accountability relationships between local government and citizens and/or central government may have a stronger influence on sub-national performance in terms of health service delivery than in the specific decentralization arrangements within a country.

Addressing accountability arrangements has the most potential to promote effective performance in decentralized settings. Effective decentralization must include workable accountability arrangements at the sub-national level. There are both “long and short lines of accountability” from citizen to service provider, with the short link being from citizen directly to service provider, and the longer link being from citizen to elected official to ministry to service provider. However, if both of those links are weak, as we observe in some low performing sub-national units in the Philippines and Indonesia, then accountability arrangements are effectively broken. The promise of decentralization is to replace a top-down model of supervision with a more context specific bottom-up model of direct accountability to citizens. However, in cases where top-down arrangements are replaced by weak or non-existent bottom-up arrangements, it becomes important to re-establish effective accountability. This can be achieved, in the short-term, through either reinforced central-local accountability arrangements (performance based fiscal transfers, for example), or through enhanced accountability of local service providers to clients (improved complaint systems, stronger local political supervision, etc.).

Similarly, centralized regimes must ensure that there is adequate autonomy at sub-national levels to design approaches that align with local priorities. Health delivery, including immunization, takes place in highly variable sub-national settings. Thus, the most effective programs, even those that are highly centralized, offer autonomy to local providers

68 Panda, B and HP Thakur (2016); Heywood, P and Y Choi (2010); Bossert, TJ and AD Mitchell (2011).
to shape programs in context-specific ways to focus on promoting local awareness and demand for immunization and shape provider services to most efficiently and effectively meet demand.

**DECENTRALIZATION’S IMPACTS ON IMMUNIZATION**

Decentralization arrangements have both direct and indirect effects on immunization financing and delivery. There are direct effects in terms of the role that sub-national governments play in financing and delivery of vaccines, and these are most evident in the Philippines and Indonesia in terms of control over delivery and responsibility for co-financing overall costs. The variability in results across these two countries indicates the strong role that sub-national governments play in the immunization space. However, there are a range of indirect ways in which decentralization can also impact health systems and immunization financing/delivery, including:

**Piloting of new vaccines.** Locally funded sub-national pilots have taken place in Taiwan, Indonesia, Thailand, and the Philippines. These pilots offer a means of assessing not only the total cost of delivering a new vaccine (including cost items like shared labor, cold chain, and shared facilities), but also the receptivity of the local population. This latter point is particularly relevant for some NUVI’s which involve targeting new population segments like adolescents and establishing new delivery channels, like school-based programs. Some resourceful sub-national governments have also run pilots which help to understand the total cost of delivering a new vaccine, before rolling it out nationally. This is also highly relevant in terms of creating credible out-year budget assumptions.

**Procurement of vaccines.** While national procurement is still the norm, there are examples of sub-national procurement in the Philippines, Indonesia (in case of stockouts), and for private providers, in all countries. There would be significant value in understanding the local government’s objectives: how much information they have regarding pricing, suppliers, and possible substitutes; where they get information; how (if at all) they employ cost-effectiveness criteria; and their resulting negotiating strategies regarding procurement price and volumes.

**Models of improved delivery.** Even in centralized systems, health outcomes vary considerably within countries. High performing sub-national governments provide models for efficient, effective immunization delivery. Indonesian government officials, for example, estimate that the percentage of fully-immunized children varies from the mid-90s in high performing districts to the mid-30s in very low performing districts (usually found in the eastern part of the country). While not all practices and approaches are replicable within countries—replicating committed local political leaders, for example, is a non-starter—there are basic planning, budgeting, and delivery functions that can be improved in low performing settings through the application of improved accountability mechanisms, ongoing coaching, and copying of approaches from higher-performing sub-national settings.

**Formal or informal advocacy.** Sub-national governments can alone, or collectively, lobby central governments regarding health policy and financing. There are three distinct types of approaches that can be undertaken: a) direct action in terms of rolling out a new policy or approach, with the intention of creating facts on the ground to persuade others of the viability of a new approach; b) creating policy advocacy groups composed of sub-national actors (for example, the association of district regents in Indonesia) that collectively advocate for sub-national interests; or c) issue-based advocacy that brings together selected sub-national governments. An example of issue-based advocacy could be coalition of
wealthier sub-national governments demanding more flexibility regarding allocation and spending of “own source” revenues.

**Central government bodies often retain control of most aspects of immunization.** Immunization is a universal right for all children, and government are often explicitly mandated to provide it. Thus, it is often maintained as a vertical program that lends itself to central direction more than many other health services. Central direction includes program design, routine immunization schedule definition, procurement of vaccines, and in some cases, delivering them to health centers. In cases where sub-national bodies do have autonomy, it is in the areas of vaccine delivery, adding local budgets to vaccine delivery programs, and occasionally, piloting new vaccines and/or procuring existing ones directly.

**There are a number of factors that account for variable performance among sub-national units.** Political will at the sub-national level matters and, in settings where there is significant variability among outcomes, there is no question that political leadership of sub-national units may be the single most important factor driving relative performance. Closely related to politics are incentives and accountability. Accountability, and especially the lack of clarity regarding accountability, can hinder the funding and execution of immunization programs. Intra-governmental fiscal relationships that do not have accountability embedded within are another example of weak accountability arrangements. Other factors that emerged from interviews and source material as relevant include local capacity to plan, manage budgets, and deliver services, and geography. While there is no question that capacity issues hinder vaccine program management, most key respondents did not mention capacity as the main underlying challenge, as they were able to cite relatively poor places that performed well under strong leadership.

**Decentralization’s Impacts on Immunization in Asia Pacific**

**Some countries in Asia Pacific have fully resisted any type of decentralization.** The MoH in Malaysia controls the entire public health program and is responsible for formulating, financing, and implementing immunization policies and programs through its central, state, and district offices. Reforming the health system to offer more control and autonomy to state and municipal governments in Malaysia has been held hostage by larger, structural political divides between the ruling and opposition parties. As long as the current ruling coalition is in power, it is unlikely that sub-national governments (many held by the opposition) will be delegated any significant amount of autonomy. The conditions for effective management of health programs at the sub-national level exist in Taiwan in terms of strong capacity and robust accountability. A supplementary case study, undertaken by Gadjah Mada University, addresses center-local bottlenecks in immunization financing and delivery. This case study will further address the larger issue of how variable immunization outcomes impact upon the central Ministry of Health’s agency to negotiate for larger budgets (for new vaccines) and for greater direct authority over sub-national providers. The case study will be published fall of 2017 in conjunction with this landscape.

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arrangements. However, even though it has favorable conditions for more decentralized health system management, it remains one of the most centralized systems among the six profiled countries. Thailand has also retained the majority of health responsibilities at the central level, though provinces do have some power for supplementary programming. The power struggle between the NHSO and MoPH has led to strong resistance from the MoPH for any further loss of control to sub-national entities.

Other countries in the region have either begun decentralizing governance functions or have handed large amounts of autonomy to sub-national units. As discussed above, there are three governance functions that can be decentralized – political, administrative, and fiscal responsibilities. While the Philippines and Indonesia have granted all three functions to local governance units, Thailand and Vietnam are cautiously experimenting with decentralized governance. Each aspect of decentralization and sharing of power and decision-making can have unique impacts of immunization programs.

Administrative decentralization puts the responsibility to deliver the immunization program in the hands of sub-national governments, but limited accountability measures have resulted in poor outcomes in decentralized Asian Pacific countries. Administrative duties in Vietnam have been decentralized, but complicated reporting lines prevent the system from running smoothly. Should a provincial medicine center not deliver on its health functions, there is a friction between charging the MoH or the political officials of the province for this failure. Provinces, on the other hand, are not beholden to central MoH directives and do not always act on these directives, creating issues of accountability. Indonesia and the Philippines are the most administratively decentralized countries within our sample with sub-national government units fully responsible for routine immunization delivery. In Indonesia, moving vaccines to local health centers and providing immunization delivery is the responsibility of provincial and district governments. A new regulation from the MoH outlines the specific roles of different players in an effort to improve collaboration, but limited accountability measures have resulted in mixed coverage rates across the country. In the Philippines, LGUs have great autonomy and

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71 Presidential Decree 72/2012 articulates the roles and responsibilities of central and sub-national governments regarding financing of immunization.

72 MoH Regulation, 2017
their power to dictate the success of the NIP means that they must be engaged to increase the country’s falling coverage rates.

**Fiscal decentralization puts the large responsibility of not only delivering the immunization program but financing it (at least to an extent) and many subnational units struggle to allocate appropriate resources.** In Indonesia, immunization delivery is co-financed by the district budget, though roughly half of all districts do not allocate the mandated 10% of local budgets to health. LGUs in the Philippines cover half of operational expenses, though prioritization differs greatly between LGUs. According to informants, the allocation of the LGU budget to health varies between 1%-9%, with little guidance or oversight from the central level. In Taiwan, there are six regional budgets administered by the NHI’s six regional offices. Directly-elected municipal and county governments have the authority to offer additional benefits, such as subsidies for out-of-pocket costs for poor residents, to populations within their jurisdiction. While local revenue opens up fiscal space for immunization, fiscally stronger sub-national units will have greater resources to invest, pressing forward on coverage, while fiscally weaker units lag behind. This equity problem will need to be addressed by the central level.

**Figure 19. Comparative Ranking by Degree of Decentralization**

Decentralized systems in Asia Pacific often lack the accountability measures necessary to administer a high-achieving immunization program. Without strong systems in place, immunization will need to be championed by a local leader and prioritized by the government or, as has happened in Indonesia and the Philippines, coverage rates will fall. In Indonesia, there are limited oversight mechanisms and feedback loops between central and district governments, and annual central-local budget transfers are not based on performance. Budget monitoring is weak and there is wide variation between plans/allocations and expenditures. The central government has neither mechanism to incentivize outputs or outcomes from its investments, nor influence over how resources are allocated and spent at the district level where delivery is done. Introducing performance based financing related to the MSS indicators is an effort to reverse this shortcoming. Limited accountability in the Philippines system has also contributed to falling immunization coverage rates. Over 25 years after the enactment of the 1991 Local Government Code, the Philippines continues to struggle to identify workable approaches to strengthen the performance of many local governments. While there have been many analyses undertaken, and an open acknowledgement of the challenges of highly variable local government performance, there do not appear to be comprehensive approaches with sufficient political support to address this issue. While declining and highly variable immunization rates, combined with a very large routine package, should, in theory, place pressure on the central DOH to foster more accountability regarding LGU planning, budgeting, and delivery, it seems likely that the Philippines will continue to muddle through in the short to medium term.

**Table 5. Types of Decentralization in Asia Pacific**

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<thead>
<tr>
<th></th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Taiwan</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscally Decentralized</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Administratively Decentralized</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</table>
CONCLUSION

Larger structural/political issues influence health system design and performance and can affect how immunization is prioritized and financed. In Indonesia and the Philippines, it is impossible to say whether the extent to which decentralization, in isolation, is the cause of weaknesses in the immunization program, but there is a clear association. In partnership with decreasing coverage rates and variable rates of financing for immunization at the sub-national level, these two countries have relatively weak sub-national capacity, very remote areas where service delivery is particularly challenging, and generally weak accountability relationships across government functions. Given heterogeneous center-local relationships across the six focus countries, there is no single template for future engagement. To improve prioritization across decentralized health systems, or sustain prioritization in a system decentralizing some powers, there are a range of potential approaches that deserve attention:

Engage with sub-national governments: Engaging with sub-national governments as advocacy partners regarding immunization financing and NUVI introduction is one potential approach. We have seen multiple examples of sub-national governments piloting NUVIs and/or (in a few cases) procuring vaccines. Working with sub-national governments around achieving results—either better measurement of success and/or helping pilot improved approaches to delivery—can improve or help sustain prioritization. There is appetite for broad-based partnerships to work at both national and sub-national levels to improve performance. Local organizations and populations can lead the charge in demanding local prioritization of immunization. With large levels of autonomy to deliver and finance the immunization program at the sub-national level in the Philippines and Indonesia, these actors must be engaged to increase coverage rates and sustainable programs.

Support Research: Another way to improve prioritization is supporting research or analysis (like the Indonesian case study discussed in Box 9) to analyze ways in which current center-local relationships could be reconfigured to enhance immunization performance.

Direct Engagement for Improved Outcomes: Promoting ongoing policy and practice dialogues at both national and sub-national levels is another approach. This can aim at building trust between industry and government, while also identifying the highest priority challenges and fostering structures for iterative problem solving. Creating structures to foster ongoing lateral learning among sub-national governments, either within or between countries, can support direct engagement. Many good practices exist that are not widely adopted, and the lack of lateral learning structures is one reason that uptake and adoption of new ideas is so slow in most cases.
REFERENCES


UNICEF Health Section, Program Division. (May 2014). Financing for immunization at sub-national levels: A systematic literature review. New York: UNICEF.


## ANNEX A. INNOVATIVE MECHANISMS FOR IMMUNIZATION FINANCING

<table>
<thead>
<tr>
<th>Partnership Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Providing <strong>microcredit</strong> for individual private access to vaccines</td>
<td>A stakeholder interested in increased coverage can front a principle to a microcredit institution for vaccine access. Individuals who want vaccines not included in a free national program can utilize the credit to access the vaccine in a private facility. Repayment of the loan can be made with a small sum of interest to provide incentive to the microcredit institution.</td>
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<tr>
<td><strong>Conditional cash transfers</strong> for increased coverage</td>
<td>Donor support funds can be directed towards a conditional cash transfer program, where individuals receive payments for undertaking a specific action. For immunization purposes, cash could be provided for receiving a vaccine, assisting in the process of increasing coverage rates. This model to increase demand found success in Nicaragua, Mexico, and India, amongst others.73</td>
</tr>
<tr>
<td><strong>Public-private partnerships (PPPs)</strong></td>
<td>Public-private partnerships have been utilized in many infrastructure development projects, but have not had robust execution in the health sector. Currently, much of the work that is labeled as PPP in the immunization sphere falls under corporate social responsibility, or in-kind donations. Other partnerships are focused on increased resources for research and development rather than distribution. More exploration is needed to identify what can be done by both the private and public sectors to work together towards a common goal with benefits for both sides.</td>
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<tr>
<td><strong>Output-based investments to increase efficiency of financing</strong></td>
<td>Development and social impact bonds allow investors to put their money towards a cause. These investments are results-based contracts in which private investors finance social programs and receive their principle investment, plus interest, only if the social result is achieved. For example, if a target coverage rate is achieved. Repayments are made by the public sector in a social impact bond and by a third party in a development impact bond. Between NGOs or charities, which invest with no expectation of monetary returns, and equity investors without mandated interest in social returns, there is limited market for long horizon</td>
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development impact bonds and they have not yet gained popularity.  

**The International Finance Facility for Immunization (IFFIm)**

The IFFIm, which partly funds Gavi, amongst other things, functions on a bond model, bringing together public and private investors. The IFFIm receives pledges from governments and then creates bonds in the amount of the received pledges which investors can buy, inputting capital directly into the mechanism. Investors are paid back over time as governments make annual payments of their pledges. Other investments from private companies are backed by an alliance of donors, from the United States to the Gates Foundation, where repayments are made based on successful Gavi program outcomes.

**1+1+1 model for increased investment**

The 1+1+1 model is a blended financing mechanism that pools contributions from private enterprise and private employees, with matching government inputs, into a single fund. It is a path towards developing a public trust fund for a specific cause, but relies on the interest and willingness of private companies. Attaching accountability measures and specified outputs can help to increase private interest, though trust funds typically only utilize their accrued interest and trap a large amount of capital outside of the system’s reach.

**Outcomes-based contracting**

Perhaps the simplest model is an outcomes-based contract where payment is conditional on delivery of an outcome. This is the direction Indonesia is going towards with its PBF model with districts. It can be used on a smaller scale as well, contracting in private providers to help increase coverage rates in struggling areas, for example.

**Efficiency gains through innovative procurement**

UNICEF’s Vaccine Independence Initiative provides a mechanism for developing countries to get vaccines up front and repay UNICEF over time. Countries negotiate a ceiling of how much they can owe UNICEF at any given time. The mechanism encourages governments to finance and assume increasing responsibility on the international market, but opens up fiscal space for the procurement of vaccines.

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74 Center for Global Development (2013).
75 Ibid.
76 Bowden (2015).
Pooled procurement often offers a way for countries to join a larger pool of purchasers, generating a larger market and driving down prices. The two major pooled procurement mechanisms are UNICEF Supply Division and the PAHO Revolving Fund. While PAHO is only open to countries in Latin America (the WHO’s PAHO region), UNICEF SD purchases for Gavi and is open to all developing countries. While utilizing UNICEF SD can sometimes bring lower prices, and thus increase efficiency, representatives in the Philippines have noted that due to administrative costs for UNICEF SD, it is sometimes cheaper to do direct procurement from a local manufacturer. Though no pooled mechanism exists exclusively for Asia Pacific, countries within the region could work together in a similar manner, or on a smaller scale, to garner the same benefits.