Review

Government financing for health and specific national budget lines: The case of vaccines and immunization

Patrick Lydon, Pa Lamin Beyai, Irtaza Chaudhri, Niyazi Cakmak, Alexis Satoulou, Laure Dumolard

A long standing question related to immunization financing and sustainability has been whether the existence of a specific line item for vaccines purchasing within the national health budget can contribute significantly to increasing national government financing of vaccines and routine immunizations. Based on immunization financing indicators from 185 countries collected through the joint WHO and UNICEF monitoring system, this paper attempts to answer this policy question. The study will present findings related to the status of countries that have such specific budget lines for purchasing vaccines and the levels of national budgetary allocation to the financing of vaccines and immunizations, particularly in low-income countries. The analysis shows evidence that the existence of a specific line in the national budget is associated with increased governmental budget allocations for vaccines and routine immunization financing.

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1. Introduction

Ministries of Health in many countries are continually confronted with the challenge of protecting resources for essential programmes from the vagaries of the domestic budgeting process and the volatility in external donor financing. Adequate and reliable health financing is one of several essential elements required to ensure continuity in service delivery, and to fund continuous increases in coverage, quality and access to health services. This is all the more important for disease specific preventive programmes such as immunization. The health benefits of vaccination depend, to a large degree, on achieving relatively high levels of coverage among cohort after cohort of children, and thereby interrupting disease transmission. Immunization programmes can function only when a specific set of inputs – principally vaccines – are available on a reliable basis. There are serious and long-term health consequences associated with short-term fluctuations in the availability of financing—such as those often seen in the domestic resource allocation process.

Advocates for public health programmes like immunization, further face the challenge of resource tracking, particularly in the context of the Millennium Development Goals. Timely and reliable data on financial flows are essential for assessing the adequacy of current levels of funding, and to promote accountability among national governments for attainment of the MDGs [1].

In the immunization world, a long standing policy question has been whether the existence of a specific budget line for vaccines can contribute significantly to achievement of these aims—increases in national expenditures on vaccines and immunizations to match programme targets; and improved ability to track public spending on vaccines and immunization. Discussions about the value of such specific budget lines have generated diverse views among experts. Some believe that a line item is essential for long-term financial sustainability of immunization, while others believe it will have a neutral or only weakly positive effect [2].

This paper will attempt to shed light on these policy and practice questions by using the financing information tracked through the joint WHO and UNICEF immunization monitoring system (JRF). In particular, focusing on the questions of: (i) what do we know about countries with a specific line in their national health budget for purchasing vaccines? (ii) what can we say about the levels of national contributions to the financing of vaccines and immunizations? and (iii) is there any evidence that the existence of a specific line in the national budget is associated with increased governmental budget allocations for vaccines and routine immunization financing.

Before presenting the findings of this study, it is useful to take a step back and understand the rationale for including a specific line in the national budget for vaccines and immunization financing; and how the creation of such budget lines have been a requirement to participate in international mechanisms to finance vaccines. The paper will then present the finding from the analysis of the financing indicators in 185 WHO Member States and will include a special focus on low-income countries.

2. Rationale for a national budget line for vaccine purchasing

The rationale for creating a national budget line for vaccine purchasing is based on the assumption that a specific line item can contribute to improved financing, or is indicative of an intention to finance vaccines, using government funds. In particular, a national budget line for vaccines is thought to:

1. Increase awareness of the need to allocate funds to a priority health service. The presence of a specific line item for vaccines – with the greater awareness it creates – will inspire national governments to increase their budgetary efforts in respect to a priority health programme like immunization. Government officials responsible for budgetary decisions will be more conscious of the importance of immunization, and the need for vaccine procurement, if it is visible in the national budget, rather than hidden in a more general health budget line [2].

2. Signal long-term political commitment for immunization and ring fence national funding for vaccines. It is assumed that governments that choose to introduce a vaccine or immunization related line item into the national budget are likely to have a stronger commitment to the programme, especially if they are willing to make these budget allocations visible and transparent—an indication that the government anticipates that those allocation will remain at adequate levels [2].

3. Permit resource tracking and accountability of expenditures. The creation of a line item for vaccine procurement is thought to increase transparency in the allocation of funds, and can allow external agencies and advocacy groups to better monitor the government’s budgetary effort [2]. Tracking public expenditures is essential to know whether public spending meets established immunization targets, and how they compares over time and across countries.

3. International mechanisms to facilitate vaccine financing

A major feature of several international mechanisms to facilitate vaccine financing is the requirement that participating countries must establish a national budget line for vaccines, and commit over time to raising the proportion of vaccine expenditures that are paid through the national budget. The inclusion of a line item in the annual budget is intended to encourage long-term sustainability, and transfer the responsibility of vaccine financing to government budgets.

This has been the case for three international mechanisms that have been developed to assist countries in increasing their financial contribution for vaccines. The oldest is the Revolving Fund (RF) of the Pan American Health Organization (PAHO). The RF began in 1979 as the first mechanism established to assist all countries in the Americas in becoming more self-sufficient in the purchasing of their vaccines for routine immunization [3,5,6,7]. The fund operates on the concept of a pooled common Revolving Fund which is able to secure low vaccine prices through large volume contracts with manufacturers.

Based on the success of the PAHO model, UNICEF established the Vaccine Independence Initiative (VII) in 1991 [4–7]. The impor-
the focus of this paper, three of the indicators were analysed. The first reports whether or not a WHO Member State has a specific line item in its national budget for the purchasing of vaccines used in routine immunization. The second measures the percentage of all expenditures on routine vaccines financed by the government (excluding vaccine funding for campaigns). The third measures the percent of all routine immunization expenditures financed using internal public funds. These latter two indicators quantify the relative share of government financing as compared to all other sources of financing for vaccines and routine immunization spending—including from international donors (Table 1). The period of analysis was restricted to the year 2000 and up to the latest available year of information in 2006. During this period, the three indicators of interest were being reported in the JRF. By 2006, 86% of WHO Member States reported information in the JRF for the budget line indicator. This compares to 79% of member states reporting on the vaccine financing indicator and 81% on the routine immunization financing indicator. While the reporting by countries of these three indicators has improved significantly over time, not all 193 WHO Member States could be included in this analysis. To increase the size of the available subset of countries to include in this study, several methods were used to estimate missing values for countries that had reported partial, or no information between 2000 and 2006. A process of cross-checking and validating the reported data with WHO counterparts located in regional offices helped complete the dataset with an additional 25–30 countries depending on the indicator.

In total, 185 countries were retained for this analysis. The findings are presented in three interrelated parts. The first set of findings will present the overall situation in 2006 across the 185

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**Table 1**

Reporting on immunization financing indicators in the JRF (2000–2006)*

<table>
<thead>
<tr>
<th>Region</th>
<th>% Countries with a specific line in the national budget for purchasing vaccines used in routine immunization</th>
<th>% Government funding of overall expenditures on vaccines used in routine immunization</th>
<th>% Government funding of overall expenditures on routine immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR (46)</td>
<td>87% (40)</td>
<td>63% (29)</td>
<td>80% (37)</td>
</tr>
<tr>
<td>AMR (35)</td>
<td>54% (19)</td>
<td>43% (15)</td>
<td>66% (23)</td>
</tr>
<tr>
<td>EME (22)</td>
<td>77% (17)</td>
<td>68% (15)</td>
<td>68% (15)</td>
</tr>
<tr>
<td>EUR (52)</td>
<td>47% (24)</td>
<td>43% (22)</td>
<td>59% (30)</td>
</tr>
<tr>
<td>SEAR (11)</td>
<td>100% (10)</td>
<td>60% (6)</td>
<td>60% (6)</td>
</tr>
<tr>
<td>WPR (27)</td>
<td>93% (25)</td>
<td>74% (20)</td>
<td>63% (17)</td>
</tr>
<tr>
<td>Overall (193)</td>
<td>71% (135)</td>
<td>56% (107)</td>
<td>67% (128)</td>
</tr>
</tbody>
</table>

* Table reports the proportion of all WHO Member States reporting on the immunization financing indicators of the JRF and number of countries in parentheses. Note that in 2000 there were 191 WHO member states. By 2006 there were 193. Proportions and numbers of countries were adjusted to account for the two additional member countries.

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2. Is there a specific line item in the national budget for the purchase of injection supplies (such as syringes, needles and safety boxes) used in routine immunization? (Yes–No)

3. What amount of government funds were spent on vaccines used in routine immunization? (US$ or Local Currency)

4. What percentage of all spending on vaccines was financed using government funds? (%)  
5. What amount of government funds were spent on routine immunization? (US$ or Local Currency)

6. What percentage of all spending on routine immunization was financed using government funds? (%)  

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Since 1998, the WHO–UNICEF Joint Reporting Form (JRF) mechanism has been collecting data on vaccines and immunization financing as part of a set of immunization systems indicators designed to measure performance and trends in member states [12]. Initially, a set of two financing indicators were monitored through the JRF mechanism [13]. By 2006, the set included six indicators as follows:

1. Is there a specific line item in the national budget for the purchase of vaccines used in routine immunization? (Yes–No)

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Table 2
Trend in the immunization financing indicators reported in the JRF (2000–2006)

<table>
<thead>
<tr>
<th>Region</th>
<th>% Countries with a specific line in the national budget for purchasing vaccines used in routine immunization</th>
<th>% Government funding of overall expenditures on vaccines used in routine immunization</th>
<th>% Government funding of overall expenditures on routine immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR (46)</td>
<td>76%</td>
<td>83%</td>
<td>48%</td>
</tr>
<tr>
<td>AMR (35)</td>
<td>91%</td>
<td>91%</td>
<td>94%</td>
</tr>
<tr>
<td>EMR (22)</td>
<td>82%</td>
<td>82%</td>
<td>73%</td>
</tr>
<tr>
<td>EUR (52)</td>
<td>77%</td>
<td>87%</td>
<td>76%</td>
</tr>
<tr>
<td>SEAR (11)</td>
<td>82%</td>
<td>82%</td>
<td>60%</td>
</tr>
<tr>
<td>WPR (27)</td>
<td>85%</td>
<td>96%</td>
<td>74%</td>
</tr>
<tr>
<td>Overall (185)</td>
<td>81%</td>
<td>86%</td>
<td>69%</td>
</tr>
</tbody>
</table>

The trend between 2000 and 2006 shows important variations across WHO regions.9 Whereas little change was noticed in AMR, EMR and SEAR, the trend in AFR, EUR and WPR was marked by growth in the number of countries. In WPR, the proportion of countries in the region with such vaccine budget lines rose from 85% in 2000, to 96% by 2006. In AFR, the proportion of countries increased from 76% to 85% during the same period. In 2006, some 25 countries (or 14% of the 185) reported not having a specific budget line for vaccines. In other words, any national budgetary allocation to finance vaccines (if at all) was likely to come from a non-specific budget line for health which does not guarantee an allocation of funds for vaccines from one year to the next (Table 2).

The analysis of the government funding for vaccines yields a number of interesting findings. The average in the 185 countries is relatively high and rose from 69% in 2000 to 74% in 2006 of overall vaccine financing being funded by the government. These overall figures mask important variability across regions. At one end of the spectrum, government funding for vaccines in AFR ranged from 48% to 53% between 2000 and 2006. In other words, AFR is still reliant on external funding for about half of their vaccine needs. On the other hand, national governments in AMR and EUR are almost entirely self-sufficient in the financing of their vaccine needs. For the most part, national budgetary allocations cover for more than 90% of all routine vaccine expenditures.

The findings were presented in the aggregates, compared across WHO regional groups, and looking at the differences in low and lower-middle income countries.9 For the indicators representing the relative share of national financing for either vaccines or overall routine immunization, figures are presented as simple averages unless otherwise specified.

5. Findings


In reviewing the first indicator, the findings showed that in 2006, the majority of countries reported the existence of a specific national budget line for purchasing vaccines. The number of countries increased steadily since 2000. By 2006, the number of countries that reported the existence of a vaccine line item in their national health budget was 86%—up from 81% in 2000.

8 Using the classification of countries into World Bank income groups—particularly low income countries are those with per capita gross national incomes (GNI per capita) of less than $905 or less in 2006. Of the 185 countries, 51 were classified as low-income countries and another 53 were lower middle income countries.

9 WHO’s nomenclature of regions is the following: AFR (for Africa), AMR (for the Americas), EMR (for Eastern Mediterranean), EUR (for Europe), SEAR (for South East Asia) and WPR (for the West Pacific); www.who.int/about/en/.
Routine immunization is also relatively high yet only modest changes are noticed since 2000. The proportion of overall routine immunization financing from national governments increased only by a mere 3% between 2000 and 2006—from 71% to 74%, respectively (Table 2).

In 45 countries, the share of government financing is less than 50%—of which 20 countries have remained entirely dependent on international support for all financing needs for vaccines and immunization.

Regional differences show a similar pattern as seen with the vaccines only indicator. The average in AFR was the lowest of all other regions, while AMR and EUR were the two regions most reliant on more stable national financing for routine immunization. The more complex health systems in the European region with decentralized financing systems and the use of vaccination laws in the Americas that secure national funding for vaccinations are reasons for this variation [14].

It is interesting to note that AFR was the only region where government funding for vaccines is greater than government funding for overall routine immunization. This would suggest that funding for vaccines is not matched by an equal amount of funding for operational and service delivery expenditures.

With the exception of SEAR, all other regions have seen an upward trend in the relative share of national funding for vaccines between 2000 and 2006. In SEAR, quite a number of countries have experienced a drop in these shares. One possible explanation is that most of the SEAR countries are beneficiaries of GAVI support for vaccines since 2000. Over 80% of the SEAR countries are GAVI eligible and have introduced new vaccines. With important influxes of external financing for vaccines and service delivery expenditures, the share of national financing drops relative to all sources of financing. The situation in AFR is relatively similar with over 70% of countries being GAVI eligible. However, a potential GAVI impact on the financing indicators less pronounced. Although the relative share of national financing for routine immunization dropped between 2000 and 2006, it is likely to be a mixture of factors including political instability in a number of countries which have reduced funding levels. Zimbabwe is an example of a country for which national funding for routine immunization dropped from 100% in 2000 to less than 10% in 2006.

The situation is quite different in AMR, EMR, EUR and WPR where 20% or less of the countries are eligible for GAVI support. Likewise, these regions have a greater number of middle and higher income countries which have a greater capacity to financing vaccines and immunization using domestic resources (Fig. 1).

Using the weighted average as a measure of the trend in the 185 countries, the findings show a different picture. On the one hand the share of government funding for vaccines floats in the neighborhood of 80% between 2000 and 2006. These relative shares are higher than the simple average measure (69–74%, respectively). On the other hand, the weighted share of government funding for overall routine immunization drops between 2000 and 2006—from 81% to 73%. This declining trend is driven by a handful of large countries whose relative share of government financing for routine immunization has dropped during this period (such as Bangladesh, China, Indonesia, and Pakistan).

5.2. Trend in low and middle income countries

The trends across different income groups is quite revealing as to the challenges being faced in the poorest countries. In 2000, 64% of low-income countries had a line item in the national budget for the purchase of vaccines, compared to 89% in lower-middle income countries. By 2006, 75% of low-income countries had a vaccine specific line in the national health budget. To date, 15 low-income countries do not have a specific budget line for purchasing and financing vaccines.

While the overall findings above point to an average government funding for vaccines in the neighbourhood of 75%, the average is closer to 35% in low-income countries. One third of these are entirely donor dependant with no national budgetary allocations for vaccines and routine immunization Fig. 2.

The trend between 2000 and 2006 has changed very little. Government financing for vaccines rose slightly from 34% to 38%, whereas government financing for routine immunization stayed constant at 35%. Of the 51 low-income countries, 18 had declining trends in government financing between 2000 and 2006. This was offset by increasing government financing in a further 14 countries over the same years.

Unlike the variations described earlier, the analysis in low-income countries showed no regional specificities. It would appear that all poor countries, irrespective of where they are in the world, are still largely dependant on external support to fund their vaccines and routine immunization programmes.

The trend in lower-middle income countries is quite different. Economic development and a lesser availability of international financing could explain why national governments are more...
self-sufficient in financing vaccines and routine immunization. Interestingly enough, the share of national funding for vaccines and immunization tends to drop in higher income countries. This is likely the result of a shift from public towards private sector financing for vaccines and immunization. In 2006, the overall share of government financing for vaccines and immunization in high-income countries was lower than in middle-income countries—from 60% to 70%.

5.3. Government financing of vaccines and routine immunization and specific lines in the national health budget

By comparing the trends in countries with a vaccine specific line in the national budget, and the corresponding share of vaccine and routine immunization funding by national governments, a positive relationship emerges. Fig. 3 highlights this relationship quite clearly. Whether for vaccines or overall routine immunization expenditures, the average government funding is higher in the group of countries that reported having a specific vaccine budget line compared with those reporting not having one. This relationship holds among low-income countries. In 2006, the share of government funding for vaccines was about 55% in countries with a budget line item, as compared to 5% for low-income countries without one. For overall financing of routine immunization the values are correspondingly 44% and 18%.

For those countries that created a specific vaccine budget line sometime during the period 2000 and 2006, there government allocations for vaccines and routine immunization are greater than in the set of countries without a specific line—yet, lower than those that have reported the existence of a specific vaccine budget line since 2000, even earlier.

As described earlier, the creation of a line item has been a pre-requisite for certain countries to participate in three international mechanisms to facilitate vaccine financing. Comparison of countries that participate in either one of the three international mechanisms (RF, VII, ARIVA) with those that used alternative procurement channels revealed higher government funding for vaccines for the former. Overall, national expenditure for vaccines hover around 90% in countries that participate in the PAHO Revolving Fund which are comprises mainly of middle-income countries. The average was approximately 65% in countries participating in the UNICEF VII and the European Union’s ARIVA initiative which are mainly countries classified as low-income countries with lesser ability to pay for vaccine expenditures using government funds.

By requiring a line item for vaccines in government budgets, these international mechanisms helped increase the commitment of participating governments to set aside funds for their national immunization programmes each year, thus decreasing the likelihood of these funds being diverted for other uses. They further
ensured that countries would commit over time to raising the proportion of vaccine purchase costs that are paid through the national budget.

6. Limitations

Inferences from this analysis should be drawn only in light of the limitations. Three important ones are worth highlighting.

Although the completeness of the immunization financing indicators reporting by countries in the JRF has improved since 2000, there is no straightforward way to assess data quality. The process of validation with regional offices has certainly helped in improving our confidence in the information being reported. Yet, we can only infer that the quality of the information has improved over time in conjunction with the improved level of reporting completeness.

A second limitation has to do with the manner in which countries have interpreted and reported on the three indicators analyzed. It is likely that some countries may not have made the distinction between a general health budget line (where national budgetary allocation may or not be made for vaccines) and a specific vaccine line item in the national budget. Another interpretational issue may occur in what countries included under government funding for vaccines and routine immunization. According to the JRF definition, countries should report only internal public funding for immunization, including the portion of development bank loans used for purchasing vaccines that would need to be reimbursed by the government. However, countries may have reported transfers of bilateral donor agencies to the national treasuries (through pooled funds or budget support) for the purchasing of vaccines as internal public monies. This is of particular, and growing significance in countries receiving bilateral aid through a sector-wide approach (SWAp) and national budget support. In some countries in EUR, it is possible that the financing indicators do not reflect funding from local governments or from public insurance. If this were the case, countries (particularly low-income countries) would be overstating national government funds allocated to the purchasing of vaccines for routine immunization.

A third and interrelated limitation is the caution needed in interpreting annual trends, particularly the government funding indicators expressed as relative shares in overall financing for vaccines and routine immunization. A fall in the indicator does not necessarily imply a drop in value terms, or a phenomenon of resource displacement away from immunization. The share of government funding for vaccines may drop despite greater budgetary allocation towards vaccine financing. However, relative to all sources of financing for vaccines, the government share can drop.

The limitations cited above all point in the direction of over-stating of government funding for vaccines and routine immunization. It should be born in mind that the figures in the analysis is likely to show a more optimistic situation that is currently the case—particularly for low and lower-middle income countries.

7. Discussion and conclusions

This paper offers the first attempt to provide evidence that supports the notion that the existence of a specific line item in their national budget for the purchasing of vaccines appears to induce greater national financing for immunization services to match program targets. It many countries, the creation of a vaccine specific line item in the national health budget seems to have been a viable means of inducing greater national expenditures on vaccines and ensuring a reliable annual allocation. Having said that, a vaccine specific line item is a necessary but not sufficient condition for vaccines and immunization financial sustainability. Whether the benefits of a specific budget line for vaccines are realized or not will depend on many factors. Clearly, by simply creating a specific budgetary line does not in itself guarantee that it will be adequately resourced. Further analysis is necessary to better understand the specifics of the relationship.

While many international mechanisms to finance vaccines have made this a requirement, in other instances this is not the case (ex: GAVI). To date there is no specific policy on vaccines specific health budget lines. However, this question has been extensively debated in the immunization world and the Strategic Advisory Group of Experts (SAGE) for immunization has been promoting and advocating for the existence and use of such vaccine specific budget lines [14]. With the changing context of immunization in low-income countries, this is all the more relevant as they scale up systems to reach more children with newer and more expensive vaccines.

While the findings of this analysis are intended to be neither definitive nor exhaustive, some important conclusions are worth underlining. Most WHO member countries have national budget lines for vaccine purchasing although many low-income countries are still without one. Since the year 2000, government funding for vaccines and immunization has been steady from 70% to 80% although important regional variations exist with AFR countries funding less than half of their vaccines and routine immunization needs using national funding. Likewise, less than 40% of needs for vaccines and routine immunization are financed by the governments in low-income countries irrespective of region with many remaining entirely donor dependant. The financial sustainability of these countries is far from assured, particularly in the changing context of expanding immunization schedules with newer and more expensive vaccines.

An important conclusion is that, despite the limitation of the data, the financing indicators collected through the WHO-UNICEF Joint Reporting system have uncovered very useful strategic information for decision making. It is therefore necessary that WHO and UNICEF continue to collect these indicators and improve the ability to track public spending on vaccines and immunization. Such monitoring is all the more relevant in the context of the MDGs and the need for resource tracking in order to gain insights into the adequacy of current levels of funding, and to promote accountability for attainment of the immunization goals and targets [15]. The main challenge however, will be to find ways of continuously improving the reporting in terms of its quality and a better articulation of the definition of the indicators.

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