

Country Case Study: Lessons Learned from Sri Lanka's Experience Transitioning from Gavi Support



Photo Source: WHO Sri Lanka

September 2021

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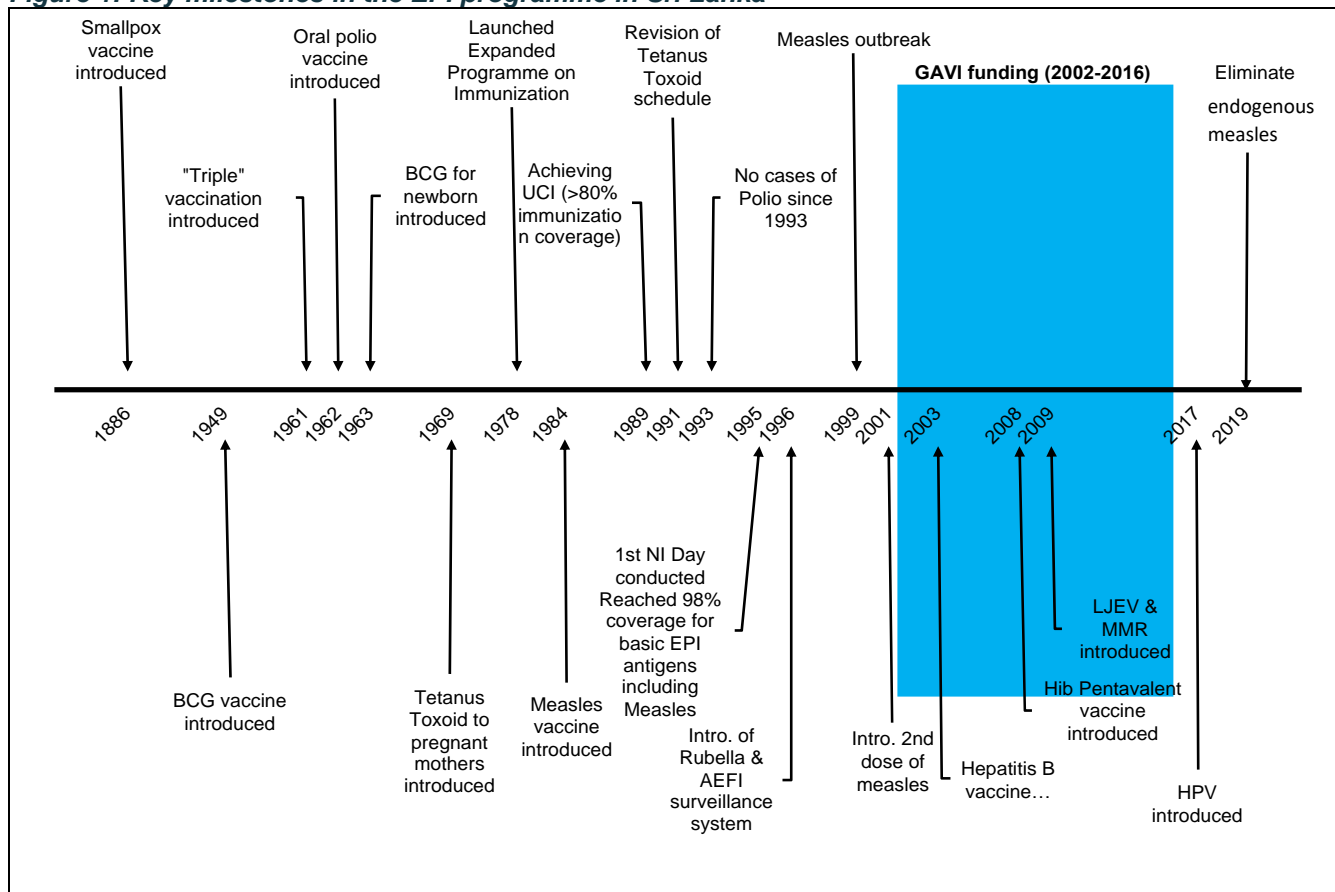
Introduction

Sri Lanka's Expanded Programme on Immunization (EPI) is cited regionally and globally as a successful model due to its strong political and financial commitment, high immunization coverage of essential vaccines, and low incidence of vaccine-preventable diseases (VPDs). Even after its transition from Gavi support in 2016, the country's EPI programme has maintained high coverage (98-100%) of all scheduled vaccines. Although the program has an excellent record, some challenges remain as the country consolidates its gains and successfully expands the program. This country case study highlights some of the critical lessons learned, from both its successes and challenges, related to sustaining and expanding the gains made in vaccine preventable disease control over the past 30 years in Sri Lanka.

History of the EPI Programme

The Expanded Programme on Immunization (EPI) was established in Sri Lanka in 1978 with the objective of preventing VPDs. At its start, the focus of the EPI programme was to prevent and control childhood tuberculosis (TB), tetanus, whooping cough, diphtheria, polio, and neo-natal tetanus (Epidemiology Unit 2019). **Figure 1** illustrates a few milestones related to the EPI programme. With the commencement of the EPI programme and increasing immunization coverage, the incidence of several vaccine preventable diseases declined. The vaccine coverage for DTP and MCV has remained at 93-99% from 1995 to 2001 (WHO and UNICEF 2020) which emphasizes that Sri Lanka had a well-established, functioning and locally funded EPI prior to the initiation of Gavi support. Currently, the immunization services in Sri Lanka are provided by the government, as well as private hospitals and practitioners. The public sector's share of total immunization spending was approximately 85% in 2018 (Institute for Health Policy 2021, Amarasinghe et al. 2021).

Figure 1: Key milestones in the EPI programme in Sri Lanka

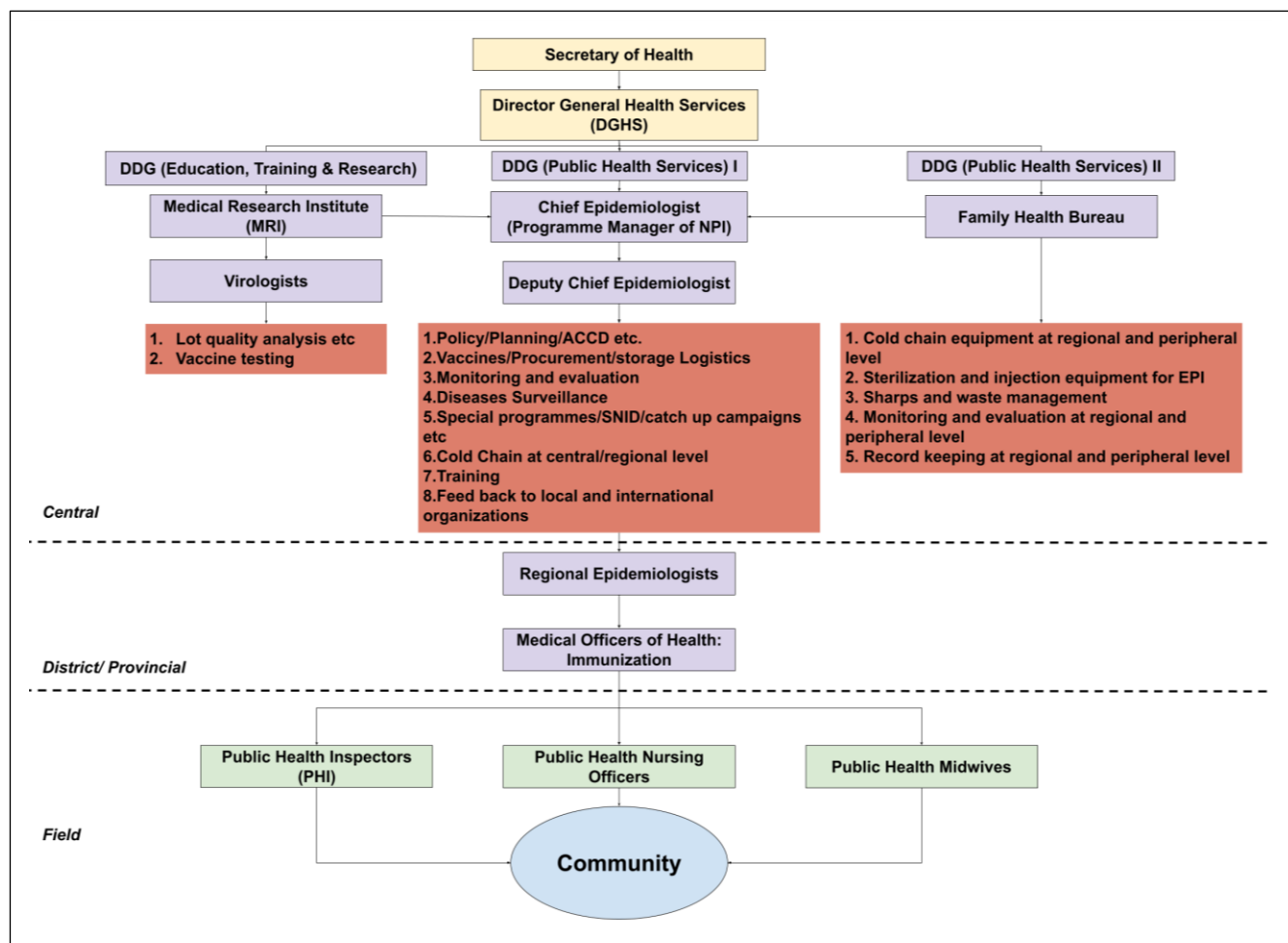


Source: LNCT Member Highlight – Sri Lanka's Transition from Gavi Support

Vaccine Delivery

The EPI programme is delivered by two agencies – the Epidemiology Unit and the Family Health Bureau, which are national units of the Ministry of Health (MoH). The organizational structure of the Epidemiology Unit is shown below in Figure 2. Sri Lanka’s EPI programme is executed through an extensive and highly developed, grassroots level public health infrastructure and the Medical Officer of Health (MOH) units, which were established since 1926. The MoH provides vaccines to the Maternal and Child Health (MCH) field clinics which are overseen by the health staff. The health staff are led by the MOH and consist of Public Health Nursing Officers (PHNS) and Public Health Midwives (PHM). The private sector provides immunization through private hospitals and private general practitioner clinics. The overall contribution of the private sector is modest at around 15% of immunization service delivery by the late 2000s, with the services primarily being delivered in urban areas to higher income households (Agampodi and Amarasinghe 2007, Levin and Kaddar 2011). The central government also provides some vaccines to the private sector free of charge via its regional health authorities (Epidemiology Unit 2002, Nishad et al. 2018).

Figure 2: Functional Organogram of the NIP of Sri Lanka



Source: Epidemiology Unit (2017)

In Sri Lanka, the national immunization programme (NIP) is managed by physicians specialized in community medicine who have undergone training in epidemiology, maternal and child health, and health education. All grassroots level health care staff also receive regular training on immunization.

The grassroots level authority for public health services lies with the MOH, who is responsible for preventive health in the area. Thorough planning, along with strong VPD surveillance, close monitoring

and supervision of the central, middle, and grassroots level health care workers, and a well organised programme are key to Sri Lanka's achievement of 99% coverage for BCG, DTP, and MCV (WHO and UNICEF 2020) and to sustaining this level of coverage over the last two decades (UNICEF 2019). Following its transition from Gavi, Sri Lanka continues to manage EPI financing with a strong emphasis on long-term sustainability. Through a well-monitored vaccine cold-chain maintenance system, Sri Lanka also sustains good logistics practices and ensure the delivery of high-quality vaccines.

New Vaccine Introduction

The decision to introduce a vaccine demands consideration of many factors before prioritizing it as an investment for the health sector. Introduction of a new vaccine can have a significant positive and negative impact on a country's health system. Hence, it is of utmost importance that the decision be evidence-based and suitable to the country's needs. The Advisory Committee on Communicable Diseases together with the Epidemiology Unit are the main actors involved in this decision-making process (Wijesinghe, Palihawadana, and Peiris 2010). Below are a few factors that are considered in new vaccine introduction in Sri Lanka (Abeyasinghe 2020, Peiris 2020).

New Vaccine Introduction Considerations

1. Age-specific disease prevalence backed by evidence on disease incidence/ prevalence, mortality, morbidity, vaccine information (efficacy, effectiveness) costs and benefits, and logistics pertaining to the new vaccine
2. Age-specific immunological response to vaccines
3. Potential interference with the immune response to passively transferred maternal antibodies
4. Age-specific risks of vaccine associated complications
5. Programmatic feasibility and sustainability
6. Exploration of availability of different products and other country experiences
7. Awareness, advocacy, negotiations
8. Availability and securing of financing resources

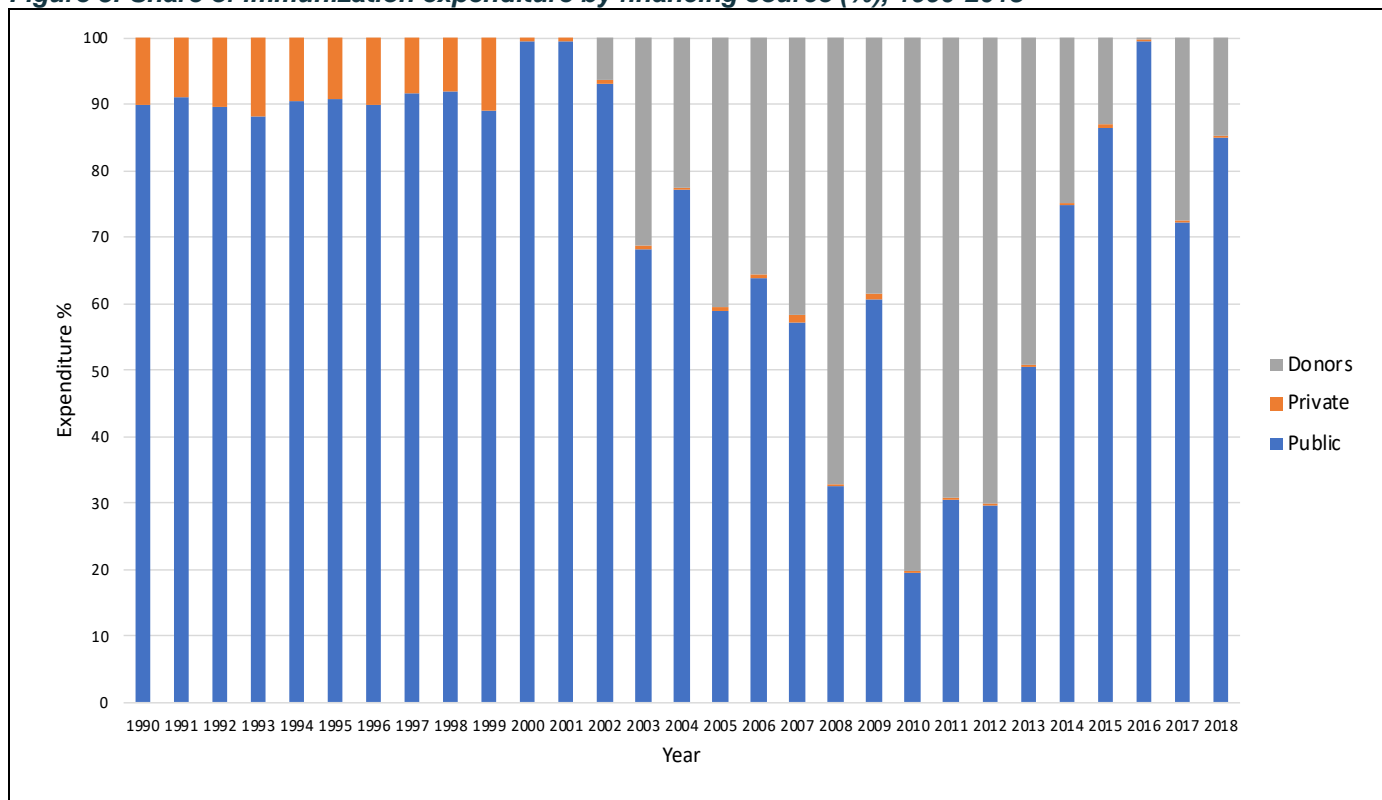
Evidence-based disease prevalence surveillance projects were conducted by the Epidemiology Unit for Polio, JE, HPV, MMR, PCV and Rotavirus. WHO-funded Rota Virus Gastro-enteritis (RVGE) surveillance started in 2009, which was a joint activity of the Epidemiology Unit and the Medical Research Institute (MRI). Based on the surveillance data analysis, it was decided in 2015 that the existing good diarrhea management practices resulting in low mortality rates do not warrant introduction of Rotavirus Vaccine in the near future (Gunasekara 2015).

Vaccine Financing

Sri Lanka received Gavi financing from 2002-2016 and was one of the first Asian countries to transition. Sri Lanka's procurement and regulatory agencies were established in 1990. The purchaser for the MoH is the State Pharmaceutical Cooperation (SPC) and the regulator is the National Medicine Regulatory Authority (NMRA).

A primary concern during transition is a country's ability to fully self-finance the vaccines in the EPI schedule. Sri Lanka's vaccines have been fully self-financed since 1995 (Figure 3). Gavi support was only utilized for the introductions of Hep B (2004-2007), Pentavalent (2008–2014), IPV (2015-2018), and HPV (2017) (UNICEF 2019). Four years post-transition, Sri Lanka still manages to achieve high and equitable immunization coverage, with MMR and Polio vaccine coverage indicators remaining above 96% and 94% respectively in all provinces through 2018 (Epidemiology Unit 2018).

Figure 3: Share of immunization expenditure by financing source (%), 1990-2018



Source: (Institute for Health Policy, 2020)

Elements of Sri Lanka’s Successful Transition

The following elements were critical to Sri Lanka’s successful transition:

1. Well-organized immunization planning, delivery, and surveillance systems

At the national level, the immunization programme is managed by the National Epidemiological Service and Family Health Bureau. At the district and grassroots levels, immunization services are fully integrated into public primary health care (PHC), which has an extensive network of facilities throughout the island. The monitoring and evaluation of grassroots level immunization activities occur through routine surveillance and periodic reviews.

2. Immunization is considered a key strategy in the prevention and control of VPDs

Sri Lankan health planners used immunization as a key strategy for disease control. It is integrated into maternal and child health (MCH) activities and delivery is fully integrated into the overall PHC package of services. Additionally, many stakeholders play a role in immunization. Provision of health education to improve the knowledge of disease transmission is mainly handled through the Health Promotion Bureau. Carrying out surveillance activities to understand the spread of the diseases and monitoring the effectiveness of the immunization programme is managed by the Family Health Bureau and the Epidemiology Unit. The grassroots level workers, such as Public Health Midwives, are involved both in promoting immunization and the provision of the services.

3. Commitment to local medical and public health training

Public Health is a speciality in Sri Lanka. All public health doctors and specialists are now trained in Sri Lanka. The Post Graduate Institute of Medicine (PGIM) provides full specialist training within the country. The medical specialists working at the national level are engaged in full-time management of immunization related work. In addition to the doctors, all other field public health workers are also trained by the MoH at the National Institute of Health Sciences in Kalutara, Sri

Lanka. This sets the foundation for strong public health functions, including immunization, in Sri Lanka.

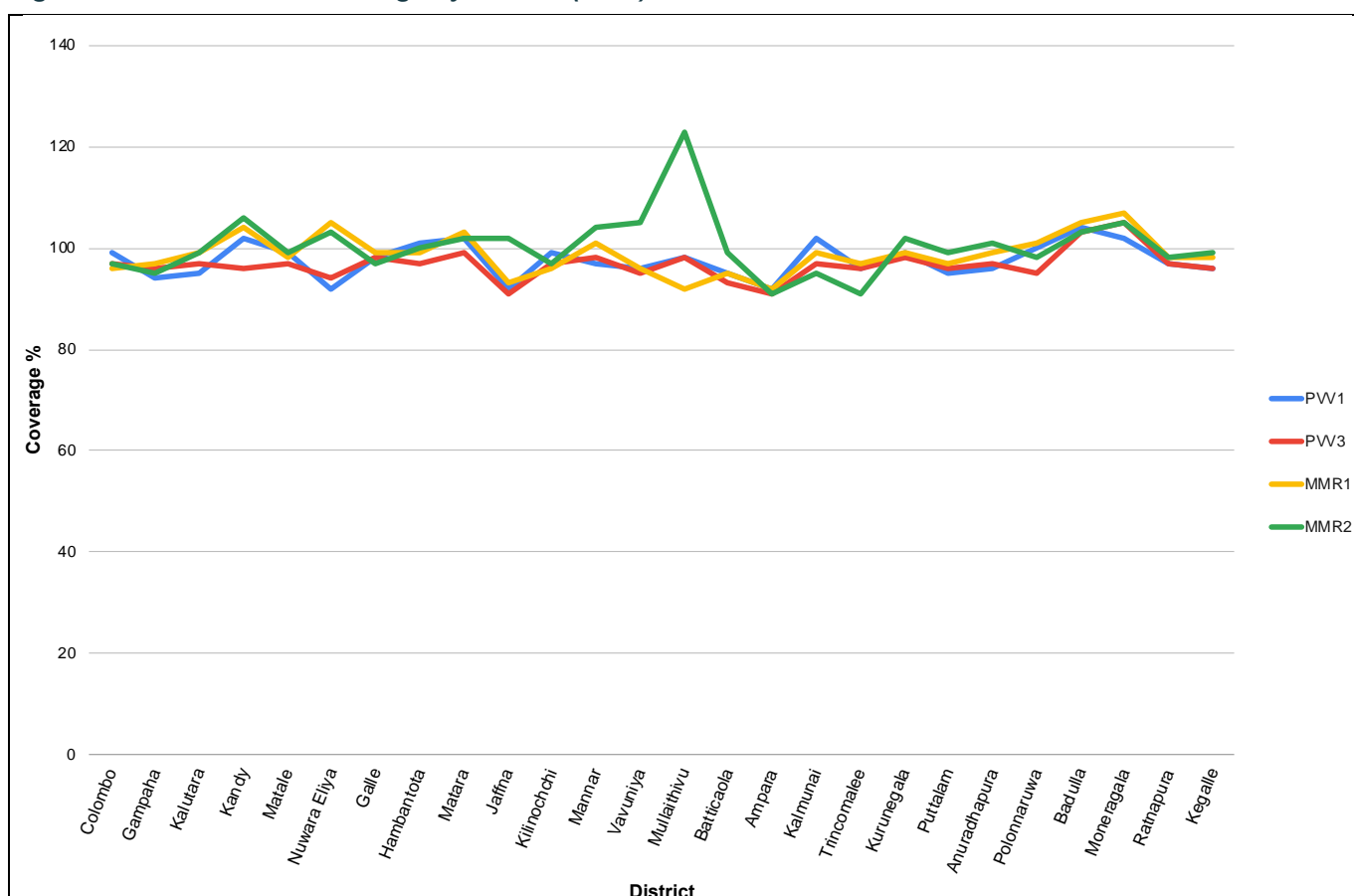
4. Strong political commitment, e.g., strong democratic accountability and social support

Sri Lanka has always experienced a strong political commitment for immunization and MCH related activities. To ensure regular funding for immunization, the MoH has historically had a dedicated budget line for vaccine procurement, which means that the core EPI vaccine costs are funded wholly from domestic resources.

5. Focus on improving quality and equity

The training for health professionals incorporates education on counselling patients and families on vaccine hesitancy. These professionals attended trainings that included role playing and the use of specialized communication techniques to engage individuals from target populations. The accountability system ensures that there is always somebody who is responsible for those who refuse vaccination. Special surveillance is planned and carried out for all EPI diseases (TB, diphtheria, pertussis, measles, polio, neonatal tetanus, Japanese encephalitis, dengue fever, human rabies, hepatitis, and leptospirosis).

Figure 4: Immunization Coverage by District (2016)



Source: (Ministry of Health, 2016)

Note - Some districts reported more than 100% coverage for some vaccines. This is because in Sri Lanka, children can receive their due vaccine at any clinic conducted by National Immunization Programme, other than from a clinic of their respective place of residency. Therefore, the numerator (no. of children vaccinated for a given vaccine) can exceed the denominator (estimated no. of children in the respective district). P.VV= Pentavalent Vaccine, MMR=Measles, Mumps, and Rubella Vaccine.

Sri Lanka’s immunization programme features highly equitable coverage rates. As shown in Figure 4, there is no significant difference observed in terms of coverage in different districts in Sri Lanka. It is important to note that rural districts have achieved higher coverage (100% in Monaragala District) than the urban districts (96%-97% in Colombo District).

The underlying contributor to the programme's equity is the system's infrastructure. The national facility network covers the whole island, and there are specially trained staff categories, such as PHIs and Midwives, available at each level in the health system to support close monitoring, evaluation, and feedback. Periodic surveys are carried out by the PHMs post-vaccination, and they maintain an immunization registry, which includes the next vaccination dates and the children who have missed a dose. This registry is compiled and sent to the MOH to be analyzed after which the data is sent to the Epidemiology Unit for review by the MoH.

6. Improved efficiency through clearly defined roles and responsibilities

Role delineation at the health facility level is strong, which helps ensure each professional fully understands their role and associated responsibilities. Additionally, despite the decision as early as the late 1950s to decentralize this health services to provinces and districts, the government has been consistent in requiring that the procurement of medicines and medical supplies be conducted centrally by a single agency for the entire public sector (Dalpatadu et al. 2016, Guyer 2021). This in turn has fostered high cost-efficiency in purchasing and facilitated the development of strong procurement capacity at the central health ministry. Data is discussed in monthly staff meetings, and due to the data analysis being a part of the PGIM training, most health professionals understand how to use data to improve their health service delivery.

7. Annual reviews to ensure accountability

An annual Epidemiology Unit Vaccine-Preventable Disease (EPI VPD) review is conducted in each district by the central Epidemiology Unit, the Regional Epidemiologists, and a provincial consultant community physician. In the district, data is collected and presented at all levels. Each MOH is asked to explain their health information, for instance, why a child was not given an age-appropriate vaccine.

8. Building trust through community engagement

The community, including local authorities and teachers, are invited to attend monthly meetings conducted at the MOH offices to discuss any questions or raise any issues of concern over health service delivery within the area. Additionally, the grassroots level has a close association with the community which greatly contributes to effective community engagement and trust building.

Challenges and Learnings

After Gavi transition, vaccine coverage has been maintained at a high level, with annual coverage rates sustained at 99% each year. With these high coverage rates, the focus of the programme has shifted to improving the quality of immunization services, strengthening the vaccine cold chain, improving the accessibility of hard-to-reach populations, and strengthening surveillance of both adverse effects following immunizations (AEFI) and VPDs. The main challenge for Sri Lanka going forward will be to continue to maintain the high vaccine coverage rates. Some of the key challenges remaining are outlined below.

Key Challenges for Sri Lanka Going Forward

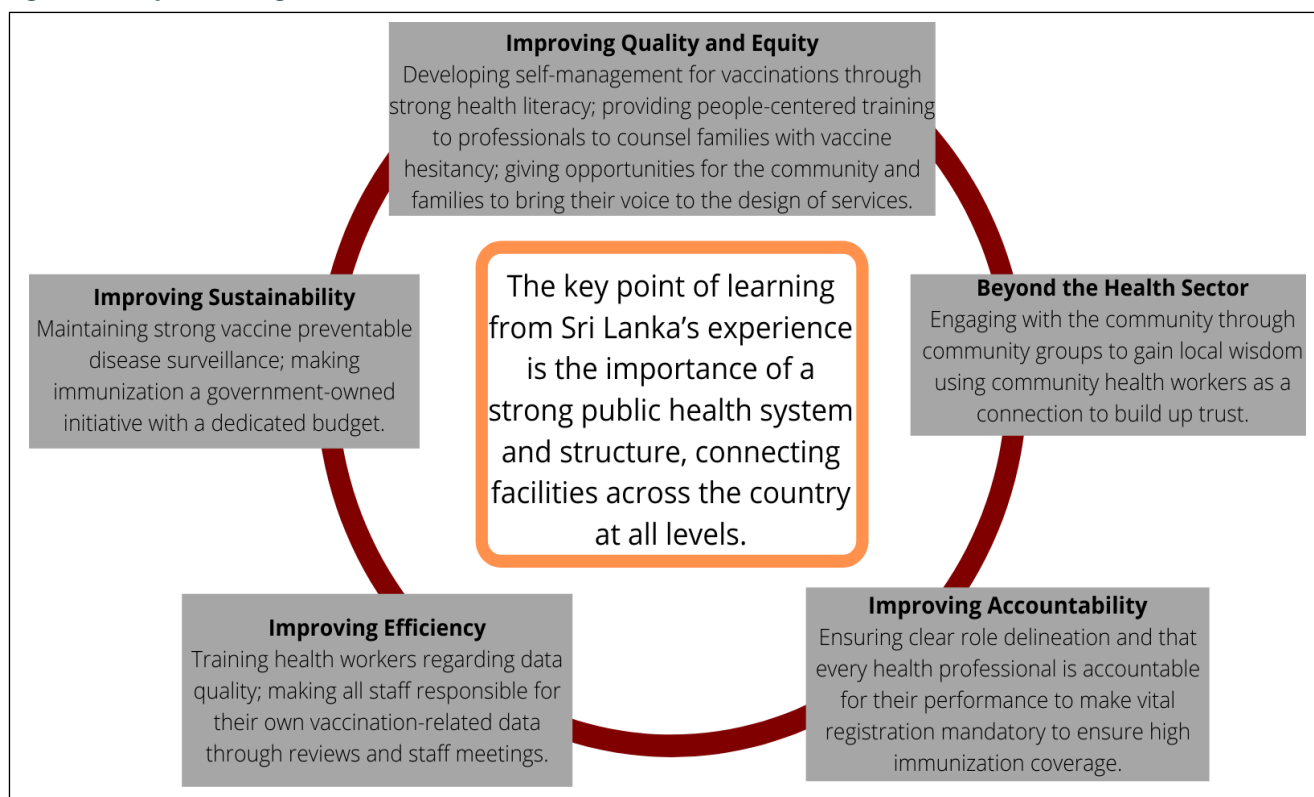
1. Ensuring and securing finances for vaccination,
2. Frequent delays in the immunization process due to government cash flow problems,
3. International market dynamics, specifically the increasing global scarcity of vaccines and the pressure negotiate with vaccine suppliers (UNICEF 2019),
4. Increases in the spread of misinformation on vaccination and potential for vaccine hesitancy,
5. Lack of human resources contributing to greater shortages at all levels of the health system, in particular PHMs (UNICEF 2019),
6. Improving the health information system, specifically transitioning from the paper-based system to Attracting manufacturers to the country's relatively small vaccine market.

The public has been increasingly concerned about the quality and safety of vaccines provided through the NIP. These concerns are likely the result of the often unfounded, negative media coverage of AEFI. The nation's highly literate population (with a literacy rate of >90%) has a tendency to follow, in particular, stories in the media about serious, life-threatening vaccine-related adverse events. These developments can be a threat to the acceptability and credibility of the NIP. To address the short term drops in vaccination coverage and to restore the public's trust in the NIP, immediate actions are taken such as investigate of the event, public awareness campaigns conducted by the MoH staff throughout the country, and dissemination of corrective media messages from the Epidemiology Unit and Health Education Bureau. While this is a challenge, the Wellcome Global Survey in 2018 showed that trust in vaccines in Sri Lanka is 98% (Wellcome 2018).

There are also temporary shortages in human resources in some districts. However, the MoH regularly monitors and responds to such shortages. The most significant challenge is a shortage of PHMs at the divisional level. In a case study by UNICEF, qualitative stakeholder interviews described how the role of a PHM has become "less attractive" over time due to changes in population demographics and urbanization. Stakeholders noted the need to research opportunities to incentivize the younger generation to move into the PHM role (UNICEF 2019).

Sri Lanka is currently going through a long process of transitioning its Hospital Information System (HIS) online. This will require government commitment and leadership, intense training, and solutions to hardware issues that arise.

Figure 5: Key Learning Points for Other Countries



Source: (UNICEF, 2019)

Figure 5 summarizes the key learning points from Sri Lanka's successful transition. The strong public health system and the structure with its wide network and the grassroots level workers contributed to this success. Additionally, engagement with the community, a high literacy rate, health-seeking behavior, strong VPD surveillance, and well-trained and dedicated staff who are accountable for their performance to achieve high vaccine coverage, also played a major role.

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