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## **STRENGTHENING SUPPLY CHAIN – LESSONS LEARNED FROM THE EFFORTS TO IMPROVE IMMUNISATION SUPPLY CHAIN**

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### **At a glance**

- The national health supply chains in Pacific Island Countries and Territories (PICTs) face significant challenges, which can limit the availability of medical supplies and other commodities, trigger service disruptions, and sometimes lead to expensive operational costs.
- Efforts to strengthen immunisation supply chain such as through pooled procurement of vaccines, Effective Vaccine Management assessment (EVMA) and subsequent improvement plan implementation offer some insights to address the national health supply chain challenges.
- In 2023/4, to take stock of the investments made to strengthen immunisation supply chain, EVMA was conducted in 11 PICTs. EVMA is a tool and process that assesses each component of the immunization supply chain, such as the people and management, infrastructure and equipment, or policies and procedures, looking for strengths and weaknesses. This allows countries to develop plans and allocate resources to implement improvements where they are needed most.
- Despite the progress made in strengthening immunization supply chain, the EVMA findings still indicate low ratings in evidence-informed management practices such as equipment maintenance, stock management, planning and monitoring, and standardization of the procedures. These are some common challenges faced by supply chain of other health commodities as well.
- Given the importance of rethinking health supply chains for uninterrupted delivery of quality health services as part of strengthening health system resilience, PICTs are encouraged to: i) improve stock management and forecasting via investing in fit-for-purpose national information systems; ii) invest in supply chain workforce development; iii) learn from and leverage existing supply chain improvement efforts, including full implementation of EVM continuous improvement plan while exploring integration opportunities to benefit overall national health supply chain beyond vaccines; iii) invest in a comprehensive equipment maintenance strategy / system (including cold chain); and iv) consider strengthening regional supply chains for selected standard commodities.
- Well-coordinated supply chain support from partners is critical to minimize duplication and achieve collective impact.

## Current situation

1. The national health supply chains in Pacific Island Countries and Territories (PICTs) face significant challenges, ranging from limited visibility of supply chain data particularly at service delivery points, lack of analytical insight of supply demand for accurate forecasting, limited fiscal space and fragmented procurement processes, to limited warehousing, storage, and distribution capacity. There is also a lack of skilled staff to man the national supply chain workforce. The challenges are often compounded by the absence of local manufacturing capacity and reliance on offshore manufacturers, vendors, and suppliers, geographical remoteness, small market size, impacts of climate change and natural disasters, and regulatory and customs challenges. The combination of these factors leads to increased transportation costs, reduced attractiveness to major suppliers, difficulties in maintaining supply chain integrity, and vulnerability to global market fluctuations and environmental crises. Consequently, these challenges hinder the efficient procurement, distribution, and availability of health products, emphasizing the need for innovative solutions such as pooled procurement strategies and enhanced regional cooperation to improve health supply chains. Addressing these multifaceted issues requires a concerted effort from local governments, international organizations, and the private sector to ensure that PICTs can access the essential health supplies necessary for meeting their populations' healthcare needs. Obstacles in the supply chain can limit the availability of medical supplies and other commodities, as well as trigger service disruptions that compromise product quality and undermine the safety of patients. Such barriers sometimes lead to prohibitively expensive operational costs resulting in unequal distribution and coverage.

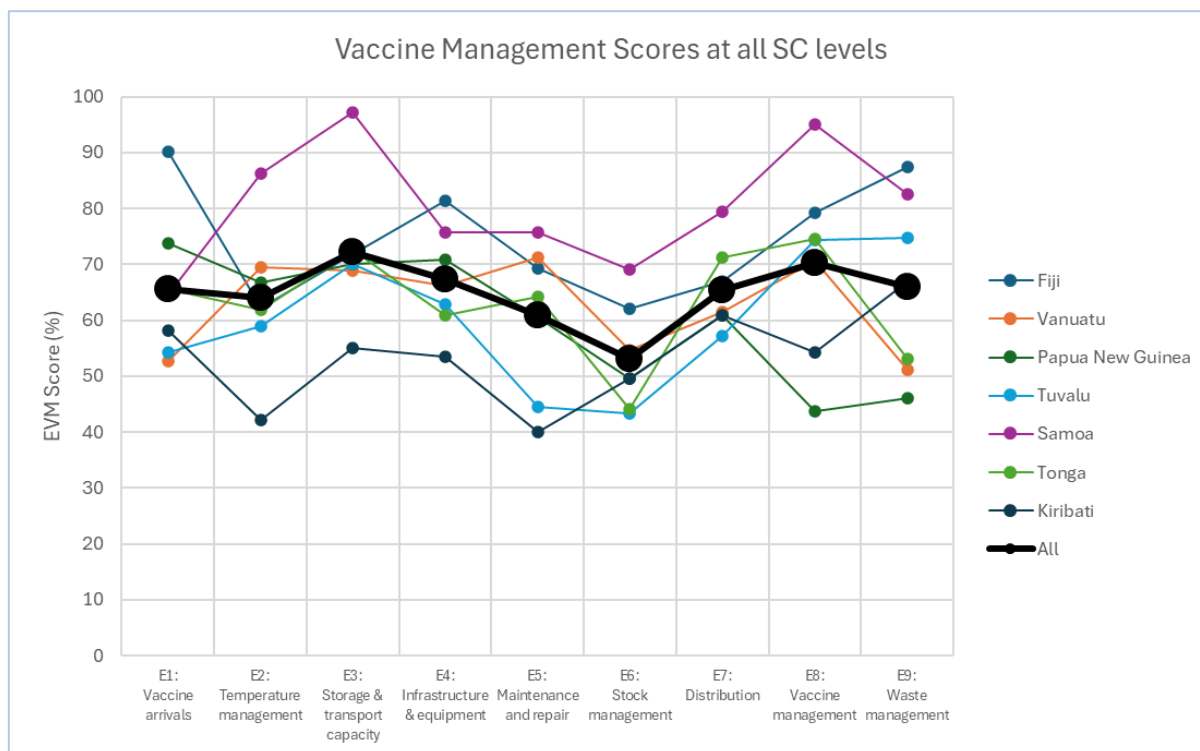
2. In addressing a part of these challenges, the Vaccine Independence Initiative (VII) has been providing pooled procurement and bridge-financing support to PICTs since 1995. The VII provides countries that can afford to finance their own needs but may require certain support services with an efficient procurement platform to ensure sustainable and systematic supply security. Currently, 13 PICTs (Cook Islands, Fiji, Kiribati, Republic of Marshall Islands (RMI), Federated States of Micronesia (FSM), Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu) are utilizing the VII procurement and financing mechanism. Developmental, demographical, and geographical realities raise very particular dynamics and challenges for vaccine procurement operations for small island states. Accurate forecasting, timely availability of funds, adequate information on products and appropriate procurement mechanisms are key pillars to ensure vaccine security in the current global market structure. Moreover, economies of scale play an important role in vaccine procurement. The VII has proven to be an optimal solution for PICs over the years.

3. In the recent past, substantial investments were made in immunisation supply chain management beyond VII, including cold chain strengthening across PICs, capacity development in vaccine forecasting and stock management, and logistics. To take stock of the current status of vaccination management following these investments and further improve the supply chain performance, Effective Vaccine Management Assessment (EVMA) was conducted in 11 PICTs in 2023/4.

TABLE 1 EVM CRITERIA & CATEGORIES

<p><b>Facility Operations Criteria</b>                  E1. Vaccine Arrivals                  E2. Temperature Management                  E3. Storage &amp; Transportation Capacity                  E4. Facility Infrastructure &amp; Equipment                  E5. Maintenance &amp; Repair                  E6. Stock Management                  E7. Distribution of Vaccines &amp; Dry Goods                  E8. Vaccine Management                  E9. Waste Management</p> <p><b>Facility Management Criteria</b>                  M1. Annual Needs Forecasting                  M2. Annual Work Planning                  M3. Supportive Supervision                  M4. ISC Performance Monitoring</p>	<p><b>Programme Management</b>                  ST. Strategic Planning                  R1. Infrastructure Management                  R2. Equipment Management                  R3. IT Systems Management                  R4. HR Management                  R5. Knowledge Management                  R6. Financial Resources Management</p> <p><b>Input Categories</b>                  C1. Infrastructure                  C2. Equipment                  C3. Information Technology                  C4. Human Resources                  C5. Policies &amp; Procedures                  C6. Financial Resources</p> <p><b>Output Categories</b>                  Records, charts, reports</p> <p><b>System Indicators</b>                  Availability, quality, efficiency</p>
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4. EVMA results from Fiji, Vanuatu, Papua New Guinea, Tuvalu, Samoa, Tonga, Tuvalu, and Kiribati showed large variation among countries in all criteria at various stages of the supply chain (primary stores, sub-national, lowest distribution, and service points). However, on average, the EVM standard of 80% is not met for any criteria except for financial resources (86%). The strongest criteria under facility operations were storage and transport capacity (72%) and vaccine management (70%), while the weakest criteria were maintenance and repair (61%) and stock management (53%). On average, facility management criteria scored low overall, while annual work planning (37%) and performance monitoring (38%) were particularly weak. For input categories, financial resources (86%) and equipment (76%) were strongest, and by far the weakest was policies and procedures (31%). In terms of system indicators, the EVM standard of 80% was met for Quality (90%) (the vaccines in the supply chain were of good quality [not expired, VVM good, labels intact, etc.]). Efficiency was scored 74% (unopened vial wastage rates were greater than 1% in more than 20% of facilities). Availability (46%) was the weakest aspect of supply chain performance (many facilities did not receive sufficient vaccines to meet expected demand).

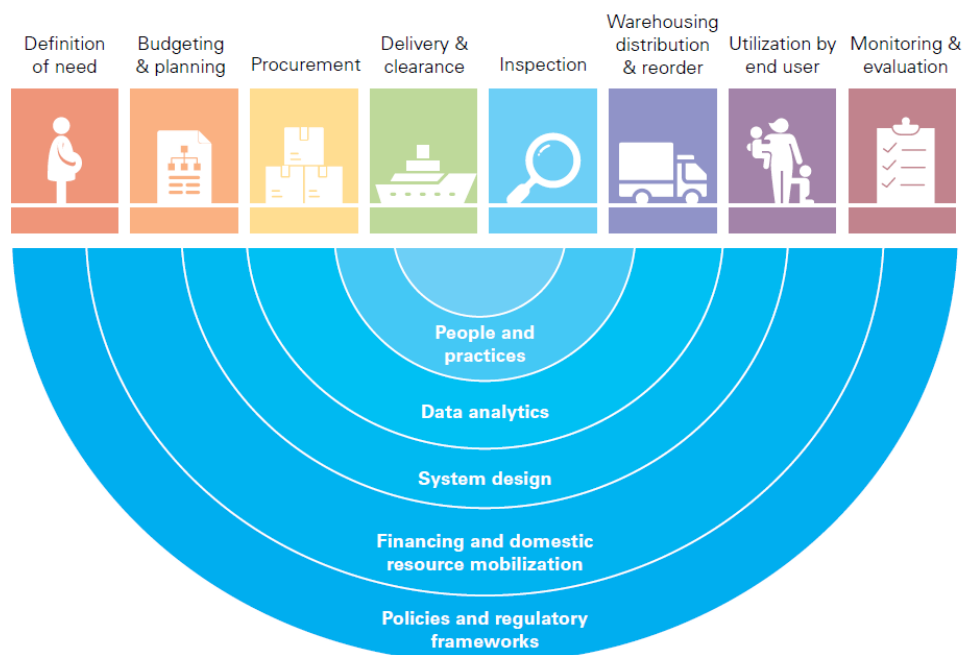


## Future vision

5. Developing resilient and well-functioning health systems requires strengthening each component of the supply chain, starting from a definition of need and ending with monitoring and evaluation. People and policy, data analytics, system design, financing, and regulations are the core supportive capability functions that are required to effectively manage end-to-end supply chains. More specifically, it is envisaged that each PICTs will address the following priorities<sup>1</sup>:

- Data visibility and use: Make real-time data available at all levels of the supply chain and encourage decision-makers to use data to improve supply chain performance.
- Strategic planning: a country-led strategy informed by people's needs that is adequately financed.
- System optimization: to design and optimize supply chains that reach everyone and minimize cost and waste.
- Workforce development: to provide comprehensive training to staff at all levels of the supply chain to ensure a skilled and motivated workforce.
- Infrastructure and equipment with robust maintenance systems: to ensure vaccines, medicines and other medical supplies are stored and transported in well-functioning equipment to ensure quality.
- Integration and harmonization: to integrate and harmonize parallel health supply chains, programme functions, and overall health systems to maximize resources.

<sup>1</sup> GAVI 5.0 Immunization Supply chain strategy (2021-2025)



### Examples of recent progress

6. Out of 3 countries which EVMA was done more than once, Fiji and Vanuatu showed a significant improvement when comparing with the previous EVM scores. The national EVM mean score for Fiji (2023) stands at 77%, which indicates a noticeable improvement in comparison with the 2012 EVM score, which stood at 66%. Similarly, Vanuatu improved overall EVM score from 51% in 2015 to 64% in 2023 with general uplift of many of the criteria particularly at national and sub-national levels (vs., health facility level). These positive results were attributable to the countries' implementation of the continuous improvement plan (CIP) developed after the previous EVMA.

7. Several PICTs have committed to enhancing their supply chains through the implementation of electronic logistics management information systems (eLMIS), which aligns with the findings of the EVM assessments and recommendations. For instance, Fiji embarked on improving cold chain temperature monitoring visibility by rolling out remote temperature monitoring devices. It further plans to introduce the asset management module into the mSupply to track the inventory of cold chain equipment.

8. Development of standard operating procedures for vaccine and cold chain management is also underway in many PICTs.

## Why urgent action is needed now

9. Strong supply chains adaptable to the changing needs of health programmes are critical to bridging the gap in access to vaccines, diagnostics, and essential medicines. Many commodity-related obstacles are linked to financial and social barriers and rooted in broader health system challenges – such as poor governance, inadequate human resources, ineffective local supply chains and insufficient information systems. These obstacles hamper people from timely access to quality essential health services.

10. Despite the significant strides made to improve immunisation supply chain including through the recent investments in ‘hardware’ such as procurement and installation of cold chain equipment, the EVMA findings across the Pacific still indicate low ratings in evidence-informed management practices or ‘soft’ component in general, such as equipment maintenance, stock management, planning and monitoring, and standardisation of the procedures. These are some common challenges faced by supply chain of other health commodities as well.

11. During the COVID-19 pandemic, PICTs faced major supply chain challenges, necessitating immediate external assistance for essential health supplies to manage the crisis. The COVID-19 pandemic also had the impact of accelerating the digital transformation of supply chains. It is imperative that PICTs build on these experiences to rethink/design health supply chains for uninterrupted delivery of quality health services. This forms an integral part of strengthening health system resilience to future unexpected events.

## Recommendations to be considered by the Heads of Health

### Recommendations for governments

- **Improve stock management and forecasting via investing in fit-for-purpose national information systems.** To reduce stock outs, it is necessary to strengthen countries’ stock visibility to enable them to identify bottlenecks, red flags and the action needed to resolve such issues. Stock management must be linked to forecasting, procurement, delivery and utilization.
- **Invest in supply chain workforce development.** For any supply chain, capable and dedicated people are required to achieve the intended results. Countries need to support development of skills and attitudes needed for effective and efficient supply chains, especially at primary health care level. To address this, countries can collaborate with partners to facilitate the development of a workforce that is fit-for-purpose in key areas such as procurement and supply chain management, with skills to forecast needs, develop procurement processes, manage warehousing, distribution, stock management, etc.
- **Learn from and leverage existing supply chain improvement efforts.** Ensure to fully implement the EVM-continuous improvement plan (CIP) once developed after EVMA. Conduct analysis and identify opportunities for integration to benefit other commodities’ supply chains or overall national health supply chain. Consider a supply chain assessment similar to EVMA for other commodities (or overall health supply chain) to establish supply chain performance benchmark, identify strengths and weaknesses, and develop an improvement plan.
- **Invest in development of a comprehensive (cold chain) equipment maintenance strategy / system as a matter of priority.** The strategy must consider the unique circumstance of each country, while ensuring sustainable financing, a proficient workforce with continuous capacity building, standardization (from procurement to safe decommissioning and disposal), institutionalization of preventive and corrective maintenance, enhanced monitoring and accountability framework (with reporting tools and information management), and regular assessment of the maintenance programme’s effectiveness.

- **Consider strengthening regional supply chains for selected standard commodities.** One way of doing so may be through establishing pooled procurement mechanisms to increase the access to essential health supplies. By combining their purchasing power, PICTs can benefit from economies of scale, securing lower per-unit costs and enhanced bargaining power that individual countries may not achieve alone. This approach not only facilitates access to quality-controlled supplies, reduces transaction costs but also stabilizes supply chains and ensures reliable delivery of health products.

#### Recommendations for development partners

- Continue providing financial support and technical assistance for PICTs to fully implement the continuous improvement plans based on EVMA or other health supply chain assessment findings.
  - Support countries to develop guidance and evidence for integration - for example, digitizing and integrating information systems (electronic logistics management information systems, barcoding, Track & Trace, etc.); and continuously review and optimize existing systems.
  - Coordinate supply chain support among partners to minimize duplication and achieve collective impact.
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