

Leadership and Governance Effect in Implementing the IMPACT Approach: A Retrospective Observational Study in Simiyu Region

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Abstract: The Government of Tanzania in collaboration with USAID Global Health Supply Chain-Technical Assistance-Tanzania (USAID GHSC-TA -TZ), JSI-InSupply Health and United Nations Population Fund (UNFPA) rolled out the IMPACT approach in Simiyu Region in 2019. For the purpose of improve data management and visibility of vertical health commodities supply chain system. The objective of this study was to highlight leadership engagement in implementation of IMPACT Approach to improve reporting rates for vertical health commodities. Since introduction of this approach indicators monitored were not improving; the region facilitated the response performance monitoring processes, through IMPACT approach integrating with performance Scorecard as a visual performance tool for some of the indicators, including the process indicators, and used feedback meetings attended by senior leaders in the region to discuss indicator results and identify areas for improvement for councils. The results of this study revealed that, engagement of leaders in decision making influenced positively the IMPACT meetings conducted by teams whereby supply chain challenges including reporting rates discussed. At a Councils level the meetings conducted as per calendar increased from 6.1% April-June 2021 to 84.9% October- December 2022. Moreover, reporting rate of four (4) vertical health commodities which include (Malaria, HIV/AIDS, TB/L and RMNCAH) demonstrated positive increase from 60.5% January 2021 to 84.7 December 2022, and availability of all four vertical health commodities increased from 85% January 2022 to 93% December 2022. The availability of these commodities resulted into improved service delivery at health facility level. The study was a retrospective observation of the implementation of the IMPACT team approach in Simiyu region. It assessed the availability of vertical health commodities as a function of the number of items reported, data used for computation of reporting rate, availability of health commodities and improved service delivery were retrieved from eLMIS and DHIS2. Action and performance improvement plans were developed and tracked using scorecards to ensure that each planned activity is implemented accordingly and the desired supply chain outcomes are achieved. This was followed by convening leadership engagement forums where underperforming councils had to explain and articulate the reasons for their unsatisfactory performance and eventually commit to improving the required indicators. The study concluded that, good governance and leadership engagement played a major role in implementation of IMPACT Approach and achieve the raised outcomes of availability of vertical health commodities, reporting rates for vertical health commodities and improved service delivery.

Keywords: Vertical Health Commodities, IMPACT Approach, Vertical Health Commodities Reporting Rate

1. Introduction

The Government of Tanzania has developed various management information systems to address challenge and improve data management and visibility. Amongst others are electronic Logistics Management Information System (e-LMIS) and District Health Information System (DHIS2) specifically to manage health commodity logistics and service data for informed decision making respectively [1].

Public health supply chains require reliable and responsive information systems at all points between decision-makers and the points where health services are delivered. Thanks to the electronic Logistics Management Information System (eLMIS) in Tanzania, the connectivity of the public health supply chain systems has improved in life-changing ways by enhancing inventory management and access to integrated inventory information for decision-makers.

While the focus has been on end-to-end data visibility with improved analytics, there has been less emphasis on finding the right people and building the necessary capacity and operational processes to enable health workers to use data to improve supply chain performance [2], while also maximizing on leadership engagements to improve governance and accountability in the supply chain. Leadership and governance are the critical pillars of health systems that also influence and sustain the structures which hold leaders and managers accountable for continuous improvement in the supply chain. The Tanzanian public health supply chain stakeholders has adopted a comprehensive Information Mobilized for Performance Analysis and Continuous Transformation (IMPACT) approach that links technology/data, people and processes as a strategic transformative steps and driver for public health supply chains performance [3]. Effective leadership is among the most critical components that lead an organization to effective and successful outcomes. [4]

The IMPACT approach is a people-centered and data-driven initiative that uses quality improvement mechanisms to identify challenges using data and develop evidence-based interventions and mitigations to improve supply chain performance and contribute to availability of essential health commodities [5, 6]. This approach guides health supply chain personnel to use data for planning, quantification and procurement. The IMPACT approach is characterized by several features, such as a common goal, performance monitoring, information management systems, problem solving, action planning, recognition, leadership and IMPACT team meetings. The teams commonly monitor 3 categories of indicators namely Supply chain, process and financial indicators.

Ministry of Health (MoH), President's Office Regional Administration and Local Government Authority (PORALG) in collaboration with USAID Global Health Supply Chain-

Technical Assistance-Tanzania (USAID GHSC-TA -TZ), in Supply Health and United Nations Population Fund (UNFPA) roll out the IMPACT approach in Simiyu Region in 2019. A total of 84 IMPACT team members were trained, of these 12 members were from Regional Health Management Team (RHMT) and 72 from Council Health Management Teams (CHMTs) in 6 Councils. The team members include Regional and District Medical Officer, Pharmacists, Laboratory Coordinators, Nutrition Officers, Quality Improvement Officers, Tuberculosis and Leprosy Coordinators, AIDS Control Coordinators, Reproductive and Child Health Coordinators, Immunization and Vaccines Officers, Health Management Information Systems Officers, Health Secretary and Malaria Focal persons.

Since the introduction of the IMPACT approach, the regional team has been monitoring supply chain indicators among other indicator categories through regular IMPACT team meetings. These includes health commodity availability and reporting rates. To facilitate performance monitoring processes, the Simiyu Region IMPACT team introduced the IMPACT Performance Scorecard as a visual performance tool for some of the indicators, including the process indicators, and used regional feedback meetings attended by senior leaders in the region to discuss indicator results and identify areas for improvement for councils or health facilities that were underperforming.

The objective of this study was therefore to determine the influence and effectiveness of the leadership engagement strategies adopted during the IMPACT approach implementation on the reporting rates and ultimately the availability of vertical health commodities in Simiyu public health facilities.

2. Methodology

The study was a retrospective observation of the implementation of the IMPACT team approach in Simiyu region. The regional IMPACT team in Simiyu used a scorecard as one of the systems strengthening approaches to build the capacity of lower levels IMPACT teams with tailored support packages. These efforts helped to achieve some notable immediate and lasting supply chain improvements. In this case, the capacity-building and support packages used by the regional IMPACT team included tracking meeting agendas, using root cause analysis templates, using action and recognition planning tools, and training supply chain staff in data extraction, processing, analysis and visualization to gain new insights into supply chain performance.

The specific methods and data driven strategies that the Simiyu Region IMPACT team used to increase the number of reported vertical health commodities with a purpose of improving visibility, availability and related health service delivery indicators are described below;

- 1) Conduct quarterly performance assessments of the number of vertical health commodities reported during bimonthly ordering periods.
- 2) Conduct an assessment of the availability of vertical health commodities as a function of the number of items reported, as there was a correlation between the two parameters. This is because improving the availability of health commodities affects the service delivery indicators related to the availability of vertical health commodities.
- 3) The data used to compute the number of items reported and the availability of vertical health commodities, as well as the data used to compute the service delivery indicators, were obtained from eLMIS and DHIS2 respectively.
- 4) After obtaining the indicator results from the supply chain and service delivery data, the Simiyu Region IMPACT team conducted a root cause analysis to identify the actual causes so as to come up with feasible solutions to the challenges.
- 5) Action and performance improvement plans were developed and tracked using scorecards to ensure that each planned activity is implemented accordingly and the desired supply chain outcomes are achieved.
- 6) Finally, leadership engagement forums were organized in Simiyu region to provide a platform for underperforming councils to explain and articulate the reasons for their unsatisfactory performance and eventually commit to improving the required indicators.

3. Results

This section describes the overall results of the data-driven strategies to increase reporting rates for vertical health commodities in the Simiyu region. The results are presented in four main categories: The proportion of IMPACT team meetings conducted in the region that has been influenced by leadership, the trend in reporting rates for vertical programmes health commodities, the trend in percentage availability of vertical health commodities, and the performance trend for service delivery indicators which are related to vertical health commodities in the Simiyu region. The below figures show the data and performance of each category during specified period.

3.1. The Effect/Outcome of Leadership Engagement Feedback Review Meetings from January 2021 to December 2022 in Simiyu Region

The figure 1 below, shows the number of (7) seven Leadership meetings conducted for the period between April 2021 to December 2022. As a results, the percentage of the IMPACT team meetings by Councils had generally increasing from 6.1% in April-June 2021 to 84.9% in October-December 2022. It can be argued that, the notable continuous improvement in IMPACT teams meeting compliment the function of the drive which originated from higher leadership and catalyzes discussion and action within councils on supply chain challenges based on data and computed indicators on vertical programme commodities.

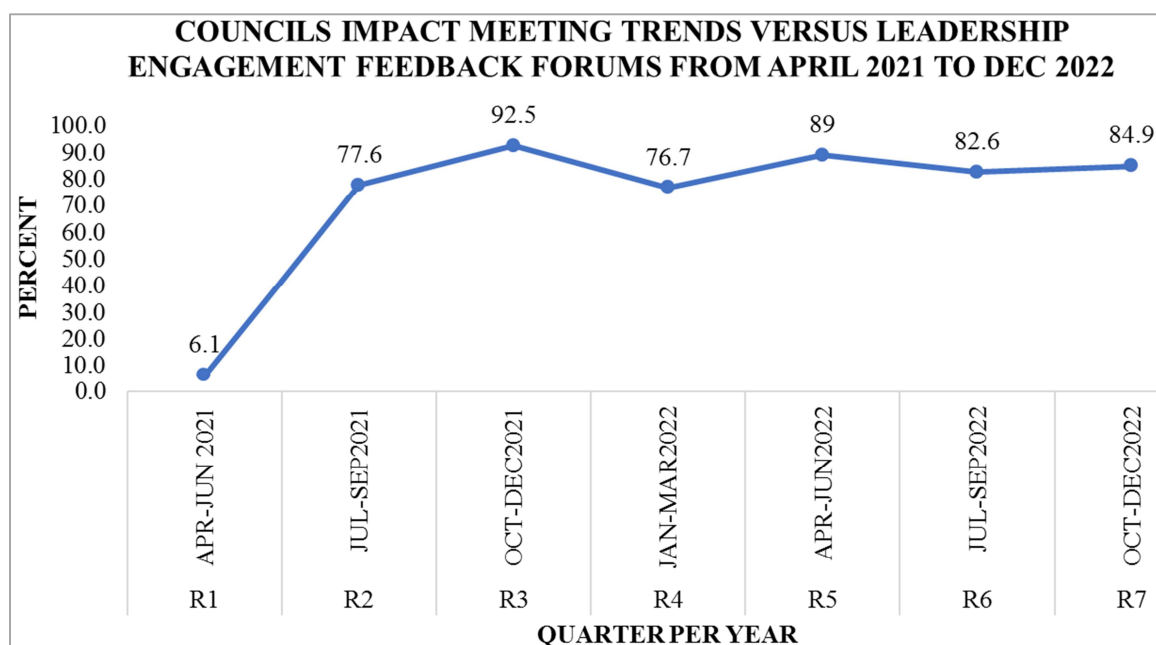


Figure 1. Councils IMPACT Meeting trends versus leadership engagement feedback forums from April 2021 to Dec 2022.

3.2. The Trend of Reporting Rates of Vertical Health Commodities Reported in Simiyu Region

The figure 2 below shows improvement in the overall commodities reporting rate for the (4) vertical programmes

health commodities e.g., HIV/AIDS, Malaria, RMNCAH, and TB&L between January 2021 and December 2022 as reported in Redesigned Integrated logistic system and TB&L in eLMIS data base.

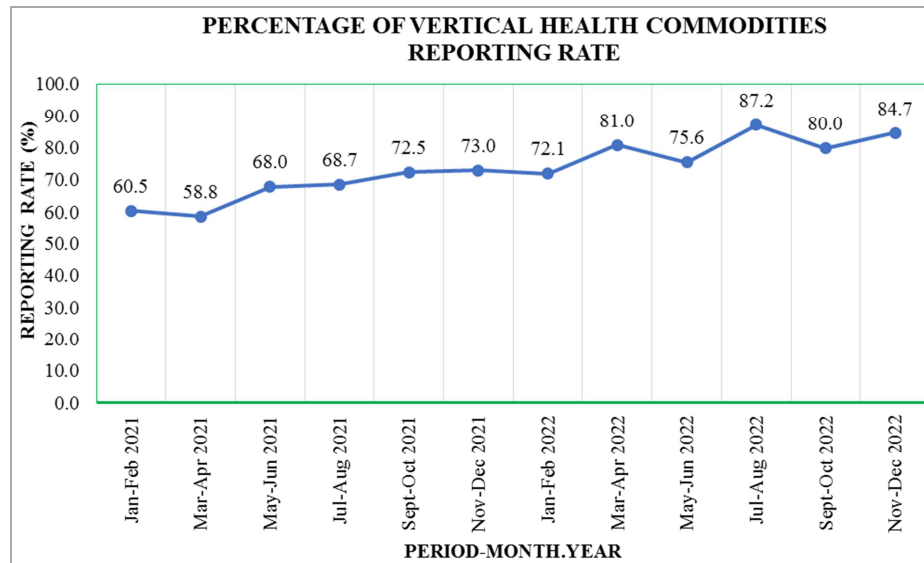


Figure 2. Percentage of vertical Health Commodities reporting rate.

3.2.1. Reporting Rates for Each Vertical Program Health Commodities Between January 2021 and December 2022

As it is illustrated in figure 2 above, there was an overall increase in the reporting rates of all vertical commodities which were reported into the e-LMIS when comparing January-February 2021 and November-December 2022 bimonthly periods. However, when the data subjected to the deeper analysis the graphs shows that some programme are doing better than others in terms of items visibilities.

The Figure 3 below shows the reporting rate trend per specific program such that; HIV/AIDS health commodities

reporting rate increased from 45% January – March 2021 to 66% by November – December 2022. The graph below further shows that, RAMNCAH health commodities reporting rate improved from 53% January – February 2021 to 81% capture during November - December 2022 Period. The graph furthermore shows that Malaria Health Commodities reporting rate performance increased from 63% January -February 2021 to 92% November -December 2022. Moreover, the graph shows that TB&L programme commodities reporting rate dramatically increased from 81% Jan – Feb 2021 to 100% in Nov – Dec 2022.

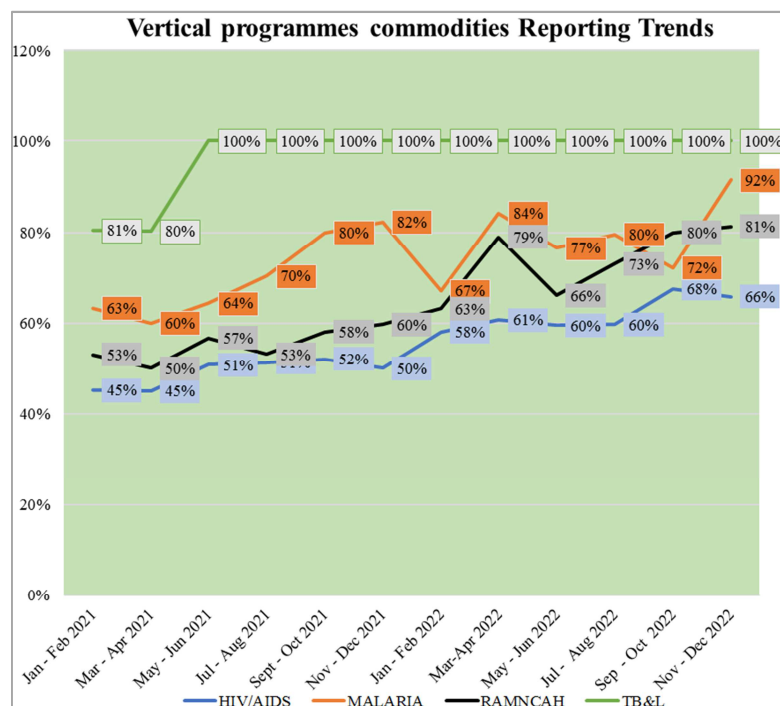


Figure 3. Vertical programmes commodities reporting trends.

3.2.2. Vertical Programme Health Commodities Availabilities from Jan 2021 to Dec 2022

The below *figure4*, shows the improvement in availabilities of vertical health commodities in Simiyu region from 85% Jan – Feb 2021 to 93% Nov – Dec 2022.

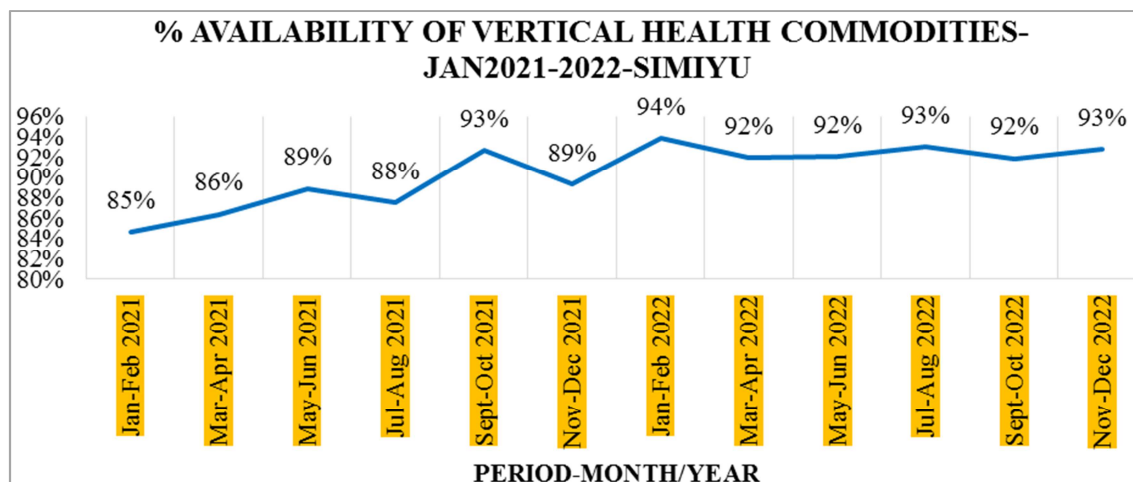


Figure 4. % availability of vertical Health Commodities Jan 2021-2022 Simiyu.

3.3. Availability of Specific Vertical Program Commodities from Jan 2021 to Dec 2022

As it is illustrated in *figure 4* above, there was an overall increase in availabilities of all vertical commodities which

were reported into the e-LMIS when comparing January-February 2021 and November-December 2022 bimonthly periods. The *table 1* below show percentages availabilities of each vertical commodities category.

Table 1. Vertical programme health commodities availabilities by categories between Jan 2021 and December 2022.

Period	HIV/AIDS	MALARIA	RAMNCAH	TB&LEPROSY
Jan - Feb 2021	90%	85%	84%	79%
Mar - Apr 2021	84%	82%	82%	97%
May - Jun 2021	89%	86%	87%	93%
Jul - Aug 2021	88%	92%	87%	82%
Sept - Oct 2021	92%	94%	94%	91%
Nov - Dec 2021	88%	93%	94%	82%
Jan - Feb 2022	91%	93%	94%	97%
Mar-Apr 2022	87%	94%	93%	93%
May - Jun 2022	90%	91%	95%	92%
Jul - Aug 2022	92%	96%	94%	91%
Sep - Oct 2022	92%	96%	92%	89%
Nov - Dec 2022	92%	96%	94%	89%

3.4. Service Health Delivery Indicator Performance Trends in Relation to the Availability of Vertical Health Commodities

It can be argued that, the supply chain logistic data can be triangulated with service data. Furthermore, the successful programme implementation and reaching targets contributed by health commodities availabilities.

3.4.1. Service Delivery Indicator Performance Trend for Malaria Program from January 2021 to December 2022

All the four lines presented in *figure 5* below each representing a specific indicator, signify the improvement in Malaria program service deliveries from first to the last quarter under this study.

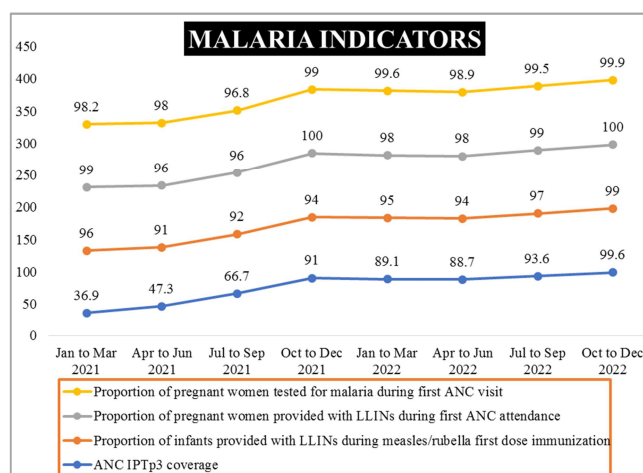


Figure 5. Malaria Indicators.

3.4.2. Service Level Indicator Performance Trend for

RMNCAH Program from January 2021 to December

All the three RMNCAH service level indicators presented in figure 6 below show a notable improvement from the quarter of January-March 2021 to October-December 2022.

Among the three indicators, the proportion of pregnant women who received FEFO had been increasing progressively from the beginning to the end of the review period.

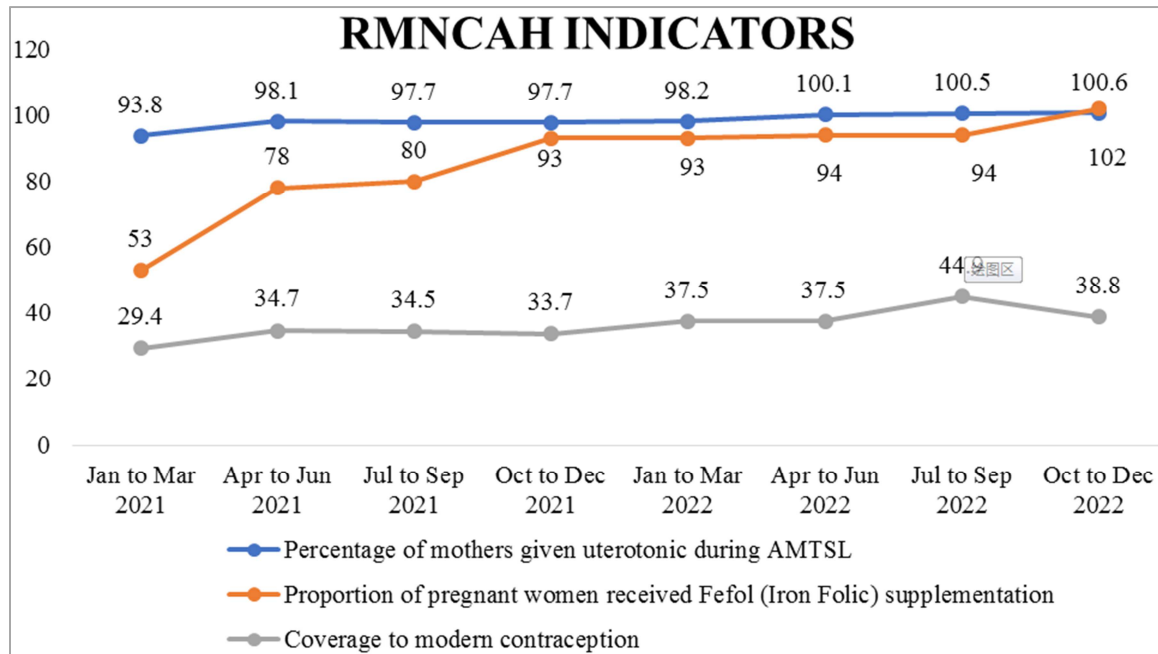


Figure 6. RMNCAH Indicators.

4. Discussion

4.1. The Effect/Outcome of Leadership Engagement Feedback Review Meetings from January 2021 to December 2022 in Simiyu Region

The Influence of senior regional leadership have remarkable contributed to the performance improvement in selected supply chain indicators. There is a clear evidence that, the value of involving senior leaders in the implementation of the IMPACT approach for the purposes of accountability and governance in the region have shown positive results. Simiyu Region uses quarterly feedback sessions led by the Regional Commissioner and attended by various other prominent leaders in the region such as District Commissioners, District Executive Directors, the Regional Health Management Team led by the Regional Medical Officer and all the Council Health Management Teams led by the District Medical Officers to discuss the successes and challenges in various health related indicators including the IMPACT teams.

Through mechanism of regional quarterly feedback meetings where performance is shared through the score card, the common understanding on performance of each council team is equally share and attained. Therefore, any council with poor performance is exposed to the team of leadership and forced to make improvement through commitments to the Regional Commissioner and, all participants. This forum

provides a room for message to be delivered to all members responsible for providing technical assistance, commit resources and make any necessary changes to act and ensure continuous improvement on any indicator on which they have performed poorly. The figure 1 above demonstrate continuous teams' improvement on IMPACT team meetings as they receiving feedbacks from Regional leadership. During the IMPACT meetings at various level in Simiyu region the health workers review their performance by extract most current data, identify challenges arising from the data, conduct root cause analysis and finally develop remedial actions to improve through action planning. As a results of those meetings, there are improvement in visibility of reported number of vertical health commodities see figure 2 & 3 above.

The practice of leadership engagement and the results achieved by the Simiyu region are in line with the findings of Snowdon et al. that integrated leadership in supply chain management was very important in making all the necessary policy decisions, operationalizing them and contribute to the successful response to the COVID 19 pandemic in Canada [7]. Another study conducted by Simeo et al. in Geita, Tanzania, confirms the role of leadership engagement, which contributed remarkably to reducing TLE wastage during the TLE-TLD transition compared to all other regions in the country [6]. Moreover, other study conducted by Limaro et al, confirms countries that had strong public health leadership were better able to design and implement rapid and effective responses that reduced the spread of infection,

minimized the impact on lives and the economy, and engaged with the public [8].

Osei Afriyie *et al.*, in their assessment on the factors that are critical to implementing health financing reforms in Tanzania emphasized that governance factors such as transparency, accountability, stakeholder engagements and collaboration are key to implementing financing and health care reforms at large in Tanzania [9]. The insights from this study are consistent with the leadership engagement practices in Simiyu region.

4.2. The Trend of Reporting Rates for Vertical Health Commodities Reported in Simiyu Region

The overall increase in reporting rates for all vertical program commodities assessed in this study is indicative of the great contribution made by the involvement of senior leaders to promote accountability and supply chain governance in the region. This also explains the direct correlation between IMPACT implementation indicators and supply chain outcome indicators, such as IMPACT data review meetings conducted and vertical health commodities reporting rate respectively. However, comparing the reporting rates of the three vertical programs, the HIV/AIDS program shows very low figures compared to the others due to several issues, most importantly that the list of tracer HIV/AIDS commodities used for the review included commodities that are not managed in the CTC sites, which had affected the overall percentage by making the numerators appearing smaller compared to the relative denominators. It was also noted that in eLMIS, the same commodity in the same program can have two different code numbers when data is retrieved and if the facility has reported all the codes, this can lead to bias in the data analysis and slightly affect the subsequent results.

Nevertheless, the improvement in reporting rates for vertical health commodities, including HIV/AIDS, in Simiyu Region contrasts with the findings of Mwencha *et al.*, who found no notable improvement in reporting of HIV/AIDS commodities when comparing baseline to the first performance evaluation [10]. The difference in the results of the two studies may be attributed more to the leadership engagement strategy which is being applied in implementing the IMPACT approach in Simiyu Region.

4.3. Trends of Percentage of Availability of Vertical Health Commodities in Simiyu Region

The availability of health commodities in general is influenced by a number of factors, which include good governance and accountability in supply chain management [11]. It was observed that the more senior leaders were involved in reviewing the performance of health services in Simiyu, the more the implementation of IMPACT and hence the availability of health commodities in the region improved this demonstrated by *figure 4 and table 1 above*. A similar and related scenario is discussed by Curran *et al.* in Kenya, where devolution and decentralization of health services

consequently affected health service administration and supply chain management, such that there was much confusion about roles, reporting and management during the national cholera outbreak in Kenya. This challenge affected the availability of cholera supplies in some health facilities [12].

In addition, in another study conducted in Tanzania to assess the availability of medicines and supplies for emergency obstetric care, Mkoka *et al.* concluded that the focus should be on improving governance and accountability in supply chain management to avoid disruption of service delivery due to unreliable availability of these commodities [13]. The same study emphasizes stakeholder engagement and collaborative decision-making to improve the availability of medicines in the supply chain.

4.4. Service Health Delivery Indicator Performance Trends in Relation to the Availability of Vertical Health Commodities

There is a greater correlation between improved supply chain performance, particularly health commodity availability, and improved health sector service delivery. The results obtained in Simiyu region in this category show that the more Malaria and RMNCAH commodities were available at the service delivery points as shown in Figure 5 and Figure 6 respectively, the more the performance of service level indicators for these programs improved over time.

This success in Simiyu Region in service delivery indicators as a result of maximum involvement of senior leaders and managers in implementing the IMPACT approach is consistent with the conclusion of Mwaiseje *et al.* that improved supply chain practices at Benjamin Mkapa Hospital as well as Dodoma Referral Regional Hospital have led to improved performance across health services and ultimately client satisfaction [14].

Reliable availability of health commodities is fundamental to diagnosing and treating illnesses in primary healthcare settings. Health commodities include health products, health and medical supplies, and other items that may be needed for the provision of health services, including medicines; vaccines; medical supplies, such as contraceptives, dressings, needles, and syringes; and laboratory and diagnostic consumables [15].

5. Recommendations

- 1) To engage Regional and Districts commissioner's office and District Executive Director Office on the implementation of IMPACT Approach performances by conducting quarterly assessment feedback meeting.
- 2) Integrate IMPACT Approach performances indicators into scorecard for follow up and monitoring of performance.
- 3) Stock imbalance report should contain all items reported by facility.

6. Conclusion

Leaders' engagement has played a major role in effective implementation of IMPACT Approach and achieve the outcomes observed, their influences improved Percentage of IMPACT team meetings from 6.1% in January 2021 to 84.9% in December 2022 improvement of meetings leads to increase vertical health commodities reporting rate and availability of vertical health commodities from x to y and z to m respectively. The approach is very important for the improved visibilities, identify challenges and guiding decision based on the data to address supply chain bottlenecks and continuous performance improvement as it has been observed in the study.

Abbreviations

AIDS: Acquired Immuno-Deficiency Syndrome
 AMTSL: Active Management of the Third Stage of Labor
 CHMT: Council Health Management Team
 COVID 19: Corona Virus Disease of 2019
 CTC: Care and Treatment Clinic
 DC: District Council
 DHIS2: District Health Information System
 e-LMIS: electronic Logistics Management Information System
 FEFO: Ferrous sulphate and Folic Acid
 GHSC-TA-TZ: Global Health Supply Chain Technical Assistance Tanzania
 HF: Health Facilities
 HIV: Human Immunodeficiency Virus
 IMPACT: Information Mobilized for Performance Analysis and Continuous Transformation
 MOH: Ministry of Health
 PORALG: President's Office, Regional Administration and Local Government
 RHMT: Regional Health Management Team
 RMNCAH: Reproductive Maternal Newborn Child and Adolescent Health
 TB/L: Tuberculosis and Leprosy
 TC: Town Council
 TLD: Tenofovir Lamivudine and Dolutegravir
 TLE: Tenofovir Lamivudine and Efavirenz
 USAID: United States Agency for International Development

Definition of Key Terms

Vertical Health Commodities

These are disease specific health commodities supplied through focused initiatives on a particular disease or group of diseases. In Tanzania vertical program commodities include but not limited to HIV/AIDS, Family planning, Malaria, Tuberculosis/Leprosy and vaccines [16].

IMPACT Approach

The word IMPACT is an acronym for Information

Mobilized for Performance Analysis and Continuous Transformation. It is a people-centered and data-driven initiative adopted by the MOH and PORALG to improve health supply chain performance and availability of essential health commodities in Tanzania [3, 5].

Vertical Health Commodities Reporting Rate

This refers to the percentage of vertical program health commodities reported into the e-LMIS out of the total number of vertical program health commodities managed in a given reporting period [17]. In this study, it was calculated based on the total number of health commodities per program included in the tracer list.

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