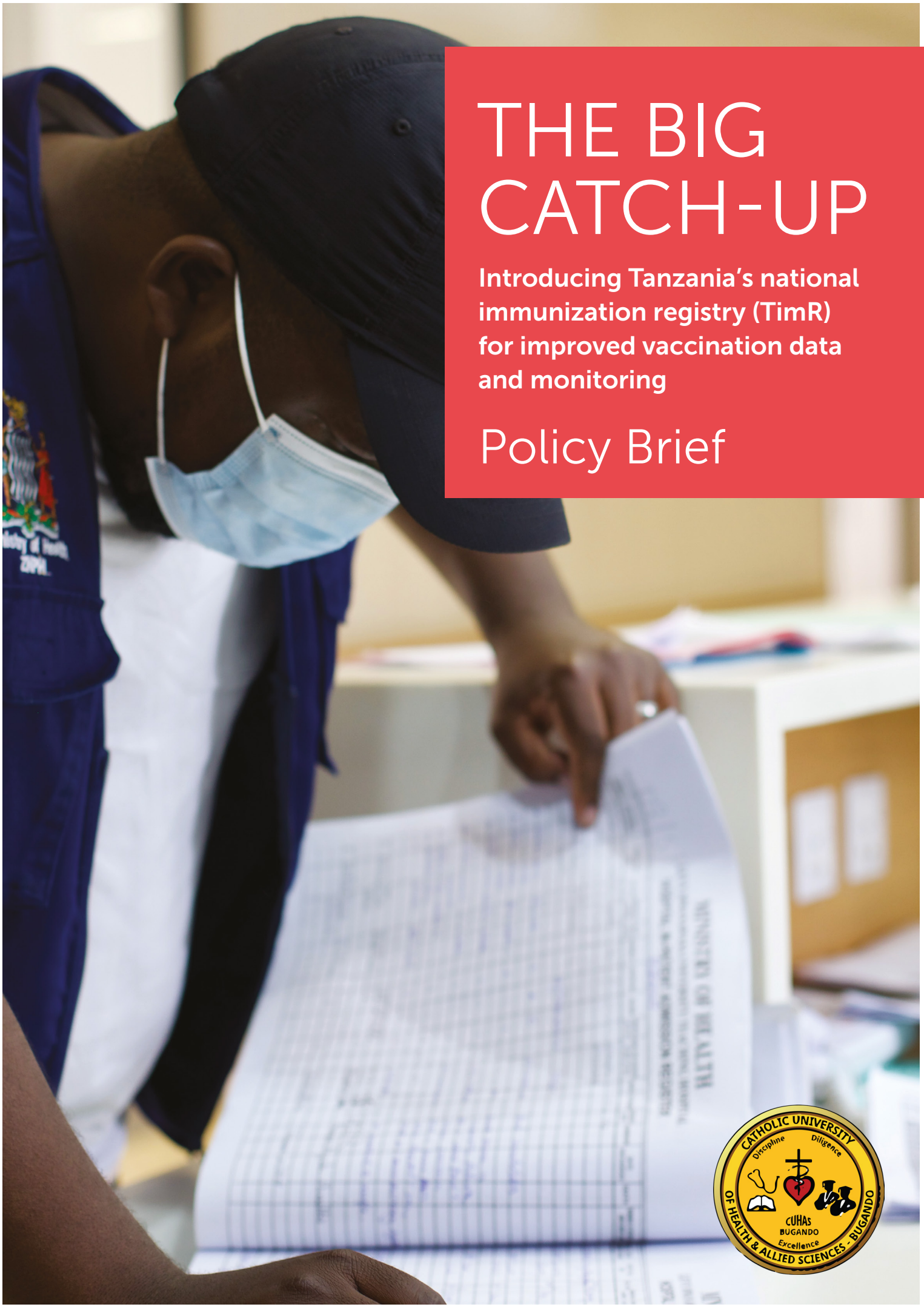

THE BIG CATCH-UP

Introducing Tanzania's national immunization registry (TimR) for improved vaccination data and monitoring

Policy Brief

CATHOLIC UNIVERSITY OF HEALTH & ALLIED SCIENCES - BUGANDO
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Policy Brief

Key messages

1. Tanzania vaccination data is currently experiencing several challenges:

- Aggregate vaccination data from health facilities at council level lacks of individual level information and is prone to numerator errors leading to unrealistic vaccination data.

- Administrative coverage reports consistently show a higher vaccination coverage than other data sources, suggesting potential data quality concerns in reported vaccination numerators and targets.

- Vaccine-preventable disease (VPD) outbreaks in councils that report a high administrative coverage also point to unreliable data.

- Relying on specific vaccination coverage as an indicator to assess programme performance of the programme also needs to be reconsidered.

2. Tanzania needs immunization data <1 year and >1 year to ensure quality data of unvaccinated and undervaccinated children. The absence of individual level vaccination data limits the ability to accurately identify zero dose, under-vaccinated, and defaulter children, leading to reliance on aggregated summaries that can mask immunization gaps.

3. The Tanzania Immunization Register (TimR) has been successfully piloted in some councils in Tanzania, generating individual level vaccination data critical for programmatic operations.

4. This policy brief recommends:

- Countrywide adoption and use of the TimR to track individual level vaccination data with the necessary information to ensure realistic data regarding fully vaccinated, under-vaccinated and unvaccinated clients.

- Revising the national and subnational vaccination performance indicators to consider full vaccination by basic antigens and triangulation with VPD surveillance data as vaccination indicators.

The problem

Quality data are essential in implementing and improving the efficiency of a vaccination programme in different settings as it allows early detection of gaps and the timely establishment of appropriate measures. Despite the achievements of the vaccination programme in Tanzania, in terms of subnational and national administrative vaccination coverage, there remain discrepancies when the data are triangulated with vaccine procurement and number of children vaccinated. This situation hinders the overall assessment of the programme in preventing VPDs. As evidenced by several polio and measles outbreaks in some councils, the current practice of considering coverage indicator alone does not fully assess the performance of vaccination programme [2, 7, 8].

Moreover, underestimated targets (denominator) not only misled decision-making in tracing and prioritizing unvaccinated children but also compromised vaccine forecasting, leading to either stock-outs or excessive supplies that risked expiry and an increased risk of VPDs outbreaks in councils where under-immunization persisted.

Tanzania's immunization programme provides protection against 14 VPDs; this has been achieved by a comprehensive set of strategies that include routine immunization (RI), periodic intensification of routine immunization (PIRI), and supplementary immunization activities (SIAs) [1, 2].

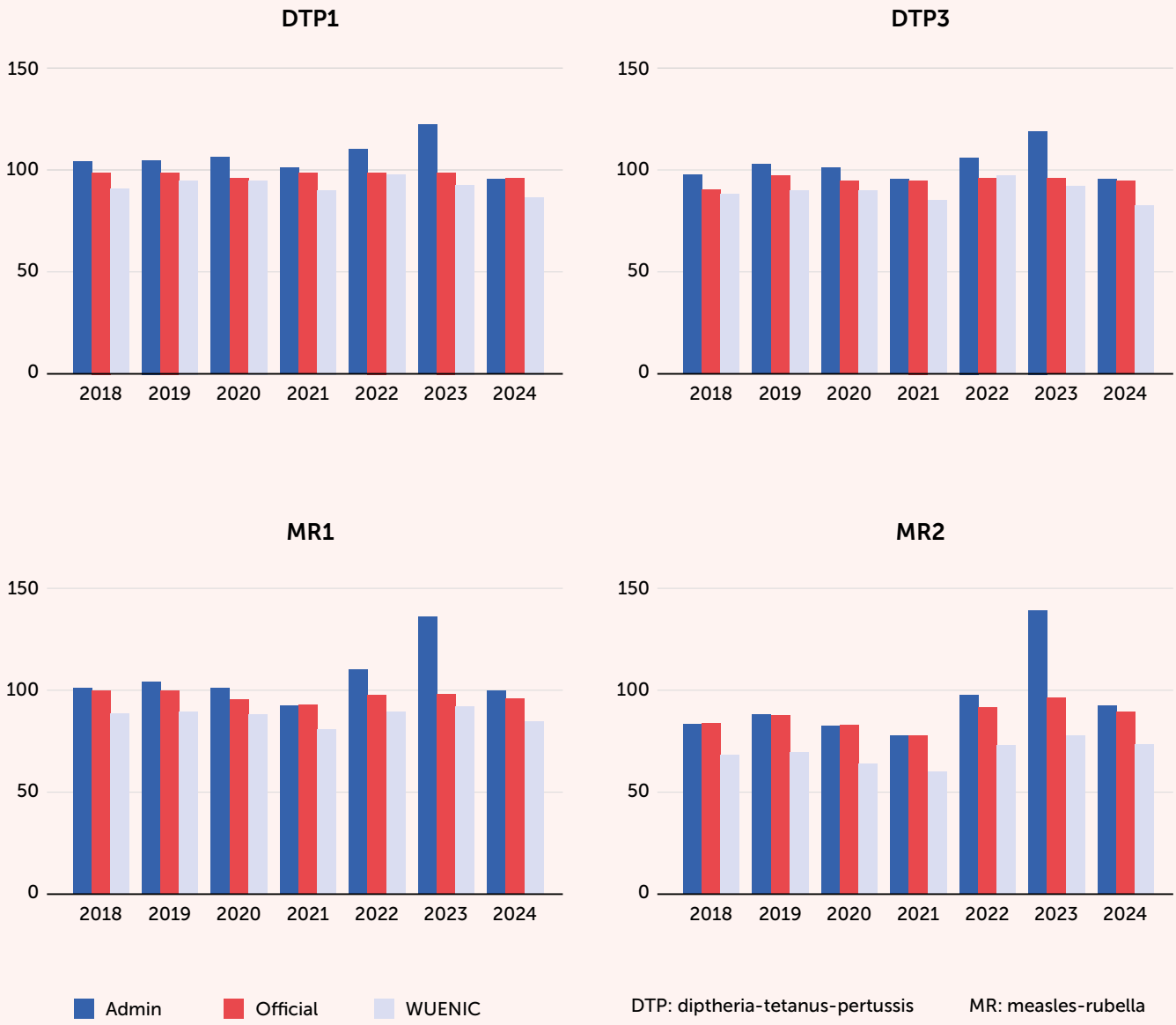
These coordinated efforts are designed to protect individuals and communities by reducing disease transmission, morbidity and mortality associated with VPDs.

Overall, an acceptable quality vaccination coverage has been found to prevent VPDs [7, 8]. Aggregation of health facility data at the council level is prone to errors which contribute to numerator problem with discrepancies between the national overall doses of vaccines procured and the overall doses of vaccines administered [9].

Furthermore, poor data quality is evidenced by the discrepancy between WHO/UNICEF Estimates of National Immunization Coverage (WUENIC) and administrative coverage data, with administrative coverage data consistently reporting higher coverage data than WUENIC data (figure 1). The WUENIC coverage data are estimated by triangulating different sources of coverage data including recent surveys [10]. These concerns need to be addressed to ensure the overall goal of vaccination programme is reached.

To address the target issues, from 2024, the IVD Program transitioned its approach to target setting by adopting region-specific, factored operational targets derived from multiple data sources, including vaccine consumption, first antenatal care (ANC) visit coverage, and regional demographic growth factors. The sole use of unadjusted National Bureau of Statistics (NBS) projections led to underestimation of the actual targets resulting in inflated administrative coverage rates.

Figure 1: Administrative, official and WUENIC vaccination coverage data from 2018-2024 for DTP1, DTP3, MR1 and MR2



Following the disruptions of immunization services during the COVID-19 pandemic [3-5], the programme focused on systematic efforts to catch up zero-dose children and, restore and sustain the routine immunization services that would improve the coverage rate [6]. Through the Big Catch-Up (BCU) initiative, the Immunization and Vaccines Development (IVD) program implemented a number of PIRI campaigns initiated in early 2023 to reach zero-dose and under-vaccinated children. These efforts aimed to vaccinate children aged 12–59 months who missed one or more doses for any vaccine during the pandemic period. The BCU served as a coordinated national recovery and catch-up strategy to close immunity gaps, revitalize outreach services, and re-engage communities that had become disconnected from health services during the pandemic years.

As the programme expanded efforts to vaccinate children above one year of age in routine immunization, vaccination data collection tools were updated in 2025 to accurately capture these additional doses. The tally sheet was revised to include separate age categories for children under one year and those above one year, with corresponding adjustments made to the monthly reporting forms and Vaccination Information Management System (VIMS). Furthermore, DHIS2 been integrated with VIMS, allowing immunization data to flow directly from VIMS into DHIS2, enhancing data consistency and reporting efficiency.

To achieve the overall goal of the vaccination programme, it is essential to institutionalize key strategies to ensure sustainability and address ongoing challenges in program monitoring and evaluation. One such strategy is the countrywide adoption of the Tanzania Immunization Registry (TiMR). TiMR has been pre-tested in several health facilities, demonstrating its ability to capture client demographics data, vaccination dose schedules, session planning, and service delivery tracking. The system functions both online and offline, ensuring continuous data capture in settings with limited connectivity, and can send reminders to caregivers on the due dates for vaccinations.

Policy options

To ensure the overall quality, proper documentation and easy accessibility of vaccination data across the country in order to reach a goal of vaccination programme, we propose the following policy options:

1. To carry out a countrywide roll out of the TimR to allow easy accessibility of individual level vaccination data to identify defaulters and under-vaccinated clients as it has demonstrated the capture of important data variables that are necessary to track vaccinated client regarding their vaccination status wherever they are.

2. To revise the monitoring and evaluation indicators matrix for both national and subnational levels to consider basic and full vaccination coverage indicators and whether the client have received a vaccine on time, based on the national immunization schedule as the system captures important information for each child such as age, date of birth, date of vaccination, etc.

3. To assess the vaccination performance of councils by triangulating basic and full vaccination coverages, timeliness, and VPD surveillance such as measles/rubella reported outbreaks and incidence.

4. To consistently monitor the performance of the recently revised vaccination targets estimates in relation to administrative vaccine coverage and occurrence of VPDs outbreaks.

Implementation considerations

1. The integration of the data from the Registration Insolvency and Trusteeship Agency (RITA), National Bureau of Statistics (NBS), Reproductive and Child Health (RCH) data and data from the Vaccine, Immunization Management System (VIMS) in place with the TimR will allow the optimization of the vaccination targets and capture important information such as age, sex, place of birth, residence, time of vaccination, etc. This will ensure quality data that can be used to assess the performance of the programme.

2. The revision of the existing guidelines to implement the proposed policy options should include the following:

    a. **National Immunization Strategy (NIS)** should incorporate the implementation of the proposed policy options with clear milestone to fully achieve the goals by 2030. For Zanzibar, the same policy options can be integrated into the Reproductive, maternal, Newborn, Child, Adolescent Health and Nutrition Strategy which is currently in the final stages of development.

    b. **Process of the immunization guidelines which are under revision** can consider inclusion of clear Standard Operating Procedures (SOPs)/ checklists to guide vaccinators to document important information such as sex, age, location (urban vs rural) etc.

    c. **The use of TimR** which has the capacity to capture the vaccination schedule for children above 24 months and to send a reminder to the caregiver about upcoming vaccination.

    d. **Political will of the government to meet the demand of the staff, community and technology**. Since the government has shown a good will to meet the demands of the community, it is high time to use evidence-based strategies (guidelines and policies) and ensure adequate provision of technological resources such as devices and internet access to support full operationalization of TimR this will address the existing gap and improve vaccine delivery services across the country. This should further be supported by financial sustainability strategy, such as an increase of the local budget allocated to individual councils for vaccination activities.

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