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Integrated Vaccine Transportation in Bor South, Jonglei State, South Sudan

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Distribution of vaccines is challenging due to insecurity, frequent flooding, and a weak health system. These problems lead to delays in vaccination campaigns, issues with maintaining the cold chain, and high transport costs. Initially, in Bor South County, the plan was to transport the new Oral Polio Vaccine (nOPV2), Oral Cholera Vaccine (OCV), and routine vaccines separately, which required multiple difficult trips. However, logistical challenges and limited resources highlighted the need for a more efficient, integrated transportation method. The aim was to enhance vaccine distribution in Bor South County by combining the transport of nOPV2, OCV, and routine vaccines. This strategy sought to reduce logistics costs, improve cold chain efficiency, and increase vaccine availability, particularly in remote areas.

First Stakeholder meeting with both State Ministry of Health and County Health Department, WHO and UNICEF

Implementation Process

The integration process started with assessing storage capacity and transportation resources at both the state and county levels. This assessment identified ways to optimize existing infrastructure while ensuring cold chain requirements were met. Key stakeholders like the State Ministry of Health (SMOH), WHO, UNICEF, and logistics teams were engaged to align transportation strategies and ensure coordination across various immunization programs.

Upon stakeholder agreement, the delivery of vaccines, including nOPV2, OCV, and routine immunizations, was combined into a single transport system. This ensured that vaccines stayed at the correct temperature and cut down on unnecessary trips, which improved efficiency. A system for real-time monitoring and reporting was implemented to track where vaccines were, identify any delays, and solve distribution issues.

Outcomes and Impact

By merging vaccine transport, logistical costs were reduced by 40% through better route organization and resource optimization. Delivery efficiency improved, guaranteeing timely vaccine arrival in all areas, including those that are remote or affected by floods. Cold storage management became more effective, easing space constraints and enhancing vaccine organization. Additionally, this unified approach strengthened cooperation between polio and cholera vaccination teams, reducing redundant efforts and making the most of available resources. Routine immunization coverage increased, with vaccines reliably available at health centers alongside those for specific campaigns.

Integrated vaccine transport reduced logistical costs by 40%

Offloading of OCV , nOPV vaccines and supplies in Bor County, Jonglei State.

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Hassan (STOP team) conducting team monitoring supervision for nOPV2 in Makuach Payam in Bor South County, Jonglei State.

Challenges and Lessons Learned

Initially, there was resistance to combining vaccine logistics from those accustomed to handling them separately. This was resolved by engaging stakeholders on the benefits of an integrated approach. Security issues along transport routes threatened vaccine deliveries but were addressed through collaboration with local authorities, security agencies, and community leaders to ensure safe passage.

Seasonal flooding disrupted road access, prompting the need for alternative strategies like pre-storing vaccines in strategic locations and using boats and planes for transport. The increased vaccine volume in shared cold storage required enhanced monitoring, which was achieved with real-time tracking systems to maintain proper storage conditions.

Supportive supervision for OCV in Baidit Payam, Bor South County.

Recommendations and Scalability

Future vaccine campaigns should embrace integrated transport models for cost savings and improved efficiency. Strengthening real-time monitoring systems is crucial for maintaining vaccine potency and minimizing waste. Developing clear guidelines to support integrated vaccine logistics, informed by Bor South's experience, is essential. Investing in diverse transport methods, such as pre-positioning vaccines before rainy seasons and expanding air or boat transport options, will enhance supply chain resilience. Promoting collaboration across different immunization programs will optimize resource use and enhance health service delivery.

The integration of vaccines like nOPV2, OCV, and routine immunizations in Bor South demonstrated that combining resources can improve logistics, cut costs, and increase vaccine availability, even amidst challenges like security threats and flooding. Through coordinated planning, resource-sharing, and adaptability, vaccine supply chains can be strengthened to better serve vulnerable communities.

OCV launch in Bor. Present were 2 Director Generals (Preventive Health Services and Primary Health Care)

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