

HEALING FRONTIERS: HOW TECHNOLOGY IS CHANGING HEALTHCARE IN CONFLICT ZONES

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Vaccine session in Krano Region with blue Indigo carrier shown. Horn of Africa, International Rescue Committee, 2024*

Since 2011, the Krano Region*, a semiautonomous breakaway area in the Horn of Africa with no recognized health authority, has faced overwhelming challenges due to ongoing war and a lack of essential services where 2.5 million people live without basic amenities including water, health, and sanitation facilities. By April 2023, the situation had deteriorated further, with over 700,000 internally displaced persons fleeing into the area and making up 30% of the population, putting immense pressure on an already struggling healthcare system. Routine vaccination efforts have been disrupted since 2019, and a majority (93%) of children under 5 years were unvaccinated, leading to alarming outbreaks of vaccine-preventable diseases such as tetanus and meningitis, and affecting many lives. One example includes a measles outbreak in 2022, with over 1,000 patients reported as well as a number of deaths, including 35 children. It is likely that many other cases and deaths remain unreported.

Amid this turmoil, ZIP, Gavi’s Humanitarian Partnerships programme, funded routine and catch-up immunisation services in the region. With Gavi support, the International Rescue Committee-led REACH project gained humanitarian access in the Krano Region.

The project employs various humanitarian approaches, including localizing aid, building the capacity of local organizations, fostering collaborative partnerships, negotiating for equitable vaccine access, ensuring emergency preparedness, and co-creating programs with local communities. These strategies aim to ensure the accessibility and effectiveness of vaccination interventions in underserved areas.

Additionally, REACH introduced innovative methodologies to ensure children in communities affected by conflict and crisis receive all age-appropriate vaccines as routine or catch-up. Because vaccines could not be distributed through the national immunisation program (or routine government health systems), UNICEF provided a precedent-setting allocation of vaccines to the IRC for the children in the region.

Between May 2023 and September 2024, ZIP reached 120,020 children aged 0 to 5 years with their first dose of the pentavalent vaccine in the Krano Region. Through Gavi and UNICEF support and REACH’s efforts, over 60,000 zero-dose children aged 1 to 5 years have been vaccinated.

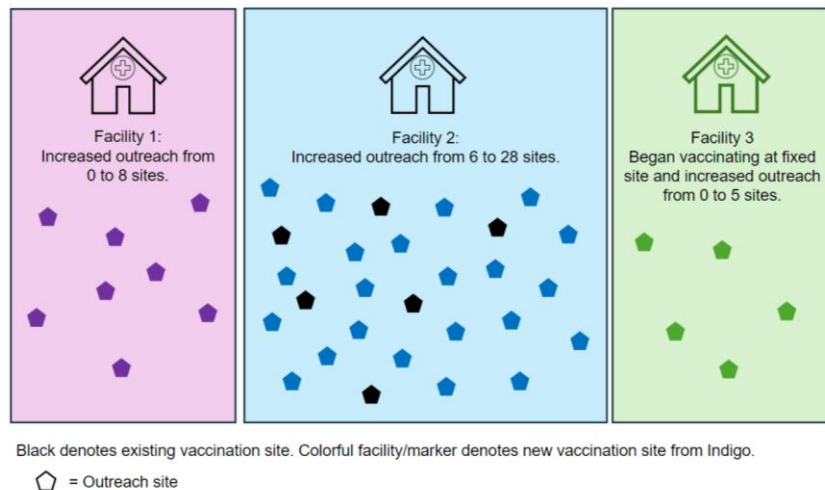
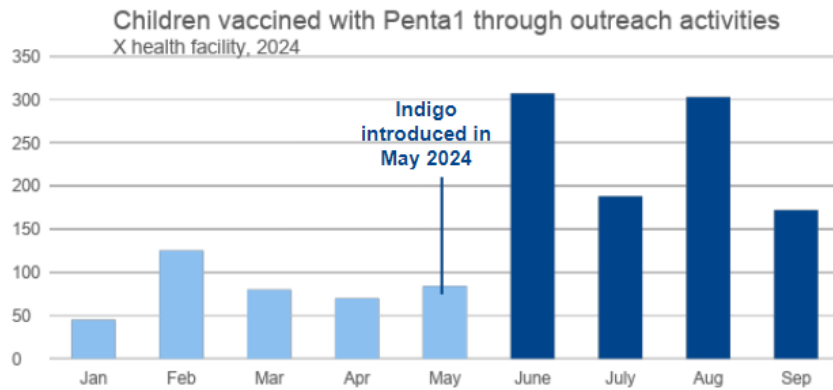
Krano	Total (May 2023 – Sep. 2024)
Total doses of Penta1 administered (0-5 years)	120,020
Number of ZDC reached (Penta1 to children >1 year)	60,170
Total vaccines administered	2,246,902

Furthermore, one specific innovation leveraged new technology: the [Indigo portable vaccine transport system](#), deployed in March 2024. Gavi played a catalytic role in supporting the demonstration of the Indigo device to the Ministry of Health and implementing partners, ensuring its effectiveness in reaching hard-to-reach children. This portable vaccine system keeps vaccines cold for five days without active charging or ice —essential in a region with limited power access and infrastructure. More importantly, it is cost-effective for such challenging conditions, and easy to maintain. By facilitating mobile outreach lasting up to five days, Gavi’s support enabled healthcare workers to maintain vaccine cold chains even in remote areas, significantly expanding immunization coverage.

Between May and September 2024, 3,527 children were vaccinated in areas where the Indigo system was used, showcasing its direct impact on vaccine accessibility. "Thanks to the vaccinators, my children are protected. They come to us now; we don't have to brave the long, dangerous journey to the clinic," said Arafa, a mother.

The introduction of Indigo coincided with the rainy season, a period typically marked by reduced health-seeking behavior. However, in one facility, the technology helped maintain high levels of immunization access.

Moreover, REACH successfully restarted vaccination sessions using Indigo in a facility that had remained closed due to broken refrigeration equipment. Ninety-five children were vaccinated in its first month. REACH now enables regular sessions and outreach in six different locations. An additional health facility increased its outreach from six to twenty-eight locations. Another facility introduced immunisation offering one fixed site and five outreach sites – where it was previously not possible.



These milestones highlight the success of humanitarian approaches, the resilience of healthcare workers, and the transformative impact of the new Indigo system. "We face many challenges, but nothing can stop us when it's for the children's sake," underlined Mubarak, a vaccination team leader. "Indigo has changed everything. Now, we can confidently reach the most remote communities, knowing the vaccines will stay safe," added Israel, a vaccinator.

By July 2024, the vaccination team had reached its monthly target, but there is still more to do. By the end of August, overall vaccination coverage remained at 45%, emphasizing the need for continued efforts. The project plans to add more Indigo units, which will help reach every corner of the Krano Region by the end of 2025. This effort aims to significantly reduce the number of children under one year who need to be immunized by 2026.

The initiatives in the Krano Region showcase the incredible potential of new solutions and the unwavering spirit of communities collaborating to foster positive change. By turning health facilities into safe places for care and leveraging technology like Indigo, these efforts address urgent health needs and lay a solid groundwork for healthier futures. Rooted in principles of independence, neutrality, humanity, and impartiality, REACH and its partners ensure that every child can aspire to a healthy life, regardless of their circumstances.

ZIP, Gavi's Humanitarian Partnerships has been instrumental in showcasing the feasibility and impact of innovative vaccine delivery solutions in humanitarian settings. As we look ahead, the combined efforts of Gavi, humanitarian NGOs, local healthcare teams, and the community are laying the groundwork for a healthier, more resilient future for the children of the Krano Region, Horn of Africa.

*Alias used and country not identified for confidentiality and security purposes.