

Intelligent vaccine delivery can aid immunization coverage in India

03 September 2018 | Features | By Dr. Davinder Gill

Technology has enabled and equipped millions around the world with a digital presence.



Immunization is one of the most cost-effective interventions to prevent the suffering that comes from avoidable sickness, disability and death. However, every year, five lakh children die in India due to vaccine preventable diseases and another 89 lakh remain at risk due to partial or no immunization.

One of the key challenges is that children are still being missed from the immunization coverage. The government counts as missed those who have either not had any vaccinations or those who have had incomplete vaccinations. Government data shows that in percentage terms, the number of children and mothers who are missed, has not dropped drastically.

To achieve full immunization coverage in India, meticulous planning, strong logistics and cross-functional innovation to transport a vaccine from its manufacturing site to administration in the field is required. First, we need to build our existing capacity like increasing the ability of our technical staff to handle complex vaccine environment and familiarize them with best practices in supply chain management. Second, vaccines under all conditions, need to be carefully temperature managed so that they don't lose their potency. At the heart of a robust delivery system is the cold chain infrastructure. Cold chains help preserve vaccines at prescribed temperatures and maintain product-specific environmental parameters including air quality levels. They are the primary source for transporting and storing vaccines, more so in tropical climate of developing countries like India. Third, we need efficient collection of reliable data for informed decision-making in planning for vaccine distribution, improving supply chains and introducing newer vaccines in the future.

A major challenge being faced is that nearly 10 million children around the globe do not have their existence formally registered. Recognising this global challenge, the United Nations' Sustainable Development Goals (SDGs) has an indicator for the same to ensure that everyone has a legal entity by 2030. This is crucial especially for those living in remote or vulnerable areas. Unregistered births are a big deterrent to achieving the SDG which is aimed at ending preventable deaths for children below the age of five years by giving them access to affordable vaccines. However, Technology has enabled and equipped millions around the world with a digital presence. These innovations could also help in aiding the public-health community in vaccinating every child. For example, Khushi Baby is a digital platform that helps in providing health records

through a necklace worn by the infant which carries a unique identification number on a communication chip. The community health workers can access this chip through a mobile phone for updating the child's digital record.

Full immunization against vaccine-preventable diseases is the right of every child. Artificial Intelligence and data are playing a key role in achieving immunization as the Ministry of Health and Family Welfare in partnership with The United Nations Development Programme (UNDP) is implementing the eVIN (Electronic Vaccine Intelligence Network) as a step towards enhancing immunization coverage. This technology is an indigenously developed system that digitizes vaccine stocks and monitors the temperature of the cold chain through a smartphone application. The Electronic Vaccine Intelligence Network aims to strengthen the evidence base for improved policy-making in vaccine delivery, procurement and planning for new antigens. This will be a powerful proposition in the days to come for strengthening health systems through easy and timely availability of vaccines to all children.

The government is also contributing to the aim of immunizing every child in the country. The Government of India launched the Universal Immunization Programme (UIP) in 1985, one of the largest health programme of its kind in the world. Being operational for over 30 years, UIP has been able to fully immunize 65% children in the first year of their life. The increase in coverage has stagnated in the past 6-7 years to an average of 1% every year. To strengthen and invigorate the programme and achieve full immunization coverage (FIC) for all children at a rapid pace, the Government of India launched Mission Indradhanush in December 2014. Acknowledging the impact of MI, Government of India in 2018 introduced "Mission Indradhanush (IMI)" in aspirational districts of the country to achieve the target of more than 90% full immunization coverage(FIC). The goal of 90% FIC has now been advanced to December 2018.

The future of vaccines and attaining immunization in India lies in collaboration, innovative technological solutions and intelligent delivery designs.

Dr Davinder Gill, Chief Executive Officer, MSD Wellcome Trust Hilleman Laboratories