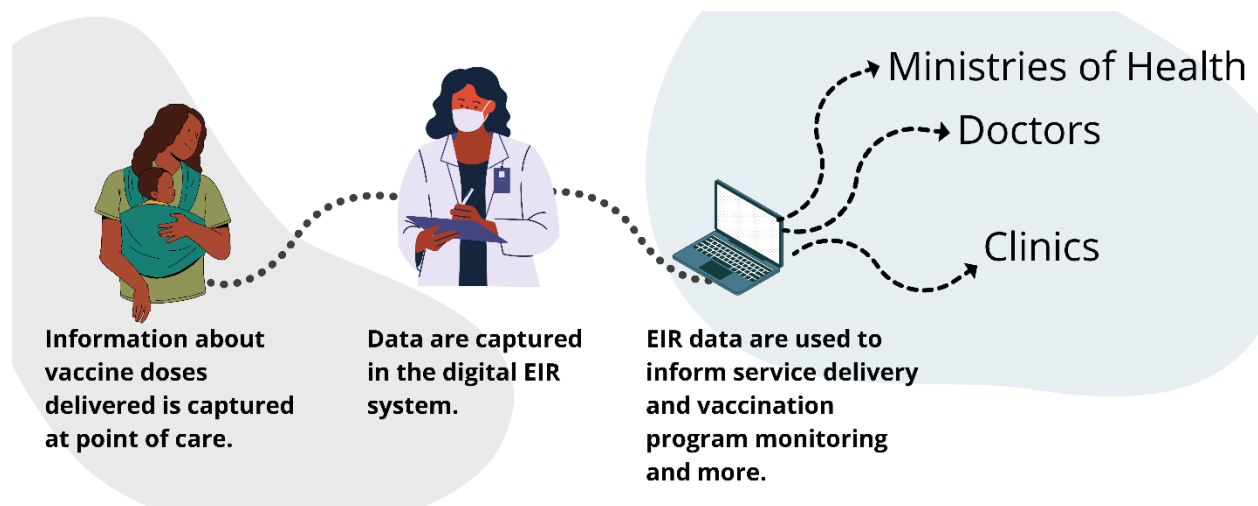# How EIRs Can Support Immunization Delivery During COVID and Beyond

Routine immunization is one of the most cost-effective and successful public health interventions. Despite significant gains in the last decade, global vaccination coverage has stalled at 86 percent[i] and has been further disrupted by the global pandemic of COVID-19. A major obstacle to closing the vaccination gap is a lack of timely, high quality data to enable planning, quality assurance, and service delivery.

Without accurate information such as current coverage rates, vaccine stock levels, and community demographics, health providers can struggle to identify individuals who have not received vaccinations and often have poor visibility into vaccine supply chains.

Electronic immunization registries (EIRs) are a solution that can replace the paper-based system of manual recordkeeping that has characterized most countries' immunization services until recently. EIRs are confidential, population-based, computerized information systems that record data on vaccine doses delivered. A growing number of countries have embraced EIRs to improve data quality and program performance.

By providing timely, accurate, and complete data, EIRs allow health workers to do their jobs more effectively and efficiently by reducing workloads associated with paper-based records. EIRs also track critical information needed to ensure that every child is registered for immunization from birth and receives all recommended vaccines.

Ministries of Health
Doctors
Clinics

Information about vaccine doses delivered is captured at point of care.

Data are captured in the digital EIR system.

EIR data are used to inform service delivery and vaccination program monitoring and more.

Nearly a year into the COVID-19 pandemic, one-third of countries reported disruptions to immunization services making the critical role of immunization services even more clear.[ii] In an analysis of essential health services across six countries, disruptions tended to be most significant for immunization and other preventative services. For example, Pakistan saw declines of 25 to 49% percent in routine vaccinations.[iii]

Declines in immunization rates can be attributed to many factors, including the public's concerns about exposure to COVID-19 in health facilities, difficulties accessing care, a disruption to vaccine supply chains, and the redeployment of health workers to other urgent COVID-19 related efforts.[iv]

This brief provides five ways EIRs can support immunization delivery during and after the COVID-19 pandemic.

Benefits of EIRs in a pandemic context

1 Supporting COVID-19 vaccine introduction

2 Monitoring the effects of routine immunization

3 Planning for supplemental immunization activities or catch-up campaigns

4 Communicating health messages

5 Supporting safe immunization practices

1 Supporting COVID-19 vaccine introduction

EIRs can help ensure that the right patients receive the right vaccinations, at the right time by enabling patient identification, recording vaccine histories, and tracking patients who have dropped out or missed a recent vaccine. This role has only become more important in the context of the COVID-19 pandemic. As many countries are beginning to deploy COVID-19 vaccines, it is essential to capture data to monitor and evaluate the vaccine introduction.

Countries that are already using digital tools may be able to expand the scope of those tools to capture data on COVID-19 testing, cases, or vaccination. Where EIRs are already in use for routine immunizations, they can be leveraged to capture individual-level data on COVID vaccination as well. In this way, EIRs can be used to identify which individuals have received vaccines and send reminders for follow-up vaccinations. The EIR data can be used to monitor the vaccine rollout in real time and identify and address any vaccine uptake, equity, stock, or safety issues that emerge. Individualized information captured in EIRs can also be used to populate vaccine certificates that can support continuity of care or cross-border travel, among other use cases.

However, even where EIRs are already in use, they will need to be adapted to align with the COVID-19 vaccination strategy and target population. New requirements, data elements, indicators, and reports will need to be added to the EIR functionality. For example, EIRs used for childhood routine immunizations will need to be expanded to capture adult populations. New vaccination sites (e.g., pharmacies, hospitals, long-term care centers) would need to be added to the system and new EIR users at these sites may require training or hardware. Given the urgency of COVID-19 vaccine introduction, the WHO has suggested that countries that do not have existing EIRs will likely need to rely on their existing reporting systems.[v]

2 Monitoring the effects on routine immunization

For non-COVID vaccines, EIRs can help stakeholders understand changes in immunization service delivery. EIRs can provide aggregate reports of population-level vaccination rates, helping to identify gaps in coverage and monitor how routine immunization is affected by adverse events or external shocks to a country's health system.

In Pakistan, the Zindagi Mehfooz ("Safe Life") EIR was scaled in 2017 to achieve more equitable immunization coverage. In 2020, this registry served as a critical system for determining where vaccination services had most suffered by tracking individual children, their immunization status, and generating lists of defaulters.[vi] These records help to determine what regions of the country were hardest hit by disruptions to immunization services and implicate other services that may have also suffered, such as maternal and child health care.

3 Planning for supplemental immunization activities or catch-up campaigns

Coupled with other information, such as geospatial data, EIRs can help generate meaningful insights and encourage data-driven decisions when countries are finally able to plan for catch-up campaigns. As countries begin to reinstate routine vaccinations in the wake of COVID-19, EIRs can quantify the number of missed vaccines and determine which areas have been under-vaccinated. This individual-level data will enable decision-makers to target immunization services and allocate funding to those areas most in need. This becomes important when considering the postponement of an estimated 60 mass immunization campaigns across 50 countries since April 202.[vii]

One study on Kenya illustrates that the COVID-19 disruptions to measles immunization created a significant risk for a large measles outbreak.[viii] These findings and other country reports indicate that supplemental immunization activities and catch-up campaigns will be a critical tool for many national health systems hit hard by COVID-19.

4 Communicating health messages

Many EIRs capture contact information and include messaging features for direct communication with patients or caregivers. These messaging features have historically been used to notify caregivers about upcoming immunization sessions or overdue vaccines. But as the global community develops a greater understanding of COVID-19—including its transmission patterns, full range of symptoms, and treatment options—health workers can share health promotion messages with patients. This could include information about safely accessing health facilities, upcoming immunization sessions, and preventative measures.

Critically, most existing COVID-19 vaccines require two doses and research suggests that multi-dose vaccines may have lower completion rates, with drop-off after the initial dose. EIR messaging features could be critical for ensuring higher rates of completion for the COVID-19 vaccine series to ensure everyone receives both doses.

EIRs can also facilitate the exchange of information among health providers and provide platforms for peer support. Messaging features offer a connection between health facilities triaging supplies and patient services under a strained health system.

EIRs can also help prevent overcrowding in clinics by scheduling specific clinic times for vaccines and notifying caregivers. This ensures a more equitable distribution of health services. Children not receiving vaccines are redirected to their community health posts, which are often closer and more accessible, to avoid congestion at clinics. By analyzing EIR data, health officials can identify health trends, prioritize, and coordinate upcoming immunization clinics so as not to further overburden facilities. In Tanzania, the country's EIR was adapted to include scheduling features to schedule individual children for immunizations at specific dates and times. This was a helpful feature that allowed facilities to comply with guidance on social distancing. Furthermore, messaging features and data visualizations helped to project patient volumes and better plan for upcoming immunization clinics. By scheduling patients' clinic visits, facilities ensured smaller groups and limited wait times to reduce the risk of COVID-19 transmission.

EIRs can provide a reliable, data-rich, way to help ensure that the right patients receive the right vaccinations, at the right time. In the wake of the COVID-19 pandemic, catching up on missed routine immunizations and effectively delivering COVID-19 immunizations are paramount to the health of all populations. EIRs can provide an effective, efficient, and modern way to provide the best healthcare to patients during the COVID-19 pandemic and beyond.

---

[i] Global Routine Vaccination Coverage (CDC 2018)

[ii] Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic (WHO 2021)

[iii] Essential health services during and after COVID-19: A sprint analysis of disruptions and responses across six countries (PATH 2020)

[iv] COVID-19's lost generation of unvaccinated children (Lancet 2021)

[v] Monitoring COVID-19 vaccination: Considerations for the collection and use of vaccination data (WHO 2021)

[vi] Impact of COVID-19 lockdown on routine immunisation in Karachi, Pakistan (Siddiqi 2021)

[vii] Immunization services begin slow recovery from COVID-19 disruptions, though millions of children remain at risk from deadly diseases (UNICEF 2021)

[viii] The importance of supplementary immunisation activities to prevent measles outbreaks during the COVID-19 pandemic in Kenya (BMJ Yale 2020)