



# DRIVING DATA-BASED DECISIONS THROUGH USER-FRIENDLY ICT PLATFORMS

Bihar Technical Support Program

Innovation Brief No. 8

Data for Decision-making



## **THE CHALLENGE: A LACK OF DATA FOR DECISION-MAKING**

With one of the least developed public healthcare systems in India, Bihar has historically experienced maternal and neonatal mortality rates significantly higher than the pan-Indian average. In 2011, in an effort to respond and address this disparity, CARE, in partnership with the Bill & Melinda Gates Foundation and the Government of Bihar, began supporting the state government's vision to transform the health of families, mothers, and children through the Integrated Family Health Initiative (IFHI) program along with several development partners. Now, the Bihar Technical Support Program continues to provide support to the government that aims to overcome persistent systemic barriers to the achievement of its health goals and improve reproductive, maternal, newborn and child health and nutrition state-wide.

Before IFHI, there was little appetite among Government of Bihar stakeholders for data from independent assessments as they were mistrusted, feared, and undervalued. However, this lack of reliable, quality data created a significant impediment in making data-based decisions to improve public healthcare service provision. The data that were available were entered, aggregated, and analyzed manually, which was time-consuming, error prone, and did not lend itself to powerful analytics. Hence, the need arose to create digital platforms for the collection, visualization, and use of data that would work in low- or no-bandwidth contexts at the frontlines.

## **THE INNOVATION: TECHNOLOGY TO ENHANCE PUBLIC HEALTHCARE**

Early on, CARE realized that Information and Communications Technology (ICTs) tools and platforms would be critical to assess current progress, make data-driven decisions about needed adaptations to current strategies, and track initiation of the changes needed to achieve the state's health goals.

In response to this need, CARE introduced multiple tools and platforms at the community, health facility, and management levels:

- 1. Community outreach support through a Digital Application for Frontline Health Workers (FLWs)**
- 2. Facility level: Darpan Classic and Darpan Plus Supervision**
- 3. Hospital Management System: Sanjeevani++**

### *Digital Application for Frontline Health Workers*

FLWs are a key pillar of the public healthcare system in Bihar. However, they have long lacked critical investments in building the knowledge and skills they need for the complex tasks that form the foundation of their job responsibilities. This under-investment, coupled with an immense data collection and reporting burden, jeopardized the quality of services FLWs were able to provide and inhibited the use of data for decision-making among health system actors including their managers.

Thus, capitalizing on the rapid spread of mobile technologies, CARE developed a set of mobile-phone-based tools tailored to the needs of these workers. This tool was designed to facilitate the collection of more accurate data that would, in turn, improve productivity and enhance communication and coordination between community members, FLWs, and their managers, and, ultimately, lead to increases in the coverage and quality of services that FLWs were tasked with providing.



**The application records real-time healthcare information to track appropriate and timely services through the stages of pregnancy, delivery, and postnatal care.** CARE was careful to ensure that the digital application was designed not just as a tool that facilitated better data collection and reporting but in a way that provided valuable job-aids and much needed support to FLWs. The application includes decision support tools, such as counseling protocols and customized counseling in the local language, to support FLWs in their delivery of quality services.

The Digital Application for FLWs supports FLWs in managing their work and provides a continuous and credible digital record of healthcare data, generated at the village level, to managers and decision-makers in real-time. This helps them monitor progress, make informed program implementation-related decisions,

and provide supportive supervision to FLWs with the aim of increasing the reach, quality, and timeliness of healthcare service delivery.

### ***Darpan group of apps***

While CARE and the Government of Bihar focused on improving facilities' infrastructure and building capacity of FLWs through quality improvement and nurse training initiatives, it soon became apparent that there was not a unified system to track the progress and improvement in these areas across health centers. Existing checklists were completed through a paper-based system which made timely use of these data for decision-making challenging. This emerged as a critical information gap for program managers. In addition, State leadership required a better, more streamlined way to understand how it was performing across its priority health indicators.

In response to these needs, **CARE developed a cohesive Health System Progress Tracker (HSPT)**, a convergence platform of dashboards that includes data from multiple sources, both Program-specific and State-collected, in a single-window format which can be monitored by the Health Minister and the Principal Secretary. This dashboard showcases data from the multiple CARE-developed apps and ICT platforms used at the district, facility, and outreach levels.

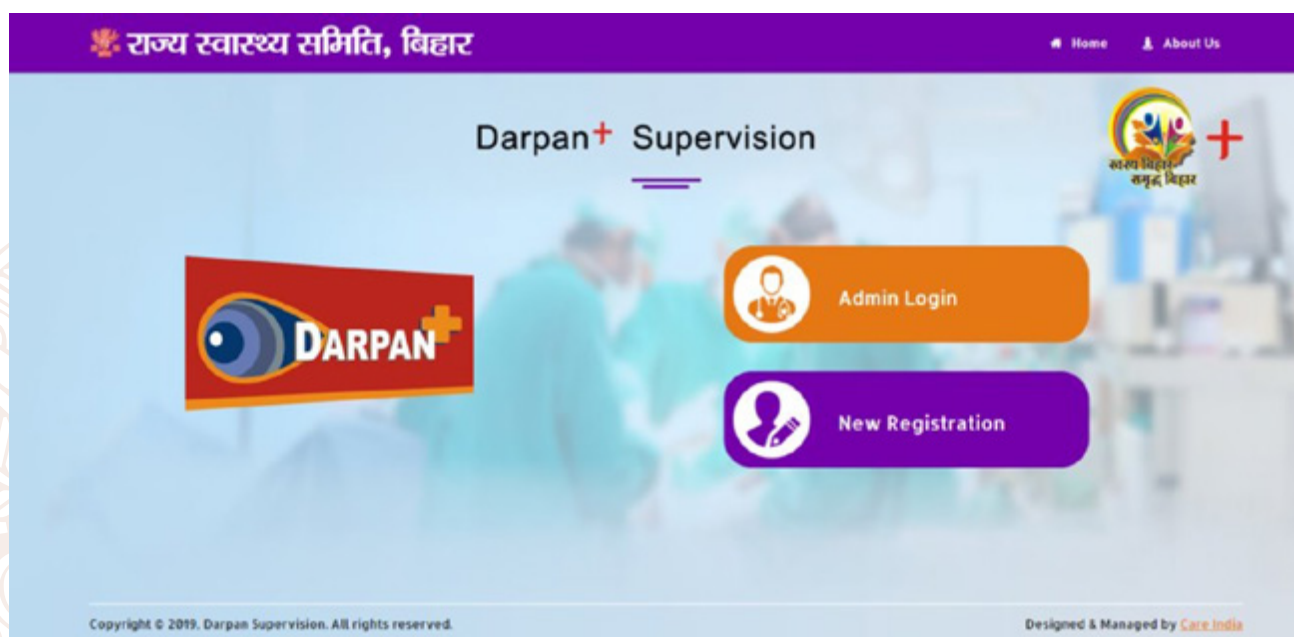
**At the facility level, the Darpan Classic application, a native Android application first developed in 2016,** was designed to streamline data collected by Block Health Managers at public health facilities across the state. The app allowed Block Health Managers to collect data on a regular basis and synchronize to a common database and dashboard when connectivity allowed. The relatively simple and streamlined checklists were designed to ascertain facility readiness for service delivery by recording and tracking operational issues and planning for the smooth functioning of daily operations.

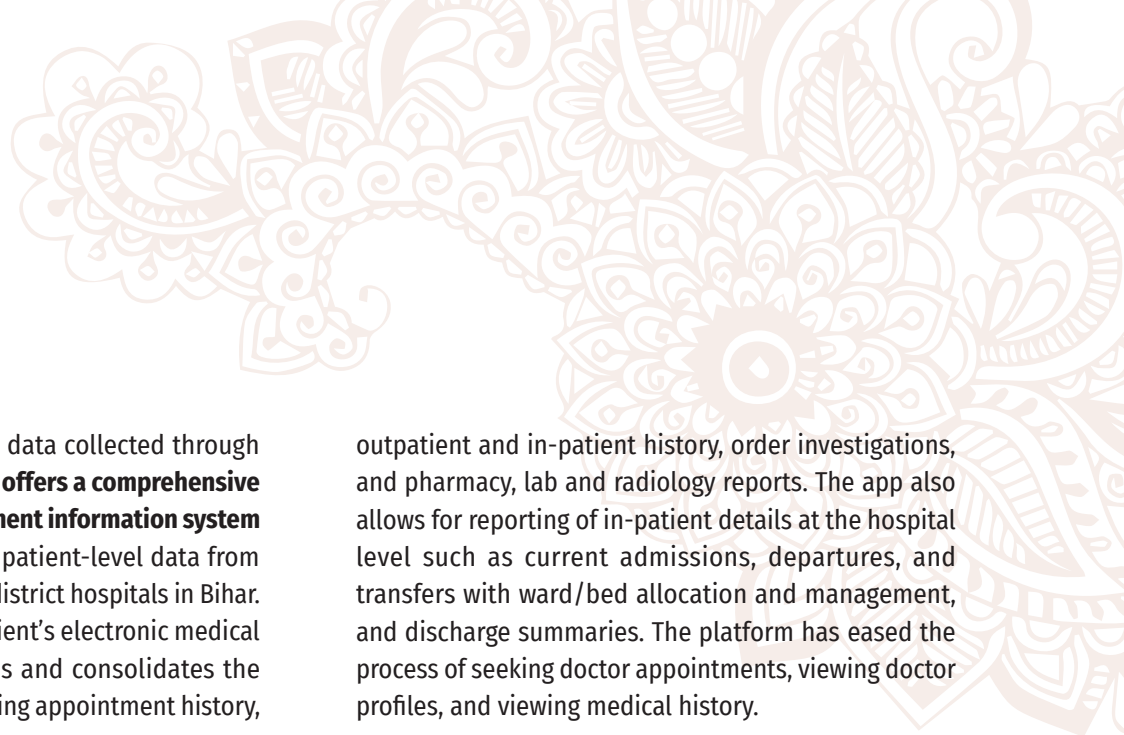
The design of the app and dashboard focused on:

- Increasing the data submission rate through corrective actions, against those routinely failing to comply,
- Increasing accurate and timely data on the availability of equipment and essential medicines for quality delivery of maternal and child health services at health facilities across the state.

It was soon realized, however, that the accuracy of data reported could be improved by complementing self-reported data collected by Block Health Managers with additional, more in-depth data collected by supervisory personnel, specifically the Medical Officer in Charge (MOIC). This was particularly true for data on absenteeism of key health personnel, a persistent problem in many health facilities.

**To support MOICs in this process, and to make supportive supervision more effective and service providers more accountable, CARE developed an additional application: Darpan Plus Supervision.** This app allows MOICs, and other supervisory personnel, to conduct additional regular monitoring of the capacity and readiness of government hospitals and health centres to provide quality services. The design of the app also reduces data quality issues by ensuring data are entered in real-time during supervisory visits by making the data entry form available only when within range of the facility. Whenever MOICs officials make supervisory visits, they can now use this app to record data on human resource performance indicators such as doctors' and nurses' attendance in addition to more in-depth information on the availability of essential medicines, supplies, and equipment than is collected through Darpan Classic.

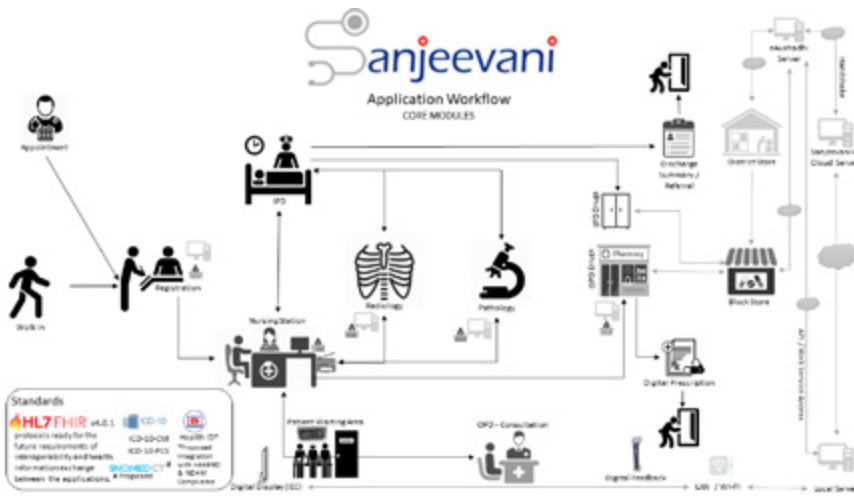




### Sanjeevani++

In addition to the facility-level data collected through the Darpan apps, **Sanjeevani++ offers a comprehensive and integrated health management information system** from which to view individual, patient-level data from community health centers and district hospitals in Bihar. The platform maintains the patient’s electronic medical records with multiple episodes and consolidates the patient’s medical history including appointment history,

outpatient and in-patient history, order investigations, and pharmacy, lab and radiology reports. The app also allows for reporting of in-patient details at the hospital level such as current admissions, departures, and transfers with ward/bed allocation and management, and discharge summaries. The platform has eased the process of seeking doctor appointments, viewing doctor profiles, and viewing medical history.



### THE RESULT: SUPPORTING DATA-DRIVEN DECISION-MAKING

This suite of complementary ICT tools promotes transparency within the health system, encourages government officials to use these platforms to input data, and facilitates their use by leadership at the top-most levels to bring about required changes. The development of these tools have enabled state officials to use technology-driven data collection and visualization to collect and share transparent and credible data.

**As of March 2020, 16.24 million households (86% of total households in Bihar) had been registered by FLWs through The Digital Application for Frontline Health Workers, facilitating more integrated, streamlined, and quality care. At the health facility level, Darpan**

**is in use across all 38 districts** of Bihar and has been able to provide a valuable, comprehensive view of the facility performance leading to increased acceptance and ownership at the District and Block levels. The availability and use of these data facilitates real-time discussions on shortcomings and identification of plausible, remedial solutions. This practice has become even more critical during the COVID-19 pandemic and has allowed the team to further streamline and target these applications to collect data that is most relevant and critical. This includes daily information on the attendance of doctors and nurses in public hospitals through the **Darpan Daily** app, a modified version of Darpan Supervision.

## ??, WHATS NEXT

Looking forward, CARE is eager to build from the experience of designing and scaling the Digital Application for FLWs by working in partnership with Government of Bihar and other stakeholders to create a similar application to support the integration of the population registration and service tracking system between outreach and facility levels. CARE is also looking forward to scaling up Sanjeevani++, which is currently being piloted in two hospitals, to the more than 500 public hospitals across the State of Bihar. This includes exploring how to digitize the entire recording and reporting systems in the health care sector, integrating data across all digital platforms and using them to coordinate an orchestrated response, provide high quality health care, and achieve the highest levels of health care outcomes.

These efforts to streamline reporting and foster better use of data for decision-making will have important

implications as the Government of Bihar and its partners continue to respond to the COVID-19 pandemic including the administration and management of vaccination programs. The pandemic presents an unprecedented challenge for health systems and illustrates the importance and value of ICT solutions for data collection and use. With this challenge, however, also comes a major opportunity to transform how health systems gather, track, and use data. Countries that embrace innovation in digital tracking of the entire COVID-19 vaccination pipeline and use these data to prompt frontline health workers to alert community members of available vaccines, remind them to register appropriately, and facilitate successful and timely completion of first and second doses will save countless lives. CARE looks forward to the opportunity to put our experience and learning with various digital applications and platforms to use in this new and critical response.

**This brief is part of the Bihar Innovation Series, which highlights some of the innovations and models that make up the Bihar Technical Support Program. In partnership with the Government of Bihar, CARE has developed innovative solutions that are increasing access to high quality health services in Bihar.**

**The Bihar Technical Support Program is helping the Health and Social Welfare Departments of Bihar to achieve their goals of reducing rates of maternal, newborn, and child mortality and malnutrition, and of improving immunization and reproductive health services statewide.**

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