



Strengthening Human Resources Information Systems: Experiences from Bihar and Jharkhand, India

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Context

India faces critical human resources (HR) challenges in the health sector, including shortages in key cadres and in rural and under-served areas. Working Groups under the National Rural Health Mission (NRHM) as well as the Planning Commission's High Level Expert Group have emphasised the importance and urgency of strengthening human resources for health (HRH), noting that achieving universal access to quality health care is highly dependent on the quantity and quality of the health workforce.

With an increased recognition of the importance of HRH, NRHM has been investing in developing more health workers, especially at the primary care level. However, a major obstacle has been that information on the health workforce is limited, fragmented, and generally not in a format that can be easily reviewed and shared. The minimal amount of HR information that does exist is usually kept in disparate paper files, which are often not up-to-date. The health information system in most states focuses on service delivery and does not include sufficient HR information. This greatly reduces the ability of decision-makers to access and use accurate and timely data to improve the effectiveness and efficiency of the workforce, which is critical in order to meet national health objectives. An improved HR information system (HRIS) is an essential tool needed to improve HRH policies as well as workforce planning, development, and support.

What is an HRIS?

An HRIS provides managers and decision-makers with information needed to effectively plan, develop, and support their health workforce, including information to identify and address problems. Generally, it includes information on the health workforce such as the number of workers by cadre, posting location, training qualifications, licensing status, as well as information on staffing and vacancies by facility. Many

modern HRIS are multi-database systems with significant capacity to analyse workforce problems and possible solutions, as well as the capacity to link HR and service delivery data. The strength and effectiveness of an HRIS does not solely depend on technology, but rather on the system being practical, user-friendly, flexible, and able to generate accurate and timely information. A good HRIS provides the foundation for strong workforce planning, development, and management including recruitment, deployment, retention, quality assurance and productivity.

Recommended Approach to Strengthen HRH and HRIS

IntraHealth International Inc. (IntraHealth) is a US-based nonprofit agency and a global HRH leader, which advocates for strengthening HRIS as an essential first step in most countries facing HRH challenges. Based on experience of working in over 40 countries, including India, IntraHealth recommends the following steps to improve an HRIS:

- **Ensure local leadership:** A Stakeholder Leadership Group (SLG) should be established for the HRIS and broader HRH efforts, to ensure local ownership, appropriate customisation of the system, and sustainability. The SLG members should represent a broad group of governmental and non-governmental HRH leaders and stakeholders, and their role includes identifying the key HRH policy and management issues and questions, and guiding the effort to strengthen the HRIS.
- **Link with and improve existing information systems:** The SLG or a working group linked with the SLG should assess existing health information systems, information and communication technology infrastructure (e.g., existing networks, internet connectivity, software etc.) and relevant data currently collected by different departments and groups in both the public and private sector. It should

identify the opportunities to link with and complement existing systems as well as priority gaps that need to be addressed through an improved HRIS.

- **Identify and customise software solutions:** After the SLG agrees on key HRH issues, and the needed HRIS improvements, based on the assessment, it will need to seek customised HRIS software solutions. The selected software solutions should complement existing systems and tools, to the extent possible, in order to lower costs and accelerate implementation.
- **Promote use of data:** Once the improved HRIS generates data, it is critical to promote its use, which requires capacity-building and support to managers and decision-makers. The SLG should also model use of the HRIS data, as it works on broader HRH issues.
- **Ensure sustainability:** Continuous engagement of the HRH leaders (including SLG members) is critical for optimal use of the HRIS as well as for ensuring maintenance and improvements to the system in future.



IntraHealth has developed the iHRIS Suite using open source software, to offer health-care providers in developing countries low-cost and easily customised information systems for tracking and analysing health worker data. The iHRIS Suite consists of four tools for managing human resources information:

- **iHRIS Manage**, a human resources management system
- **iHRIS Qualify**, a training, certification and licensure tracking database
- **iHRIS Plan**, workforce planning and modeling software
- **iHRIS Retain**, workforce retention intervention costing tool

HRIS District Pilot Experiences

In India, the National Health Systems Resource Centre (NHSRC), the technical support agency for NRHM, works to strengthen state-level health information systems and HRIS. NHSRC invited IntraHealth to contribute its experience and expertise to the HRIS efforts, through the USAID-supported Vistaar Project. The Society for the Health Information Systems Programme in India (HISP India), a technical partner

of NHSRC, also contributed to this collaboration, and the three organizations formed a technical assistance team. This team offered to help the State Health Society of Bihar (SHSB) and the Jharkhand Rural Health Mission Society (JRHMS) to strengthen their HRIS. In addition, the DFID-funded Bihar Technical Assistance Support Team (BTAST) also contributed to this effort in Bihar. This work started with a pilot in one district per state and the SHSB and JRHMS leaders chose the Siwan and Ranchi districts of Bihar and Jharkhand, respectively. IntraHealth led the technical assistance and capacity-building efforts for these two pilots from mid-2010 through early 2012.

Over time, the state Departments of Health and Family Welfare (DHFV) in Jharkhand and the Department of Health (DOH) in Bihar became involved, since the HRIS is important not only for the NRHM, but for longer term leadership and management of the state health sector. The pilots were successful, and in Jharkhand, the Ranchi district's HRIS is operational and includes over 1,900 employee records. In Bihar, the Siwan district's HRIS is also operational and includes almost 1,100 employee records.

Key Results from the HRIS Pilot Efforts: In March and September 2011, IntraHealth led a review of the district pilots in Bihar and Jharkhand respectively, to assess the results and lessons from the pilot efforts in each state, gathering information from existing data, key informants, and regular review meetings. The key findings from these reviews are summarised below.

- **Health sector leaders in both states are committed to HRIS strengthening and scale-up:** Bihar and Jharkhand health officials have increased understanding and interest in improving their HRIS, and have provided needed leadership in areas such as ensuring timely data collection. The health sector leaders (both NRHM and DHFW/DOH) are committed to statewide scale-up, including ongoing staff capacity-building.
- **A functioning model HRIS exists in both states and serves as a platform for expansion:** The pilots involved the development of a customised HRIS, using the open source iHRIS Manage software. The pilot HRIS included basic HR data on all public health sector employees in the selected district, and allowed users to generate simple and user-friendly reports, organised by characteristics such as facility name and type, job title, date of recruitment, current posting, employment tenure, retirement and contract date.
- **The pilot HRIS is producing useful information:** HRIS reports are being generated in the pilot districts with valuable information about deployment of health workers, by job title and facility as well as by retirement status for regular employees. The pilots also revealed that many contractual

workers were unsure of their job status and were not receiving regular contract extensions, given the lack of an effective mechanism to track contract renewal deadlines. The initial reports also exposed the critical need to standardise health facility names and categories and health worker position titles. The pilots have helped refine the systems requirements, in collaboration with key stakeholders and potential users.

- **Staff capacity is strengthened to implement and maintain the HRIS:** State health sector leaders designated appropriate staff to manage the HRIS pilot work, including data collection, data entry and data quality review at the state and district level. Additional state-level capacity-building is needed, especially in areas such as data quality and data analysis, and additional staff training will be needed in each district for statewide scale-up.

Recommendations for Statewide Scale-up: The recommendations resulting from the pilot experiences and review were as follows:

- **Continue and expand strong leadership:** These two states benefited from strong leadership for the HRIS effort. This will need to continue for statewide scale-up and for future expansion of the scope of the HRIS. Formally constituting an SLG would be helpful in forging stronger inter-agency partnerships, problem-solving, and ensuring high level use of the data.
- **Build capacity of HR unit:** A strong HR unit within the state public health sector is needed to lead core HRH efforts, including managing the HRIS. The states need a regular system and staff to ensure data updates, analysis and use. An HR unit is also needed to lead efforts to expand the HRIS, such as to include in-service training and performance management modules. An expanded and qualified HR unit is also needed to improve HR management systems, such as recruiting, deployment and workforce support efforts.
- **Start with the basics:** In order to build support and create momentum for an improved statewide HRIS, the initial modules, scale-up and use of the system should focus on basic, priority HR areas such as vacancies, deployment, retirement and workforce planning, rather than more sensitive areas such as measuring performance or tracking absenteeism. Once the HRIS is accepted and institutionalised, health sector leaders can expand the HRIS to address more sensitive issues. A potential area for future expansion in these two states would be working with professional associations to improve licensing and continuing education efforts.

- **Establish data standards and data flow processes:** The pilots revealed the need for a standardised list of health facilities and health worker position titles, as often multiple names and category types are being used to refer to the same facility, resulting in misleading data analysis and reports. In addition, many personnel are unsure of their position titles or continue to use outdated titles, because they have not received formal communication of title changes. The pilot efforts focused on customising and testing the software, data collection, and data quality. An important next step is to develop appropriate procedures to assign responsibility and access rights for maintaining and managing the HRIS, protecting the data from damage or tampering, and ensuring privacy.
- **Promote data-based decision-making:** It is important to develop routine mechanisms for HRIS data sharing, such as by incorporating use of the data into regular review meetings held at facility, block, district, and state level. This will require capacity to analyse and review basic HR data at all levels. Data sharing and use generally result in increased interest in the data, and in turn, improved quality of the data. HRIS data and routine reports should be critical tools for HR management, including ensuring staffing and service standards are met at each facility.



Statewide Scale-up Experience

Both state governments appreciated the data resulting from the pilots, and began statewide scale-up efforts soon after the review of the district pilots. The state leaders actively led the scale-up process, and requested continued Project technical assistance during the scale-up effort. The Project focused on capacity-building inputs, especially to ensure strong data maintenance and quality systems. The state officials and Project team worked to ensure that data inputs were standardised, such

as the various categories of job titles, facility names, and other critical fields that were previously unclear. These standardised input categories are critical for accurate HRIS reports. The Project team also assisted with training sessions for state and district government staff, developed job aids to support improved data collection, and helped to standardise the data input fields to reduce data entry errors.

Bihar Scale-up: The DOH decided to continue data collection for all districts and all health worker cadres in the state, and to conduct data verification by cadres, in a phased manner. The first phase focused on doctors, followed by nurses, auxiliary nurse midwives (ANMs) and then other health employees. During each phase, the DOH team set timelines for the completion of data collection and verification, and appropriate government officials were responsible to oversee the activities and monitor progress. The DOH sponsored training sessions on the HRIS and data entry for the district teams. This initial scale-up effort did not include personnel from state medical colleges and their affiliated hospitals or nursing and ANM schools. However, in June 2012, the DOH leaders decided to include these institutions and began efforts to include these personnel, in order to develop a more complete HRIS. The DOH named a Joint Monitoring Committee to oversee the HRIS effort and ensure use of the data, which is an important development for sustainability and use of the HRIS. The Joint Monitoring Committee met four times from July to September 2012 to review and address technological and health system related issues to strengthen the HRIS scale-up efforts, further demonstrating the state leadership's commitment to scale-up success. They have also put data collection and maintenance protocols into place. In addition, the state leaders, who now have an increased appreciation for the value of complete, accurate, and timely data, have decided to establish an HR cell at the state level, to lead HRH efforts in the state, including management of the HRIS.

As of September 2012, the Government of Bihar has more than 38,500 individual employee records available in the state HRIS. Of these records, close to 8,000 are doctors, 2,500 nurses, 12,000 ANMs and 16,000 other employees. The data reveal current health worker deployment, education levels, retirement dates and vacancies by facility, which can inform important HRH decisions in the state. The initial data collection is complete for doctors and nurses and data collection for ANMs and other health workers is scheduled for completion by the end of 2012.

Illustrative HRIS Data: Number of Doctors¹ by Service Category in Bihar

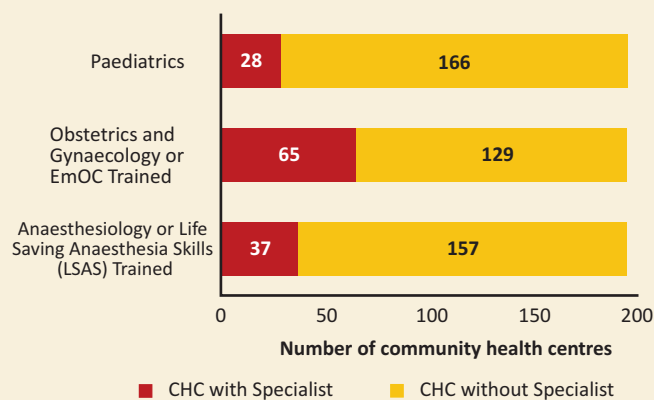
Service Category	Regular	Contractual	Total
State Health Services	2,662	0	2,662
District Health Services	0	2,342	2,342
Medical Education (Allopathic)	1,022	111	1,133
AYUSH Services	237	1,046	1,283
Medical Education (AYUSH)	88	0	88
Other	213	242	455
Total	4,222	3,741	7,963

¹Doctors include those with the MBBS and recognised AYUSH degrees

The HRIS provided the DOH in Bihar with a comprehensive picture of how many doctors they have employed across the various service categories. It also allows them to access more details on each service category, down to the facility location and specific characteristics of each doctor (such as specialisation). This data helped the DOH leaders to realise that there are many doctors working outside of DOH facilities (included in the "Other" category), such as with the District Jail Hospitals, District Police Hospitals, and State Employee Insurance Hospitals.

Jharkhand Scale-up: In Jharkhand, the DHFW decided to scale up the HRIS by focusing first on doctors in the state, and then using these lessons to inform data collection for other cadres. Similar to Bihar, the DHFW leaders put protocols in place for data collection, with timelines and appropriate government officials overseeing the process. As of September 2012, the DHFW team has entered the data and established the HRIS personnel records for more than 1,550 Medical Officers employed by DHFW across the state. The data on Medical Officers reveal current posting, employment history, areas of specialisation, retirement dates and training status, which can inform important HRH decisions in the state. The DHFW team has also collected most of the data for other cadres and they are beginning the data entry process for these cadres. In addition, the state is initiating a data centre within the DHFW, which will lead in HRIS maintenance, data analysis and generating reports.

Illustrative HRIS Data: Presence of Specialists in Community Health Centres in Jharkhand



According to the Indian Public Health Standards, each Community Health Centre should have one physician specialist in paediatrics, obstetrics and gynaecology, and anaesthesiology. However, the HRIS data revealed a severe shortage in specialist doctors, which the DHFW in Jharkhand is working to address.

Challenges and Next Steps

Although excellent progress has been made, there are challenges in strengthening the state HRIS. One of these is a reluctance to share some requested data, especially among Medical Officers. Strong health sector leadership commitment and an ability to explain the importance of the HRIS will help to encourage staff to share the needed information. There are also shortages of qualified staff to operate and maintain the HRIS at the required statewide scale, and a need to designate a responsible unit (with strong links to other key units such as the HR unit), and build their staff capacity. Finally, there is limited experience and capacity in using the data in health sector decision-making, and that will need to be expanded over time.

The important next steps for optimal effectiveness of the state HRIS, include:

- Completing data entry and verification for all health worker cadres
- Ensuring implementation and institutionalisation of data quality, maintenance, and protection protocols
- Building institutional capacity to maintain and ensure use of the HRIS, such as through a strong HR unit in each state

- Building capacity to use the HRIS data for programming, including inter-operability with the Health Management Information System service delivery data

The states have already begun using the HRIS, with a number of health sector leaders reviewing the initial reports, including reports on deployment of doctors and other health workers to identify gaps and consider actions to fill key vacancies. For example, in Bihar, the state HRIS team generates reports on the number and deployment of doctors, and the review of these reports has recently become a part of the state-level Civil Surgeon's monthly review meetings. As a result of the HRIS data, DOH leaders have been able to identify posts where doctors are not reporting for duty over a long period of time, and they are taking actions to ensure these positions are filled. In addition, DOH leaders are improving recruitment and posting of specialist faculty for medical education, because they now have a more complete database of all doctors employed by DOH. In Jharkhand, DHFW leaders have reviewed the data in the system, identified gaps, and initiated the recruitment process for doctors in high need specialties (such as obstetricians and anaesthesiologists) and for high need areas across the state (such as at community health centres).

Conclusion

The initial district pilot efforts in Bihar and Jharkhand established a model district HRIS using customised open source software, built staff capacity in data collection, quality assurance and use, and demonstrated the value of the information generated. Health sector leaders in both states appreciated the district effort and are leading scale up efforts to develop a statewide HRIS, to improve health workforce planning, development and support.

The pilot and statewide scale-up efforts have generated a number of lessons and best practices.

Significantly more data is now available, on the education, employment status, location, and other characteristics of individual health workers, which will facilitate more strategic decision-making and improved access to health care for these states. This effort has demonstrated how a strong HRIS can play an important role in reaching India's goal of universal health coverage.

Vision

IntraHealth International believes in a world where all people have the best possible opportunity for health and well-being. We aspire to achieve this vision by being a global champion for health workers.

Mission

IntraHealth empowers health workers to better serve communities in need around the world. We foster local solutions to health care challenges by improving health worker performance, strengthening health systems, harnessing technology, and leveraging partnerships.

For more information, visit www.intrahealth.org

The Purpose of the Vistaar Project

To assist the Government of India and the State Governments of Uttar Pradesh and Jharkhand in taking knowledge to practice for improved maternal, newborn, and child health and nutritional status

IntraHealth's Global HRH Capacity

IntraHealth International Inc. is a US based nonprofit agency working to improve the health status of individuals, families, and communities. Because health workers save lives, IntraHealth is committed to increasing the numbers of health workers who are present, ready, connected, and safe. For over 30 years, in more than 90 countries, IntraHealth International has empowered health workers to better serve communities in need, fostering local solutions to health care challenges, improving health worker performance, strengthening health systems, harnessing technology, and leveraging partnerships.

IntraHealth leads CapacityPlus, the USAID-funded global leadership project which helps countries address their health worker challenges and contributes to global impact through alliances. CapacityPlus serves partner countries by offering state-of-the-art expertise, models, tools, training, and

analyses adapted to each context. In India, IntraHealth leads the USAID-funded Vistaar Project, which focuses on taking health care knowledge to practice at scale. The Project assists the Government of India and the State Governments of Jharkhand and Uttar Pradesh in improving maternal, newborn, and child health and nutrition. The Project also provided assistance to the State Government of Bihar for strengthening its human resources information system.

HRH Global Resource Center

<http://www.hrresourcecenter.org/>

The HRH Global Resource Center is a global library of HRH resources, including HRIS focused on developing countries.

The Center is a knowledge management service of IntraHealth's CapacityPlus Project

References

- High Level Expert Group Report on Universal Health Coverage for India, Planning Commission of India (2011). Human Resources for Health, Chapter 4, pp: 141-178; Accessed on 27 December 2011 at http://www.phfi.org/images/what_we_do/HL EG_Report_Dec_2011.pdf
- India: Towards Universal Health Coverage 5. Human resources for health in India. Mohan Rao, Krishna D Rao, A K Shiva Kumar, Mira Chatterjee, Thiagarajan Sundararaman. www.thelancet.com Published online January 12, 2011 DOI:10.1016/S0140 6736(10) 61888-0
- Strengthening Human Resources Information Systems: Experiences from Bihar and Jharkhand, India. Vistaar Project, IntraHealth International, Inc. Technical Brief, January 2012.

IntraHealth International, Inc. is the lead agency for the Vistaar Project. For more information on the Vistaar Project, see: www.intrahealth.org/vistaar

Technical Assistance Partners:



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