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the Capacity Project
Planning, Developing & Supporting the Health Workforce

The Impact of Human Resources Information Systems (HRIS) Strengthening

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Addressing the Gap in Health Workforce Information

With accurate, up-to-date, accessible information, human resources for health (HRH) leaders and managers can more efficiently and effectively plan, develop and support the health workforce toward the goals of increased access to services and improved health outcomes.

In 2008, the First Global Forum on HRH issued the Kampala Declaration and Agenda for Global Action calling for "countries to create health workforce information systems to improve research and to develop capacity for data management in order to institutionalize evidence-based decision-making and enhance shared learning" (World Health Organization [WHO], 2008). This global recognition was preceded by national health leaders in sub-Saharan Africa formally resolving to address the "need of strengthening HRIS that would provide information for planning and development of HR as well as information on retention and migration" at the 42nd East, Central and Southern Africa Health Community Regional Health Ministers' Conference (ECSA, 2006). For the past five years, the Capacity Project's HRIS strengthening program has led this growing recognition and redress of the critical gap in health workforce information.

This brief provides an overview of results from a qualitative evaluation study of the Capacity Project's HRIS strengthening in Swaziland, Uganda and Rwanda (De Vries et al., 2009). In addition, it draws on results from a regional workshop on data-driven decision-making in Tanzania hosted by the Capacity Project in collaboration with ECSA-HC and WHO. Overall, the Project conducted HRIS strengthening activities in nine sub-Saharan African countries: Uganda, Rwanda, Swaziland, Lesotho, Namibia, Kenya, Tanzania/Zanzibar, Southern Sudan and Botswana.

HRIS Strengthening

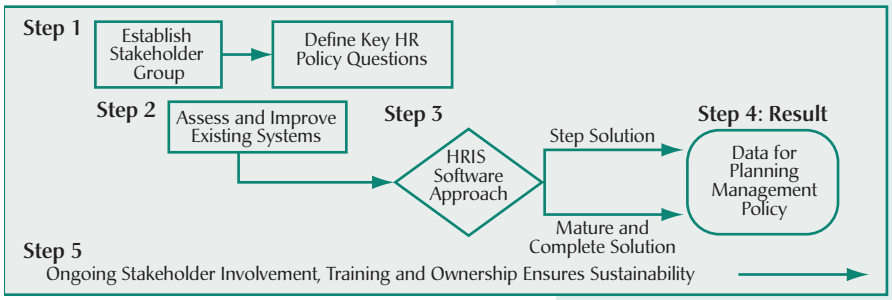
Imagine the Uganda Nurses and Midwives Council before HRIS strengthening work began in 2005. The offices operate in one room. Documents, papers, registers and forms are everywhere. A document left on the table by one officer is unknowingly shifted by another. Files are lost during relocations that have occurred since 1922. While the media speculate about the number of doctors who leave the country and the number of nurses available to provide care, the Council is unable to respond as the containers full of files allow for little data analysis. At the Ministry of Health, identifying and aggregating basic data about the status of health workers takes nearly a month.

An HRIS collects and provides information used in human resources (HR) decisions, ideally linking all HR data from the time professionals enter pre-service education until they leave the workforce. In many low-resource countries, an HRIS relies on paper forms or simple electronic spreadsheets housed in different, unlinked departments. With many forms and spreadsheets to complete, file and track, the systems become a barrier rather than a contributor to better health outcomes. Problems with data quality—such as duplication or inconsistencies—are hard to identify and correct; aggregating data for meaningful analysis turns into a labor-intensive, time-consuming process.

The most efficient, up-to-date way to track changes to a health workforce is to implement an HRIS as a routine, computerized health information system that continually gathers data, and consists of software for entering and updating data into a robust database with reporting and analysis tools (Lippeveld et al., 2000; RHINO, 2003; MEASURE Evaluation, 2008). The Capacity Project developed an HRIS strengthening process and Open Source workforce planning and management software (the iHRIS suite) for use by ministries of health, professional councils/boards and similar institutions.

The Project strengthened HRIS using the five-step participatory process illustrated in Figure 1 (Settle et al., 2009).

Figure 1: Flowchart of the HRIS Strengthening Process



In all nine countries, the Project supported HRIS stakeholder leadership groups (SLGs) as

"Basic information on the workforce that is required in order to inform, plan and evaluate resources is in very short supply in virtually all countries" (WHO, 2006).

Putting in place a computerized, integrated HRIS achieves the following objectives:

- *Improve the accuracy and availability of HRH data*
- *Track individuals as they move through the health workforce system*
- *Decrease the labor required to maintain the HRIS*
- *Quickly aggregate and use data*
- *Share information across sectors to gain a national workforce perspective*
- *Report on and analyze data regularly*
- *Project workforce needs into the future, including training requirements.*

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Key Steps to Implement an HRIS Stakeholder Leadership Group (SLG)

Step 1: Ensure that representatives from key stakeholders—producers and consumers of health workforce information—are included
Promote strong and consistent leadership; seek official recognition of the SLG as the authority to lead this effort.

Step 2: Members define the goals of the SLG
Establish consensus on the mission and purpose; develop agenda for action and responsibility; agree on principles of operation and advisory board structure; develop timelines for activities and meetings.

Step 3: Members define terms of reference and principles of operation
Consider logistics, schedule for meetings, goals, decision-making, rules, creation of smaller working groups.

Step 4: Members assess the current HRH data scenario
Identify producers and consumers of health workforce information; identify data flow and knowledge pathways; recommend authoritative data sources.

Step 5: Members discuss and prioritize health policy questions to be answered by the HRIS
How many health workers are deployed by cadre and region across the country? How many licensed health workers are trained outside the country? Does the number of new trainees match the projected needs? Are issues related to gender equality being addressed?

Step 6: Members identify the health policy reports to be generated by the system
Identify outputs such as national HRH reports for use in annual budgeting and planning (e.g., number of open and filled positions).

Step 7: Members meet regularly to provide advice and trouble-shooting, refine system requirements and ensure that training and sustainability needs are met
Develop a data-sharing agreement to determine who can access which data; develop a strategic plan to build capacity in data-driven decision-making.

a participatory approach to lead, coordinate, harmonize and provide oversight function for HRIS-related activities. The SLG is an important component in ensuring effectiveness, country specificity and ownership as well as sustainability.

Strengthening HRIS may require several culture changes. It introduces information and communication technology (ICT) approaches to HRH, a professional field that is not traditionally analytical or data-oriented and is populated by staff who prefer face-to-face interactions. Further, in low-resource settings, it is often not feasible to build from the bottom up because of poor district-level ICT infrastructure. HRH professionals in many low-resource settings lack training and experience in workforce planning and HR analysis. Finally, the benefits of improved decision-making and processes are typically realized only after several years of data have been entered and after HRH professionals develop their analysis and advocacy skills.

Health System Impacts

Improved HR Data Accessibility

HRIS strengthening greatly improved information accessibility by providing mechanisms to organize available data and make the data available to larger audiences. This enhanced access includes the ability to pull out information at a moment's notice—for example, in preparation for important meetings—and a sizable reduction in paper-shuffling.

Improved HR Data Accuracy

The impact on accuracy is unprecedented. Many individuals no longer appear twice in HR systems. For the first time in these countries' histories, councils, boards and ministries can view an accurate number of qualified health workers. Further, because records now appear in one electronic form as opposed to several different paper registers, mistakes are avoided when aggregating data. Data consolidation in one location also brings to light previously unknown gaps that can quickly be rectified. A Ugandan registrar described how he recognized the absence of about 100 files: "I didn't know that I didn't have them here. So when the data entrant started is when I realized that I don't have that part of the data. So I had to look around…and found them."

At the Uganda Nurses and Midwives Council, the data revealed a significant gap between the number of nurses and midwives who are trained and those who receive licensure. For example, 21,888 nurses and midwives entered training between 1980 and 2003, but only 14,637 of them completed their education and became registered with the Council; just 7,022 have a current license. These results are influencing funding for pre-service education and workforce projections and are being used by the regulatory authorities to ensure that only nurses who are registered and licensed with the Council are hired by the Ministry of Health.

More Efficient HR Systems

Strengthening HRIS greatly reduced the time it took for inquiries or problems to be dealt with. For example, in Swaziland, the time required to identify "ghost workers"—those who are not currently in post but are on the payroll—and stop payment on their salaries was reduced from up to two years to one month. The HRIS also speeds up the time it takes for data verification. In another Swaziland example, the HRIS reduced the time it took to verify the status of employees for promotion or appointment from four to six months to an almost instantaneous process. Similarly, putting a new health worker on payroll used to take three to six months but now takes only one month, with significant implications for job satisfaction and retention.

Increased HR Transparency

The HRIS improved system transparency, critical for the recruitment and hiring process. In Swaziland, the complex sequence of steps involved in recruitment has been made visible because there is now an HRIS function that indicates the location of a request in the HR system. Further, because of the monthly circulation of paper facility-level reports from the central level to facilities and back, facility managers have a heightened awareness of the status of their HR requests. In Rwanda, even the simple condensing of facility- and district-level reports into one form for HRIS data entry is noted to have improved transparency. Corruption is reduced because fewer individuals are able to falsify documents or impersonate someone.

Lowered Costs

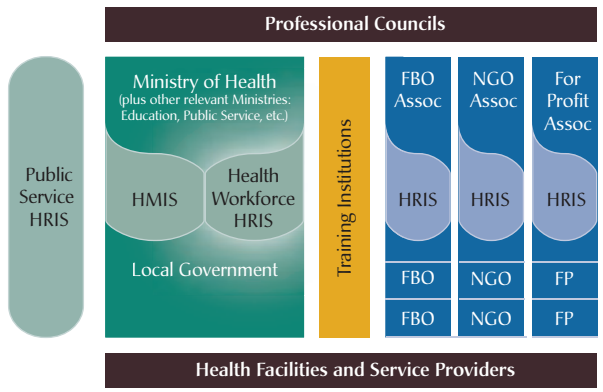
Optimizing workforce planning can increase efficiency and reduce wasteful spending. In Swaziland, the HRIS helped to schedule staff to work in positions for which they were trained and best suited, thereby increasing efficiency. Improved monitoring of HR resources can eventually show a decline in the number of uncoordinated requests for posts, which translates into more efficient capital investments. The immense time savings offered by HRIS also translates into substantial salary cost-savings, and an HRIS can free up funds committed elsewhere. For example, if a post has been created but the HRIS shows that it stands vacant, the funding that has been allocated toward this post can be made available for other needs.

Health Workforce Outcomes

The Project's HRIS strengthening has resulted in several key outcomes, including improved leadership, policy and advocacy, increased strategic planning and research and stronger HRH management and personnel systems.

Improved Leadership, Policy and Advocacy

The combination of HRIS information with political advocacy provides a key strategic advantage to professionalize the HR function. For example, the Swaziland Ministry of Health and Social Welfare analyzed vacancies and staffing needs with the HRIS to create well-supported



Sources of Health Workforce Information: This information domain map shows the variety of information sources necessary to create a complete picture of the health workforce.

requests for new staff from central government. As a result, an unprecedented 200 posts were approved and added during the first year of the HRIS, and 300 posts the next year, a significant percentage of the country's small health workforce. In addition, the Ministry used HRIS reports to successfully create posts to absorb contract staff in order to ensure continuity of services. Further, HRIS-produced information about workforce numbers and HRH problems was beneficial in articulating the need for a Health Services Commission in the new HR Policy.

At local levels, the monthly feedback loop of reports to facilities allowed local HR managers to communicate their needs back up the chain. At the facility, regional and central levels, the HRIS provides better identification of misaligned health workers and empowers HR managers to trace back the errors and report them to the central HR unit. In Uganda, Pharmacy Council staff described success in using HRIS reports to advocate for their interests more effectively in relation to developing legislation and lobbying local pharmaceutical companies to increase pharmacy school enrollment by establishing a number of scholarships for students who could not afford fees.

Enhanced Strategic Planning and Research

The HRIS encouraged managers to use their existing resources more strategically. In Swaziland's Lubombo Region, Ministry of Health and Social Welfare Statistics Unit staff participated in regional strategic planning workshops, presenting combined information from HRIS and the broader health management information system (HMIS). For years, regional managers had complained about staff shortages and pushed for a larger workforce. To their surprise, Lubombo officials found that their district actually had higher levels of staff compared to other regions, and learned in follow-up that the region had even been given new posts but did not receive effective notification. The result was health planners' renewed advocacy to push for filling those posts, turning their focus away from the central level to look at a better internal allocation of existing resources. Without the HRIS data flowing down to Lubombo, their strategic approach to solving HR needs would have continued to be off-target.

HRIS motivated personnel units to become more proactive at informing department heads of upcoming retirements, promotions or concluding contracts. As insight into the number and distribution of vacancies increases and recruitment grows, attention focuses on critical issues of staff allocation, training, retention, geographic equity and deployment.

HRIS also enabled more accurate research by students, nongovernmental organizations and other researchers. For example, a consultant to the European Union used the Swaziland HRIS data to accurately evaluate staffing levels, and determined that the country's presumed "lower middle class" status in terms of the number of doctors per 100,000 has been overestimated (Ruck, 2009).

Improved HRH Management and Personnel Systems

The most direct benefit of the HRIS has been a strengthening of the precision with which personnel systems are managed. For example, the Uganda Ministry of Health allocated resources more rationally by relating the numbers of staff to patients, using both the HRIS and patient information. In Swaziland, the HRIS made it possible to track the recruitment process, allowing HR managers to monitor transfers and take action to speed the process when necessary. New staff are enrolled in the payroll system much faster. The HRIS enabled a nurse manager at a regional referral hospital to make the best use of scarce, skilled nurses and to plan nursing rotations among different clinical areas.

Conclusions

HRIS strengthening takes HR decision-makers to a new level of capacity for strategic action. The health workforce is a key resource in improving access to quality health care, yet advocacy to strengthen the workforce makes little impact unless supported by accurate and convincing HR data. A strong HRIS is a phenomenal tool for integrating and analyzing data, as it allows managers and decision-makers to see how the whole becomes much more important than the parts, turning distant data into powerful information. The passionate support of the ministries of health, district and regional HRH managers and professional councils in the countries involved has been a clear indicator of the Capacity Project's success. Partnering with regional health organizations (such as the ECSA-HC) has been an essential factor in this success, raising awareness of the need for better health workforce information among national and regional health leaders and ensuring that HRIS are counted among regional health minister resolutions.

continued

"I think the biggest change has been that a lot of information has gotten out there. A lot of people found out they had vacant posts they didn't know about. We've got a big list of people who've left the Ministry years ago. The personnel unit didn't know they'd left."

–Swaziland Ministry of Health and Social Welfare official

"Through this work, the Project has developed a comprehensive HRIS strengthening approach and a suite of free HRIS software products to track the qualifications of health workers at registries, manage HR and deployment needs and plan for future workforce requirements. It's amazing."

–Dr. Helen Lugina, ECSA-HC

Global eHealth Leadership

The 2008 Bellagio eHealth Call to Action exhorted global health stakeholders to "accelerate achievement of better health for all in the 21st century. We can accomplish this through interoperable, person-centered, evidence-based, and sustainable eHealth systems" (Rockefeller Foundation, 2008). The health workforce information and HRIS domain are just one part of routine health information systems, which fit within a broader spectrum of eHealth.

The Capacity Project has led the HRH information field in a series of global eHealth strategy conversations. The Project partnered with WHO, Health Metrics Network, the World Bank and others to develop leading models of health information architecture. By harmonizing with other global eHealth efforts, the Project helped to realize efficiencies and leverage opportunities to address standards development, capacity-building, stakeholder leadership, infrastructure strengthening and other needs. The ultimate result will be the better understanding and preparation of the health workforce to use eHealth to "accelerate achievement of better health for all" (Ibid.).

Visit the HRH Global Resource Center to find, share and contribute human resources for health knowledge and tools. For those working at the country or global level, the HRH Global Resource Center provides information to:

- Improve strategic planning and decision making
- Strengthen reports and presentations
- Support HRH advocacy
- Enhance professional development
- Save time.

Through its HRIS strengthening program, the Project has been recognized as a global leader in increasing the quality and availability of information for HRH planning and health worker development and support, "representing the best in engineering practices, excellent documentation, consistency, and high standards" (Habte and Emmet, 2008). The Project's iHRIS software suite is listed as one of 50 Open Source projects that are changing medicine (Nursing Assistant Guides, 2009).

The Capacity Project's success in the nine HRIS focus countries has stimulated interest from other countries (e.g., India, Pakistan, South Africa) in using and adapting Project-developed approaches, software and tools to address their own health workforce challenges.

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