iHRIS Implementation Toolkit--Printable Version Shannon Turlington, Shannon Turlington

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Introduction Before You Begin

While implementing iHRIS takes substantial effort, it can have a significant impact wherever it is used. That begins with changing from established ways and systems to new ones. Not everyone working on your team and who you will interact with will have experience using computers, managing databases, or relying on access to information to make decisions. Real and lasting change takes time, and the process requires patience and persistence.

What does a successful iHRIS implementation look like? The ultimate measure of the system's performance is regular use for making HR policy and management decisions, with stakeholders accepting the data as reliable, accurate, and valid. Beyond that, its interoperability with other health systems enhances the power of its data. In short, the system is useful, used, and powerful.

There are three important points to understand about the implementation process before diving in:

- 1. **This is a process, not a one-time event.** Don't expect to simply install iHRIS and start using it immediately. Implementation requires thoughtful planning and stakeholder support. Even after the implementation has ended, regular monitoring and updating of the system will keep it useful and used.
- 2. **Planning is important for success, but so is flexibility.** The unexpected will arise. Even after thorough planning, last-minute changes occur. For example, there may be changes in leadership, policy, or goals for the health information system. Be willing to adapt. Plans can and should be adjusted throughout the process to meet the realities as they exist.
- 3. **Implementation is different everywhere.** This Toolkit provides a roadmap to the process, incorporating the best advice of previous field implementers. Every place is different, however, and every implementation must be different too. Use this Toolkit as guidance, not hard-and-fast rules. You may need to omit some steps or tackle them in a different order. You will probably have to adapt the tools to make them appropriate for your situation. Again, flexibility is important for success.

Read through the entire Toolkit and familiarize yourself with the process before you start. Several important steps must be completed before you begin installing and customizing iHRIS. It may seem like the assessment and planning steps will take a lot of time. These phases, which include policy development and requirements gathering, are the most intensive part of the process. However, they are essential in ensuring a successful iHRIS implementation that can be sustained over the long term.

Assemble the Implementation Team

Implementing iHRIS requires a team to take on the many roles needed for success. The **Project Manager** (or team leader), plans the details of the implementation, tracks progress, and reports on outcomes. That person must be an enthusiastic champion of the project who engages with the stakeholders of the system and

communicates the benefits of iHRIS to them.

The team will include at a minimum the following roles:

- The ICT Advisor manages the customization of the software and setup of the ICT infrastructure.
- The **HRIS** Advisor manages data sharing and interoperability tasks, defines system requirements, and extracts business rules from stakeholders.
- The **iHRIS Software Developer** implements the customizations defined by ICT and HRIS advisors.
- The HR Data Analyst manages data standards, quality, use, and reporting.
- The Training Manager is responsible for training and technical support of all the users of iHRIS.

Learn About iHRIS

During the iHRIS implementation, the team will install and customize one or more of the iHRIS health workforce information solutions. The iHRIS applications include:

- *iHRIS Manage*, to manage health worker deployment, performance, and attrition information;
- *iHRIS Train*, to track health worker training activities;
- *iHRIS Qualify*, to track health worker licensure and certification.

Working together in a country setting, these three systems provide a powerful solution for managing and analyzing health workforce information. Distributed as **free and open source software**, all three applications can be installed and modified without paying a licensing fee. Each of the applications may be used independently or integrated with software already in place, filling in any gaps that existing systems may have.

Free and open source software is software that has been released under a license that makes the software source code open to anyone to view, copy, modify, or redistribute. While iHRIS is free, in terms of licensing fees, it is also free in another, more important sense. The iHRIS source code is openly shared to encourage others to use it, improve it, and share those improvements back with the larger community of iHRIS users. This freedom to use and share iHRIS, and to change the software to adapt to different needs, results in a better information system for everyone.

Before adopting iHRIS, the team should learn what it does and how it works. They will need to convince stakeholders on the choice of software, which will be difficult if they don't understand its functionality. The implementation team must understand the software well enough to understand how iHRIS can be adapted to meet the stakeholders' needs.

The following tools will help everyone learn more about the iHRIS applications and present iHRIS to stakeholders. Feel free to adapt these tools. For example, your team may wish to add slides to the PowerPoint presentation as examples of implementations in similar organizations or countries. This will help stakeholders understand how iHRIS can benefit them and meet their specific needs.

- <u>iHRIS Website</u>: Go here to download iHRIS and get answers to questions from the Global iHRIS Support Community
- <u>USAID's Investment in Open Source iHRIS Software</u> (handout)
- <u>iHRIS Manage: A Tool for Managing the Health Workforce</u> (handout)
- iHRIS Train: An Open Source Tool for Managing Health Worker Training (handout)
- <u>iHRIS Qualify: A Tool for Tracking Health Professionals and Their Qualifications</u> (handout)

Determine the Scope of the Implementation

For the purposes of this Toolkit, the implementation scope refers to the iHRIS applications to be installed and where and how they will be deployed. Setting the scope early helps set the limits of the project when presenting to stakeholders and determining budgets, timelines, and requirements.

To determine the overall scope of the iHRIS implementation, the team will need to define these variables:

Focus, or the type of health worker information to manage:

- iHRIS Manage manages employment information.
- iHRIS Train manages preservice and/or in-service educational or training program information.
- iHRIS Qualify manages certification or licensing information.

The focus may include one, two, or all three of these types of health worker information. It may be limited to public or non-public sector workers. It may be limited to one cadre, such as nursing, or several professional groups. It may even be broadened beyond the realm of traditional health workers, to include social service workers, for example.

Location(s) where the system will be deployed: For example, you may deploy iHRIS at a central, national-level location, such as a Ministry of Health or Nursing Council. Or you may widen the deployment to include several districts/regions. You may deploy iHRIS at a single facility, such as a hospital or training institution, or deploy it to several facilities throughout a region or country. If iHRIS is to be deployed to multiple locations, also consider whether the different systems will share data or whether all the data will be aggregated to a single, centralized location.

While it is important to define the scope of the iHRIS implementation before you begin, in order to guide your planning efforts, that shouldn't limit broadening or altering the scope at a later point in the implementation. You may wish to start with one iHRIS application or implementation in one location, and then choose to expand those efforts based on the success of the implementation.

Get Started

To begin, let's take a look at the implementation process as a whole by learning how to use the Toolkit.



Learn How to Use

Image not found

In this Implementation Toolkit, the implementation process is divided into six stages:

<u>Stage 0: Assess</u>—Understand what is needed <u>Stage 1: Plan</u>—Ensure a successful implementation <u>Stage 2: Deploy</u>—Make iHRIS work for you <u>Stage 3: Pilot</u>—Start small and show value <u>Stage 4: Scale-up</u>—Extend your pilot to all stakeholders <u>Stage 5: Sustain</u>—Maintain and support the system

The assessment stage is numbered 0 because at this stage, the decision is made whether an HRIS is needed and if iHRIS is the right solution. It's possible that the team may decide not to proceed with the implementation after completing Stage 0.

To help keep the process from becoming overwhelming, we have provided a roadmap to guide the implementation team through the stages of the implementation. We recommend several outcomes and deliverables for each stage. For each of these, we have provided tools to help achieve the outcome, which can be modified as necessary.

Whenever you see the Implementation Roadmap, you may click on any numbered stage to go to that stage. There you will find a brief overview, followed by the objectives for that stage, each addressing a key cross-cutting area, as follows:

Cross-cutting area A: <u>Governance</u> Cross-cutting area B: <u>Project Management</u> Cross-cutting area C: <u>Software and Systems</u> Cross-cutting area D: <u>Data Sharing and Interoperability</u> Cross-cutting area E: <u>Data Quality</u> and <u>Standards</u> Cross-cutting area F: <u>Training and Support</u> Cross-cutting area G: <u>Data Use</u> and <u>Reporting</u>

It may make sense to assign a team member responsibility for overseeing each cross-cutting area. For example, the ICT Advisor would be responsible for software and systems, while the HRIS Advisor would oversee data sharing and interoperability.

Under each objective, one or more tools are listed that can help you achieve the objective. Click on the tool's name to read an overview of the tool and important contextual information. You can then click the tool link on the right to download a copy of the tools. The format of the tool is identified by its icon and includes

printable files in PDF format (red icon), presentations in Microsoft PowerPoint format (orange icon), forms and spreadsheets in Microsoft Excel format (green icon), and editable documents in Microsoft Word format (blue icon). Some tools are hosted on an external website and are identified by a purple link icon; clicking these tools will take you off the iHRIS Implementation Toolkit website.

At the end of each stage, we have provided a suggested deliverable and a list of questions that should be answered before proceeding to the next stage in the implementation process.

Consider the Implementation Roadmap a guide that can be adapted to fit your situation. You may need to prioritize activities and outcomes. For example, although you may choose not to link iHRIS with other health information systems when you first install iHRIS, you will still want to plan for future interoperability.

This <u>matrix</u> describes the entire implementation process. Click on any box in the matrix to jump directly to that stage in the process.

You are invited to submit comments and suggestions to improve these tools or contribute your own tools to the Toolkit. You will find options for making comments and submitting tools at the bottom of each tool's page.

Let's get started with <u>Stage 0: Assess</u>.

0. Assess: Understand What Is Needed Assess

It's only natural to want to jump right into deploying a new *human resource information system* like iHRIS, once it's decided that one is needed. Before beginning, though, take some time to assess the systems for managing health information that already exist.

iHRIS will be a sub-component of the *health information system (HIS)* or *eHealth* architecture that will need to share data with other information systems. During this stage, it's important to identify all potential producers and users of HRH information. These will be sources of data for iHRIS. The assessment will also help you understand how HRH information will flow to other systems, as well as to users via reports.

Also look for gaps or needed resources to support iHRIS during the assessment phase. Some of the biggest challenges cited in implementing iHRIS are *infrastructure* needs, such as reliable electrical power, Internet connectivity, production and testing servers, and a place to store database backups. Training of everyone who will use iHRIS, both to enter data and analyze HR information, is also often overlooked. These needs must be factored into the total cost of the implementation.

Active participation of senior leadership is often cited as the most important factor in a successful implementation. At this stage, it is most valuable to identify "*early adopters*," who can help build consensus by showing enthusiasm for the HRIS. With these *stakeholders*, begin to identify the *policy and management questions* that need to be answered by the HRIS. For example, do you need a system to help determine the number of students graduating from nursing schools so you may predict your available health workforce? Or do you need to know who is retiring in five years so you can determine if training should be scaled up? This is also a good time to build your *business case* for iHRIS, which presents the problems to be solved and the benefits of using iHRIS to stakeholders.

Objectives and Deliverables

Governance

Identify the primary champions, or stakeholders, of iHRIS.

Determine whether there is an established regional body or health organization, such as a *Health Workforce Observatory*, that can provide technical assistance or additional resources.

National Health Workforce Observatories in the Context of Africa Health Workforce Observatory: Concept and Implementation Strategy (*Africa Health Workforce Observatory, WHO [draft]*) CapacityPlus Technical Brief 2: West Africa's Regional Approach to Strengthening Health Workforce Information (*CapacityPlus, 2012*) Global Health Workforce Alliance (*WHO*) Africa Health Workforce Observatory Network

Project Management

Understand issues involved in planning an information systems project and developing a health information system.

Planning an Information Systems Project: A Toolkit for Public Health Managers (PATH, 2013)

Developing Health Management Information Systems: A Practical Guide for Developing Countries (World Health Organization, Regional Office for the Western Pacific, 2004)

Present the problems to be solved and the benefits of using iHRIS to stakeholders. Get consensus from the leaders on the outcomes they expect from the implementation.

Software & Systems

Conduct an assessment survey of existing HRH information systems, processes, data collection forms, and standards. Assess existing infrastructure available to support the system and document any gaps.

WHO Country Assessment Tool on the Uses and Sources of HRH Data (World Health Organization, 2012)

Data Sharing & Interoperability

Conduct an assessment survey of existing HIS. Review the country's eHealth strategy, if there is one, and document any policies that need to be followed.

Assessing the National Health Information System: An Assessment Tool (*Health Metrics Network, WHO*, 2008)

Data Quality & Standards

Understand the sources of HRH data and communicate the value of health workforce information.

Training & Support

Assess resources available to support trainings and document any gaps. Identify potential training sites.

Data Use & Reporting

With stakeholders, begin defining the key HRH policy and management questions that need to be answered by the HRIS.

Data Demand and Information Use in the Health Sector: Conceptual Framework (*MEASURE Evaluation*, 2006)

Human Resources Management Assessment Approach (CapacityPlus, 2013)

Deliverable

Document the assessment results in a report for stakeholders. Based on the results, diagram the links between producers and users of HRH information to determine how data move through the systems and to whom it will be reported. Identify gaps in supporting ICT infrastructure.

Key questions to answer before continuing:

- Is an HRIS appropriate for this environment?
- Is iHRIS the best software to fulfill the need?
- Do you have leadership support, infrastructure, and funding in place?

Go to Stage 1: Plan.

Presentation: Building Stakeholder Leadership

Objective

Identify the primary champions, or stakeholders, of iHRIS.

This presentation serves as a general guide to help leaders understand the considerations that go into planning the iHRIS implementation. Use this presentation for presenting leadership concepts and important questions for early adopters and other key stakeholders to consider. Many of these questions should be answered by the assessments performed during this stage.

Stakeholder Leadership Concepts

Stakeholder leadership is essential for supporting the successful implementation of an HRIS. Effective stakeholders have strong leadership qualities and proven management skills, as well as the time available to coordinate partnerships, guide collaboration, and build trust throughout the process. Without such leaders championing iHRIS, a successful implementation will be extremely difficult.

Where should you look for such leaders? Ideally, a champion will have already emerged as someone who has identified the need for an HRIS and is advocating for implementing iHRIS. For example, a high-level supporter or leader of HRH will very likely be from the Ministry of Health (MoH); have the vision to align the MoH's HR strategy to national strategic goals; and can bring stakeholders together to formulate national strategies for HRH.

It is important to include as many of the stakeholders as possible in the process. Other potential leaders may include high-level officials from the Ministry of Finance, Ministry of Education, national payroll department, professional regulatory councils, and large health facilities like national referral hospitals, faith-based organizations (FBOs), or private hospitals. Other stakeholders may include local and international nongovernmental organizations (NGOs) interested in developing HRH. A well-regarded leader in a regional organization such as the East, Central, and Southern Africa Health Community (ECSA-HC) or the West African Health Organization (WAHO) may be able to recruit high-level stakeholders to support efforts within a country.

Tool filename (offline version): Tool0-A.pptx; download tool (requires Internet connection)

Presentation: Benefits of iHRIS

Objective

Present the problems to be solved and the benefits of using iHRIS to stakeholders.

Use the presentation to make the case for iHRIS to stakeholders. Include examples that are relevant to your context, such as ways that similar countries or organizations are using iHRIS to address HRH challenges. The goal is to get consensus from the leaders on the outcomes they expect from the implementation.

Advocating for iHRIS

A project manager is also an advocate for the project. As a first step for implementing iHRIS, make a clear case to all stakeholders for the need for iHRIS and the improvements it will bring. A business case statement reinforces these benefits by linking iHRIS's capabilities to specific problems to be solved. Defining the project's desired outcomes at this phase moves it from the abstract to the possible.

Here are some key points to make when promoting the benefits of iHRIS:

- Reliable, accurate, updated health worker information is necessary for planning and setting policy. Unless it is computerized, this information cannot be easily accessed or analyzed.
- iHRIS is open source software, which reduces costs and ensures local ownership of the system, since it can be freely downloaded and modified.
- iHRIS includes three separate applications that meet different needs: iHRIS Manage, iHRIS Qualify, and iHRIS Train. (Refer to the implementation scope that you defined in <u>Before You Begin</u>.)

Demonstrating existing systems will help those who are new to information systems visualize the final product. For example, use of iHRIS Qualify in Uganda was facilitated by a study trip to the Kenya Nursing Association to see it in operation. Similarly, the West Africa Health Organization first learned about iHRIS Qualify from a video of its impact at the Nursing Council of Uganda.

You may also want to list specific benefits of implementing iHRIS for different stakeholder groups. Here are some examples of these benefits:

- More accurate understanding of workforce
 - Better measure of impact
 - Improved license monitoring
 - Eliminate redundant trainings
 - Accurate retirement projections to fill gaps
 - Improved health system support
 - Easier identification of quacks

- Presentation: Benefits of iHRIS
 - Greater accountability
 - Eliminate ghost workers
 - More informed workforce planning
 - Improved financial and services planning
 - Improved projections
 - Better match of educational programs with country needs
 - Improved deployment
 - Establishment of and adherence to staffing norms
 - Greater services coverage
 - Improved understanding of needs
 - Improved budgeting and projections

• Better HR policy and governance

- Policy control
- Greater registration and licensure compliance
- Education standards
- Clearer and more consistent performance and compensation management
- Better workload balance
- Better monitoring and evaluation
- Tighter cost controls
- Greater process efficiencies
 - Reduced costs
 - Reduced time for registration and licensure processing
 - More effective trainings
 - Shorter recruitment and deployment times
 - Faster hiring and promotion times
 - Faster, more complete services
 - Lower cost of interventions
 - More effective use of resources

Refer back to the Introduction of this Toolkit, <u>Before You Begin</u>, *for iHRIS handouts that can help when making the case for the implementation.*

Tool filename (offline version): Tool0-B.pptx; download tool (requires Internet connection)

Worksheet: HIS Assessment Survey

Objective

Conduct an assessment survey of existing HIS. Review the country's eHealth strategy, if there is one, and document any policies that need to be followed.

To conduct a broad-based assessment of the national HRIS, we recommend <u>Assessing the National Health</u> <u>Information System: An Assessment Tool produced by the Health Metrics Network</u>. You may also use the HIS Assessment Survey provided as a supplemental tool when assessing each HIS or activity found in the country. At the end of the template is a guide to different business domains where HIS may be located.

Assessing the Health Information System: Concepts

The HRIS will be a sub-component of the country's HIS or eHealth architecture. Situating iHRIS within the larger HIS supports analysis of health worker information in the broader health context.

For this assessment, take a high-level qualitative inventory of all HIS, as well as any support national strategies or policies for eHealth. These include electronic health records, logistics and supply chain management, disease surveillance, laboratory management, and e-learning for health. By widening the assessment, you can identify the needs that other HIS have for HRH data, which may not be obvious. This assessment will reveal which systems iHRIS will need to link to in order to share data.

A secondary goal is to determine whether any strategies, policies, or standards exist that will affect the system requirements. These policies are usually described in a national eHealth strategy document. They may apply in the following areas:

- national vision, principles, and information policies, including those on privacy and data security
- hardware standards
- network and data exchange protocols
- data standards, such as existing reference tables
- common service applications
- functional requirements for health applications

Tool filenames (offline version): Assessessing_National_HIS (folder; link above) and Tool0-D.doc; <u>download tool (requires Internet connection)</u>

Tipsheet: Sources of HRH Data

Objective

Understand the sources of HRH data and communicate the value of health workforce information.

As much as possible, the HIS should use common datasets and a standardized data exchange format. This will ensure that the HRIS can regularly share data with other systems. Linking HRH data with broader health information—such as disease burden, health services utilization, and patient outcomes—can prioritize health worker training and deployment in order to meet health system goals.

iHRIS will require an initial input of health worker data, which will need to be collected from one or more sources. Often the first source of HRH data to be considered is the national health management information system (HMIS), which might provide the number of doctors, nurses, or midwives but little else. This system may help a country look at deployment issues or inequities, but gives none of the granular data essential to supporting the health workforce.

Another source of health worker data most countries have is the payroll system designed to ensure that public sector workers get paid. These systems frequently have large gaps; for example, they usually don't include health-specific information, such as cadres or health competencies. They also often don't include the duty station—the community or facility health workers are working in; they would instead favor the 'duty station' where health workers get paid, perhaps the district health office.

The public sector payroll system almost never includes non-public sector employees. That information is usually only captured by the different non-public sector organizations themselves. Grouped into faith-based organizations (FBOs), nongovernmental organizations (NGOs), and for-profit providers and organizations, these bodies have their own payroll systems, at a minimum. There is often an umbrella organization or association that may provide services to all of their member organizations.

Training institutions can provide data on the incoming pipeline of health workers from preservice education, as well as improvements to competencies through in-service education. Professional councils are probably the most powerful sources of information. These regulatory bodies register and license all health professionals of a particular cadre. They capture information on all health workers regardless of the sector they are working in, and they gather data directly from the health workers themselves, not through any complex and error-prone management structure.

Examples of institutions that may provide data on HRH

National institute of statistics: Data related to the population census

Ministry of defense: Data on military health workers

Ministry of health: Number of health workers Ministry of finance: Payroll information for public sector workers Private sector organizations such as FBOs and NGOs: Payroll information for private sector workers Migration office: Records or categories of migrant health workers Ministry of labor: Number of health workers Medical council: Registry of public, private, and foreign doctors Nursing council: Registry of public and private nurses Nursing association: Registry of nurses School of medicine: Records of medical students School of nursing: Records of staff and students School of midwifery: Records of staff and students School of technicians on health: Records of staff and students Regional health centers: Records of regional health workers Other health worker associations: Registry of public, private, and foreign health workers Labor unions: Registry of public, private, and foreign health workers Tool filename (offline version): Tool0-E_intro.docx; download tool (Internet required)

Worksheet: HRIS Assessment Questionnaire

Objective

Conduct an assessment survey of existing HRH information systems, processes, data collection forms, and standards. Assess existing infrastructure available to support the system and document any gaps.

We recommend using the <u>WHO Country Assessment Tool on the Uses and Sources of HRH Data</u> as a guide for assessing HRH data sources and systems. You may choose to supplement this tool with the HRIS Assessment Questionnaire, which you can use as a guide when conducting assessment interviews.

HRH Data and Infrastructure Assessments: Concepts

This step involves an inventory of the existing ICT infrastructure for managing HRH data across the various ministries, councils, and organizations that will be using iHRIS. The assessment documents hardware, software, networks, Internet connectivity, databases, and technical support procedures. Consider not only any existing HR information systems, but also paper-based systems or simpler computerized systems such as spreadsheets. Be sure to include existing paper forms for collecting health worker information and document any processes in place for managing the information, as well as quality control processes.

A thorough assessment should reveal all existing sources of HRH information and all resources available to support iHRIS. You may uncover sources of HR data that you didn't even know existed. For example, you may find that an existing system already tracks health worker trainings or certifications, and could be linked to iHRIS to supply missing data on health professionals' qualifications. Or there may be an underused source of HR information managed by a different department, such as Finance, that can immediately improve data access for all. The survey should also reveal any gaps in health worker data that are present, such as if qualifications or deployments are not being tracked in any system.

The process entails interviewing key informants working with HRH information. Consult the most senior official available in the Ministry of Health to advise who should be interviewed. The following types of people usually work with HR information and should be prioritized for interviewing:

- Managers of health management information systems (HMIS)
- Statisticians, usually located in the health statistics unit
- Payroll staff
- HR senior managers, personnel officers, and records officers in the HR unit
- Undersecretaries, director generals, or principal secretaries
- Chief nursing officers
- Health planners
- Registrars from councils, such as the nursing council
- Any identified stakeholders (see the Governance step)

It is often useful to forward a questionnaire to the interviewee in advance. The results can then be used to prepare for a formal interview. In addition to evaluating existing HRIS capabilities and limitations, these interviews will help establish expectations regarding system functionality and priority requirements that the new HRIS needs to support. It will likely reveal additional key stakeholders to invite to join the <u>governance group</u>.

Areas where improvement is needed will probably emerge from the assessment responses. You may discover gaps in HR information, data quality, and ICT infrastructure. Each area should be documented separately so they can be addressed at the appropriate stages of the <u>implementation plan</u>.

Improvements to existing ICT infrastructure can generally be implemented rapidly and will ensure readiness for the iHRIS when deployment begins. Even small improvements often result in increased efficiency and productivity. The following are key ICT improvements that are often identified as gaps for supporting a mature HRIS such as iHRIS:

- Reliable electrical power
- Computer access for HRH and ICT staff
- Backup system
- Updated software
- Access to spare parts for computer repair
- Local area network access
- Internet connectivity or wide area network access
- Access to shared files or resources
- Staff training in computer use
- ICT technical support
- Technical support service-level agreements
- Antivirus protection
- Email access
- Skype or mobile phone access

In addition to improving the ICT infrastructure, recommendations for improving data collection, training procedures and technical support can be made at this point in the process. Data quality is of primary importance and should be emphasized at every step, from initial data collection to data analysis and interpretation.

Tool filenames (offline version): WHO_Country_Assessment_Tool.pdf (download link above) and Tool0-C.doc; <u>download tool (requires Internet connection)</u>

Worksheet: Training Resources Assessment

Objective

Assess resources available to support trainings and document any gaps.

Using the worksheet, review all training materials you have to determine what can be used as-is or adapted for iHRIS trainings. Also use the worksheet to begin identifying potential training sites and infrastructure needs.

Planning iHRIS Trainings

Training and support should be divided into four scopes of practice: System Administration, Data Entry, Data Use, and Trainers. Each training scope should be planned separately and tailored to suit the intended audience.

The first step is to determine who should be trained. For the System Administration scope, consider health ICT personnel as well as consultants or local organizations that will help install and customize iHRIS. Training a dedicated group of data entry clerks, especially when there is a large backlog of data to be entered, will dramatically improve data quality. For Data Use, identify all iHRIS data managers, including records officers, bio-statisticians, and HR officers.

Building training capacity is vital to the success of the iHRIS implementation due to the high prevalence of employee turnover. Therefore, training several trainers from each district or region, who can later teach new employees how to use iHRIS, should be included in the planning.

Tool filename (offline version): Tool0-F.xlsx; download tool (requires Internet connection)

Presentation: Using HRH Information to Answer Key Policy and Management Questions

Objective

With stakeholders, begin defining the HRH policy and management questions that need to be answered by the HRIS.

Information lacks value unless it is used to answer questions and inform decision making. Defining key questions helps refine the system requirements, data collection needs, and reporting formats for iHRIS. Think of questions that are often asked but can't be answered because the information is not available. Once health workforce data are input into iHRIS, they can be analyzed to provide answers to most HR policy and management questions.

Use this presentation as a framework for conducting the policy and management questions exercise with stakeholders. We have also included some sample policy and management questions, developed for the iHRIS implementation in Uganda. While these questions can help you get started, be sure to work with stakeholders to come up with questions appropriate for your context.

Tool filenames (offline version): Tool0-Ga.pptx; <u>download tool (requires Internet connection)</u>; Tool0-Gb.docx; <u>download tool (requires Internet connection)</u>

Example: HRIS Assessment Report

Objective

Document the assessment results in a report for stakeholders. Based on the results, diagram the links between producers and users of HRH information to determine how data move through the systems and to whom it will be reported. Identify gaps in supporting ICT infrastructure.

This is an example of a report on the results of an HRIS assessment done in Malawi. Use this report as a model for drafting your own HRIS assessment report. The report includes a brief implementation plan at the end, which you may choose to document separately in <u>Stage 1: Plan</u>.

Tool filename (offline version): Deliverable0.pdf; download tool (requires Internet connection)

1. Plan: Ensure a Successful Implementation Plan

A planning phase is essential for defining the *system requirements* before installation of iHRIS begins. These requirements should build on the work done during the <u>Assess stage</u>.

Planning (as well as all subsequent stages) should be done in consultation with stakeholders. Understanding the various perspectives of the stakeholders and finding areas of consensus are important to ensure the success of the implementation. Representatives from the stakeholder organizations make up the *Stakeholder Leadership Group (SLG)*. (An alternative established mechanism of stakeholder leadership might be an existing national Health Workforce Observatory or an HRH taskforce.) Forming the SLG requires high-level buy-in from HRIS champions (see Stage 0: Governance).

Together with the SLG, you will write the *implementation plan*, a detailed action plan for how iHRIS will be deployed. You will also collaboratively determine the requirements for customizing iHRIS so that it will produce the necessary data for informed decision making. The SLG should have final approval of these important deliverables.

Objectives and Deliverables

Governance

Working with identified leaders, determine which representatives from stakeholder groups to invite to join the SLG. In the initial meeting, agree on *Principles of Operation* and *Terms of Reference* for the group.

Guidelines for Forming and Sustaining Human Resources for Health Stakeholder Leadership Groups (*Capacity*Plus, 2011)

Project Management

Develop roles and responsibilities for the members of the implementation team.

Establish tools for managing the project and working with the implementation team.

Project management tools, such as HingX

Open source project management software, such as GanttProject

Software & Systems

With the SLG and the implementation team, collaboratively develop the system requirements and document them using a standard methodology.

Collaborative Requirements Development Methodology (CRDM) Walk-through

Data Sharing & Interoperability

Identify standards to use when sharing data with other systems in the HIS.

WHO's ISCO-08 Classification of a health worker

Care Services Discovery Standard

Data Quality & Standards

Identify the sources of standard HRH data to be used in iHRIS. Determine whether the data are consistently formatted and coded across these sources. If not, decide with the SLG what the standards should be and document them with the system requirements.

Establishing and Using Data Standards in Health Workforce Information Systems (CapacityPlus, 2014)

Review with the SLG data collection processes and forms. Revise forms to provide the minimum necessary dataset to answer policy and management questions.

Training & Support

Train data collectors to use revised data collection forms. Data collection can begin at any point after the data collectors are trained.

Data Use & Reporting

Document requirements for reports produced by iHRIS.

Deliverable

Write the project implementation plan and attach the system and reporting requirements, as well as any data collection forms and supporting documentation. Share the plan with the SLG for their approval before proceeding with deployment.

Key questions to answer before continuing:

- Have all stakeholders agreed on the implementation plan and system requirements?
- Are stakeholders engaged to provide input on policy and management questions?
- Are infrastructure, personnel, and financial resources available to support the deployment?

Go to Stage 2: Deploy.

Template: SLG Principles of Operation and Terms of Reference

Objective

Agree on Principles of Operation and Terms of Reference for the SLG.

We recommend the <u>CapacityPlus</u> Guidelines for Forming and Sustaining Human Resources for Health <u>Stakeholder Leadership Groups</u> as a guide to forming and managing the SLG. In the first SLG meeting, use the template to agree on Principles of Operation and Terms of Reference for the group. The SLG can decide how detailed these should be. Make this document available to all group members as a reference and to ensure that expectations are clearly understood.

Stakeholder Leadership Group Concepts

The purpose of SLG is to ensure explicit agreement on the goals and objectives of the HRIS before implementation begins. The group will also oversee the implementation process, monitoring progress, making key decisions, and ensuring that objectives are being met.

A participatory and inclusive approach is the key to the SLG's success. Bringing together the key stakeholders into one leadership group opens communication channels between groups that typically may not interact, facilitating collaboration and sharing of data. This process helps ensure ownership of iHRIS by those who will use it and builds the necessary capacity to support and improve iHRIS.

An effort should be made to identify and invite representatives from all government and nongovernment groups that produce and use HRH data to join the SLG (<u>see Building Stakeholder Leadership</u>). Representatives from all of the following should be considered:

- Ministry of Health departments (especially personnel, information technology, and payroll units)
- Ministry of Finance
- Ministry of Education
- Faith-based organizations (FBOs) that manage health service delivery
- International donor organizations interested in developing HRH
- Licensing and registration/certification bodies
- Private-sector organizations
- Hospitals and health facilities
- Scholarship boards
- Training institutions
- Experts in health workforce planning and information systems
- Health staff
- Community leaders and volunteers

Take care not to create a SLG that is too large in size, as large groups tend to be less effective. It is best to invite one or, at most, two representatives from each stakeholder to join the SLG. After the first few meetings, the SLG can divide itself into two or three groups (such as policy, operations, and implementation subcommittees) and periodically present their progress to the whole group. Keep in mind that senior leaders may not have a lot of availability, so be flexible in scheduling meetings.

Tool filenames (offline version): SLG_Guidelines.pdf (download link above) and Tool1-A.docx; <u>download</u> tool (requires Internet connection)

Template: Terms of Reference for iHRIS Project Team

Objective

Develop roles and responsibilities for the members of the implementation team.

The example terms of reference outline roles and responsibilities for the project team assembled to implement iHRIS in Lesotho. Adapt this template to specify the roles and functions required for your implementation team.

The implementation team will probably include the following roles, although the titles may vary or responsibilities may be split among multiple team members:

- **HRIS project manager (team leader):** manages the implementation project and coordinates work with stakeholders.
- IT team leader (ICT advisor, software developer): oversees installation of the system and makes customizations.
- HRH data analyst (HRIS advisor): ensures data standards and quality, advises on use of data, and oversees reporting.
- **Planning and utilization team leader (training manager):** oversees training of users, ICT personnel, data managers, and executives in using iHRIS.
- Support staff: support project activities, collect data, and/or enter data into iHRIS.
- **ICT support:** support the IT team leader in system administration and technical issues.

Tool filename (offline version): Tool1-Ba.docx; download tool (requires Internet connection)

Example: GANTT Chart

Objective

Establish tools for managing the project and working with the implementation team.

A GANTT chartcan help visualize the project workplan by showing the tasks planned for completion during specific time periods. The chart also shows the dependency of tasks; for example, one task must be completed before a dependent task can begin. The actual work can be charted against the planned time to track progress. Project management software, such as Microsoft Project or the open source <u>GanttProject</u>, is used to create Gantt Charts. <u>HingX</u> provides free project management tools that can be used, along with the tools in this Toolkit, to plan and manage your iHRIS implementation.

Tool filename (offline version): Tool1-Bb.pdf; download tool (requires Internet connection)

Template: User Requirements Specifications

Objective

Document the system requirements using a standard methodology.

The user requirements documentation provides a template for how to document system requirements in a consistent way for agreement upon by the SLG and the software developers.

Systems Requirements: Concepts

System requirements document all needs that iHRIS should address when the system is deployed. The requirements include rules to satisfy standards, regulations, or laws. The basic iHRIS software will fulfill some of these requirements, but some may require customizing the software. Agreeing on and documenting the requirements before development begins reinforces the scope of the project and provides a guide for the software developers throughout the deployment phase.

Many methodologies have been developed to document functional requirements. The simplest method is the <u>Collaborative Requirements Development Methodology</u>. This method will guide you through the process of defining requirements based on business processes and task flows with a group, such as the SLG.

Another method of documenting requirements is to write *user stories*. A user story is a short, simple description of a software feature, told from the perspective of a person who is using the system. An example of a user story is: "As a user, I can update my employee record." Users can be further categorized into different personas, depending on their role with regard to the system. Examples of personas that would access iHRIS Manage include "HR Records Officer," "HR Manager," and "Decision Maker." User stories are short and non-technical; they are meant to stimulate discussion about the requirements.

If more thorough documentation of these scenarios is required, consider writing *use cases*, which systematically describe how the system interacts with a user or another system, listing the steps needed to achieve specific goals. Use cases are particularly important when documenting business rules that you want to capture in iHRIS. The use cases communicate to the developers what customizations need to be made *and* serve as the official documentation for the stakeholders. It may require several iterations of a use case to describe a complex business process, such as renewing a contract for a new employee, and clear documentation can help avoid potential misunderstandings.

When iHRIS was initially developed, a set of use cases were written to specify what the software would do. These use cases can be modified to document customizations to iHRIS. If you need to develop an entirely new module or application for the system, you may need to write additional use cases. (See the <u>Use Case</u> <u>Development Tool</u>.)

Any standard methodology, or combination of methodologies, that works for your SLG and implementation team can be used, so long as the requirements are documented consistently and agreed to by all stakeholders.

Tool filenames (offline version): software_dev_life_cycle.pdf (download link above) and Tool1-Ca.docx; <u>download tool (requires Internet connection)</u>

Documentation: Use Case Development Tool and iHRIS Use Cases

Objective

With the SLG and the implementation team, collaboratively develop the system requirements and document them using a standard methodology.

If you decide to document the system requirements for customizing iHRIS using the use case methodology, we have included a template for writing use cases. We have also included all of the original use cases developed for iHRIS Common, Manage, and Qualify, which you may adapt as needed.

Use Cases: Concepts

It is important to identify the functions that the system will perform and document them. Think of these functions as *goals*. What goals do you want to achieve with your HRIS? The policy and management questions that the Stakeholder Leadership Group (SLG) developed should provide a list of these goals.

You may find that some goals cannot be accomplished in iHRIS as it is installed. In that case, a programmer will need to customize iHRIS to achieve those goals. For example, you may need to build a new report or add a new field to capture additional data.

A simple way to document these needed customizations is to write use cases. A *use case* describes how to achieve a specific goal or function using the system. At the end of this document is a template to use when writing use cases.

Benefits of Use Cases

One of the most difficult aspects of system development is figuring out exactly what to build. There is often a gap between the people who understand the problem and the people who understand how to build the solution. Use cases are one of the most effective means of bridging that gap. Written in plain language, without technical jargon, use cases describe system goals in a way that can be understood by the stakeholders and users of the system and by the developers of the system. The set of use cases serves as a roadmap for the developer to achieve what is desired by the stakeholders.

Use cases are usually co-written by stakeholders, users, and developers. This ensures that the system includes the functions that are truly important to the people who will be using it. Use cases should focus on the goals that users want to achieve. Focusing on action-oriented goals defines the scope of the system and eliminates unnecessary requirements, reducing costs and development time.

Several related use cases may be organized into modules, called *packages*. Development of each module can then be prioritized and scheduled. This helps plan a path for development where core functions can be

developed first and enhanced later by lower priority features. The core system can be used even while new functions are being developed.

However, use cases should not serve as all of the system specifications. For instance, use cases do not specify the user interface design. They don't capture nonfunctional requirements, such as performance, security, and auditing requirements. Also, use cases do not describe database fields or their relationships to one another. Use cases are just one part of the full system specifications, but they are still a valuable communications tool.

Use cases should be living documents. Stakeholders, users and developers should constantly review, revise, and expand the use cases during the development or customization of a system. At different stages, use cases can be used to:

- Describe a work process
- Focus discussion about system actions
- Be the functional requirements for a system
- Document the design of a system
- Serve as a mechanism for managing and tracking software development
- Generate procedures for testing a system
- Write instructional, help and training materials for end users.

Not all requirements have to be known before starting development. Use cases may be edited during development to capture additional goals, and new use cases may be written as needs for the system arise.

The Parts of a Use Case

The use case enumerates all of the steps describing the interaction of one user—called the *actor*—with the system to achieve a goal. The use case begins at a triggering event and continues until the goal is either successfully achieved or abandoned. It collects all the possible scenarios for how the goal can be achieved and how it may fail.

At minimum, each use case should contain the following information:

- A *goal* to achieve
- The *actor* who is attempting to achieve the goal; the actor should be identified by a role in interacting with the system, not by a name or the name of a group
- A condition under which the use case runs; this may include any *preconditions* that must be true before the scenario can start and a *triggering event* that starts the scenario
- A set of action steps called the main success scenario
- A possible set of *extensions*, or alternate scenarios, leading toward either the success or failure of the goal.

Tool filenames (offline version):

Tool1-Cb.docx; <u>download tool (requires Internet connection)</u> Tool 1-Cb-i.doc; <u>download tool (requires Internet connection)</u> Tool1-Cb-ii.doc; <u>download tool (requires Internet connection)</u> Tool1-Cb-iii.doc; <u>download tool (requires Internet connection)</u>

Tipsheet: Standardized Data Lists

Objective

Identify standards to use when sharing data.

The iHRIS software will likely not exist in isolation from other parts of the health information system. As your iHRIS deployment matures, more and more systems will want to use the data contained in iHRIS.

There are two important concepts to understand when sharing data: *standardized data lists* and *interoperability standards*. A data list is a list of options that would display, for example, in a drop-down list [see Tool 1-E]. A standardized data list specifies the same options to use across multiple systems. Some examples to consider for standardizing are:

- cadres
- facilities
- facility types
- geographic information, such as districts and regions

Some of these standardized data lists may need to be developed by stakeholders at professional councils, the Ministry of Health, and faith-based organizations, so that they can all report information in the same way as other systems such as a Health Workforce Observatory or a health management information system like DHIS2. Sometimes these standardized lists can be taken from an international specification such as:

- <u>countries</u>
- <u>languages</u>
- WHO's ISCO-08 Classification of a health worker

There are a few *interoperability standards* for exchanging health worker information system between systems. One key standard, which is already supported in iHRIS Version 4.2, is the <u>Care Services Discovery</u> (<u>CSD</u>) standard from Integrating the Health Enterprise (IHE). This standard provides an XML-based data model and API to exchange health worker information between various information systems (such as iHRIS Manage or Qualify), as well as with other parts of the HIS, such as a medical record system like OpenMRS or a health management information system like DHIS2.

Tool filenames (offline version): ISCO_08.pdf (download link above); IHE_CSD.pdf (download link above); Tool1-D_intro.docx-download tool (Internet connection required)
Worksheet: Standard Datasets

Objective

Document data standards, or standard ways of listing data in dropdown menus.

Use the worksheet to identify all of the lists to be used in iHRIS and develop standard lists of data types for each. These will be added to the systems requirements for customization of iHRIS. While this worksheet documents standardized data lists for iHRIS Manage, it can be adapted to any installation of iHRIS by adding new sheets for each additional menu. Examples of standards used in Namibia are given, but you should develop context-appropriate standards in collaboration with stakeholders. Notice how national standards were added to the worksheet to help enforce consistency; international standards such as the WHO classification of health workers could be imported in the same way. Mapping capability to these standardized codes has already been implemented in iHRIS.

Standardized Data Lists: Concepts

Standardized data lists ensure that health worker data can be effectively analyzed. For example, if health worker cadres are referred to differently in different health facilities, there is no way to aggregate to a national picture of that cadre. Even non-standard usage of abbreviations and spelling can prevent data aggregation. Therefore, it is important to standardize data across all institutions that will use the data. HRH data standards should align with the broader HIS or eHealth standards, as well as with broader national or international standards wherever possible (For more on this, see the <u>Standardized Data Lists tipsheet</u>.)

A framework for enforcing data standards is consistently coding the data the same way throughout the system. To ensure consistent coding, iHRIS uses dropdown lists whenever standardized data is required. The user must select from the list rather than type in the data. This prevents inconsistencies due to typos, abbreviations, or different words used for the same item.

Tool filename (offline version): Tool1-Ea.xlsx; download tool (Internet connection required)

Template: Sample Data Collection Forms

Objective

Revise data collection forms to provide the minimum necessary dataset to answer policy and management questions.

We have provided sample health worker data collection forms in a paper version, for collecting data by hand, and a spreadsheet version, for collecting data on the computer. We have also provide a data collection form designed for gathering training data to enter in iHRIS Train.

Modify these forms as needed to collect the minimum dataset for your iHRIS implementation. Test the revised forms to assess whether they are easily used and complete. Review the new forms with the SLG for approval.

Data Collection Forms: Concepts

Instead of creating an entirely new data collection tool, it is usually better to modify existing forms (collected during the <u>Assess stage</u>). The forms may need to be redesigned to capture the data that are required to answer HR policy and management questions. It often makes sense to reorganize the form to follow the data entry workflow in iHRIS (consult with the software development team and review the system requirements) and, if manageable, include any standardized data elements, such as cadres.

Extreme care should be taken to reduce the burden of data collection. A guiding principle is to reduce the amount of data to be collected to a "minimum dataset." If something is not going to be used to answer the policy and management questions, it should not be collected. There is no need to collect duplicate data to feed multiple systems when the data can be shared between systems instead. Data should be entered once and as close to the point of the health personnel contact as possible.

Tool filenames (offline version): Tool1-Eb_paperform.doc; <u>download tool (Internet connection required)</u> Tool1-Eb_computerizedform.xls; <u>download tool (Internet connection required)</u> Tool1-Eb.doc; <u>download tool (Internet connection required)</u>

Job Aid: Fill Data Collection Form

Objective

Train data collectors to use revised data collection forms.

The job aid is an example of a data collection form from India with instructions for completing the form. This form probably will not match the data collection forms you will be using, but should be used as a model for developing your own job aids or training tools.

Training Data Collectors: Concepts

Data collectors are responsible for collecting the health worker information to be entered into iHRIS during the <u>Deploy phase</u>. Data collectors should be prepared to engage with the owners of data at facilities, councils, and other sites. They will require training in data collection instruments, whether paper or computerized.

After completing data collection training, data collectors should know the following:

- what iHRIS is and why they are collecting health workforce data
- how to read and use data collection and associated forms
- if data are collected using a laptop, mobile phone, or other equipment, how to operate and troubleshoot the technology
- how to meet data quality requirements and schedules for the data collection exercise.

Include any consent or waiver forms (if applicable) in data collector training. It is also important to consider data governance. For example, if paper forms are being collected for entry into iHRIS, establish a protocol on what happens to the forms once the data have been entered. Finally, collect feedback on the training so that future trainings can be improved.

Data collection can begin at any point after the data collectors are trained. Data will be entered into the <u>pilot</u> <u>implementation of iHRIS</u>.

Tool filename (offline version): Tool1-F.doc; download tool (Internet connection required)

Template: Reporting Requirements

Objective

Document requirements for reports produced by iHRIS.

Use this template for capturing reporting requirements as a guide as you work with stakeholders to design the reports they expect from iHRIS. These reports should be linked to the policy and management questions previously defined.

Reporting Requirements: Concepts

The reporting requirements should specify the frequency at which reports need to be generated and who will receive the reports, as well as the required data elements and their sources. You may also want to decide on a protocol with stakeholders for generating and disseminating reports. This will encourage data use and demand. Look to HRH Workforce Observatories, HRH country profiles, and annual bulletins, which you may have collected during the Assess phase, for examples of reports being produced that you can use as models for reports generated by iHRIS.

Some reports will require data from outside iHRIS, such as the total numerical size of the population at national or district level or other relevant denominators. Be cautious when considering information from outside sources. It is important the sources are reputable and the data are valid and accurate. When using iHRIS data and information from outside sources together, you should be careful when comparing data. Denominators, for example, may not be the same and inferences should be made with caution.

Tool filename (offline version): Tool1-G.xls; download tool (Internet connection required)

Example and Template: Implementation Workplan

Objective

Write the project implementation plan.

We have included a comprehensive implementation plan from Uganda as an example for writing your own implementation workplan. Use the workplan template spreadsheet for planning implementation activities. This will be the basis for the comprehensive implementation plan. While this template is for an iHRIS Manage implementation, it can be modified for any iHRIS implementation project.

Implementation Workplan: Concepts

The implementation workplan is a detailed action plan for how iHRIS will be deployed in the country or organization. It includes a timeline, budget, and risk analysis. A pilot site is identified, and a method for assessing the success of the pilot is determined. The implementation plan should be divided into milestones to measure progress against objectives and identify specific people responsible for each milestone.

Many people underestimate the costs of information systems projects, focusing only on the costs of the initial development and piloting. iHRIS is an open source software solution, meaning that the software itself is completely free. But that doesn't mean that it is without cost, although the costs won't be as significant as when implementing a commercially licensed HRIS. Costs to take into consideration include:

- programming expertise for customizing and upgrading the system
- ICT support
- training needs
- data collection, entry, and management
- infrastructure and security needs.

Just as costs are often underestimated, so is the time it takes to implement an information system successfully. Hurrying the process may result in unclear requirements or skipping quality controls, which may lead to costly mistakes or even project failure.

Understanding and managing risk is a key component of project management. If you don't take risk factors into consideration when planning the project, you will not be able to minimize their impact. The implementation plan should include a risk assessment highlighting the likelihood and severity of risks, along with mitigating action.

Tool filenames (offline version): Deliverable1a.pdf; <u>download tool (Internet connection required)</u> Deliverable1b.xlsx; <u>download tool (Internet connection required)</u>

2. Deploy: Make iHRIS Work for You Deploy

During the Deploy (or adaptation) phase, the implementation team installs iHRIS and customizes it to meet the system requirements. It is unlikely that iHRIS as installed will fulfill the requirements decided upon by the SLG. iHRIS has been designed to be easily customized by modifying *fields, forms*, and *modules*, or even programming new modules, if necessary.

While iHRIS is being installed, customized, and tested, consult the system requirements frequently. Often the unexpected occurs, and changes must be made to the requirements. It is important to document these changes by updating the requirements and noting what updates have been made.

The deliverable of this stage is *production code*, a version of iHRIS that fulfills the SLG's requirements and is ready to use. The production code should be deployed on a dedicated server that has proper backups, uninterruptible power supply (UPS), and line conditioners installed. Do not edit any of the source code on the production server; instead pull in committed, tested code from the *source code repository*.

In addition to production code, you should maintain *development code*, a version of iHRIS that will continue to be customized as new needs emerge. The development code typically exists in two places: on the software developer's computer or laptop, from which the developer commits changes to the source code repository; and on a testing server, where the committed code can be reviewed to ensure that the requested functionality is met.

Don't neglect the SLG during this phase. Set a regular meeting schedule to establish roles and responsibilities and address issues that will arise. Since this group will oversee iHRIS throughout its operation—not only during the implementation phase, but well beyond—now is a good time to put in place *standard operating procedures* to ensure efficient operation of the SLG.

Objectives and Deliverables

Governance

Document any standard operating procedures that exist or have been decided on by the SLG.

Country Coordination and Facilitation (CCF) Principles and Process (WHO Global Health Workforce Alliance)

Applying Stakeholder Leadership Group Guidelines in Ghana: A Case Study (CapacityPlus, 2013)

Project Management

Monitor whether customizations to iHRIS conform to the system requirements. Test the software with users or stakeholders to determine if the customizations meet expectations. If a change to the requirements is needed, log the change and the reason for it.

Software & Systems

Download, install, set up, and customize the iHRIS software.

iHRIS Software

iHRIS Global Support Community

Documentation: iHRIS Implementation Tutorials

Documentation: iHRIS Developers' Guide

Data Quality & Standards

Customize fields, forms, and modules in iHRIS according to the agreed-upon data standards.

Data Sharing & Interoperability

If existing data are available in electronic format, you may choose to import the data into iHRIS during this phase. Before importing, convert data to standardized data lists [ref to Tool1-D]. Otherwise, collect and enter initial data during the Pilot phase, after ensuring that data collection tools report according to the standardized data lists. *See* <u>iHRIS Technical Documentation</u> *for instructions on how to import and store data in iHRIS*.

Data Use & Reporting

Customize reports based on the reporting requirements. Produce sample reports for testing. Engage with the SLG early on the report templates. *See* <u>iHRIS Technical Documentation</u> *for instructions on how to customize reports*.

Training & Support

Develop and implement a program for training ICT staff on administering iHRIS. Plan for how ongoing support of iHRIS will be provided, including needed skills updates.

iHRIS Administrator: Level 1 e-Learning Course (CapacityPlus)

Open of Course free e-courses in Linux, programming, web design, and open source software development

Free Linux Training from the Linux Foundation

Deliverable

By the end of this phase, you should have two code branches of iHRIS: a production branch and a development branch. We recommend that you publish the code on Launchpad, the hosting site for all of the iHRIS code branches. See iHRIS documentation [above] for instructions on how to manage a site on Launchpad.

iHRIS Source Code on Launchpad

Key questions to answer before continuing:

- Does iHRIS meet the system requirements?
- Have all operability, customization, and systematic issues been identified and corrected?
- If there were changes to the requirements, have they been approved by the stakeholders?

Go to Stage 3: Pilot.

Example: Standard Operating Procedures for the Ministry of Health

Objective

Document standard operating procedures that have been decided on by the SLG.

The example Standard Operating Procedures document HR workflow at the Uganda Ministry of Health, HRIS management at the Ministry, and technical functions of HRIS at Ministry. Adapt this model to meet your own needs.

Standard Operating Procedures: Concepts

Members of the SLG come from many different organizations, with different interests and objectives. In order to operate most effectively, the members of the SLG must coordinate their efforts. Agreed-upon procedures for governing iHRIS and for the management and use of HRH information can strengthen collaboration, improve accountability, and reduce duplication of effort.

Establishing standard operating procedures (SOP) will help address the following issues that may arise:

- defining roles and responsibilities among large numbers of diverse stakeholders;
- establishing leadership and stewardship over data management processes;
- consolidating policies and priorities from different stakeholders;
- increasing consultation among stakeholders to find solutions to specific problems;
- improving technical capacity of stakeholders to use HRH data for decision making.

Don't try to make all these decisions in one meeting, but discuss them over time, encouraging contributions from all stakeholders. Prioritize all responsibilities of SLG members to make certain there are enough members with sufficient time to perform them. You may have to scale back the scope of the group's activities to align with available time commitments.

Once agreement is reached among all stakeholders, the procedures should be documented and incorporated, as applicable, into the responsibilities of the employees working with iHRIS. The procedures should also be made available to all members of the SLG. SLG members should strive to keep standard operating procedures simple, practical, and transparent. This will help ensure compliance and sustainability.

Tool filename (offline version): Tool2-A.docx; download tool (Internet connection required)

Worksheet: Issue Management List

Objective

Monitor whether customizations are conforming to system requirements and log changes to requirements.

The software developers typically work in short iterations to customize iHRIS to meet specifications, organizing informal tests as they do so. It's a good idea to organize a user test during this time period, in which several of the eventual users of the HRIS can find out first-hand whether the system meets their requirements. This test usually uses sample data in a controlled setting (often referred to as a "conference room pilot").

During each test, make sure that the requirements are implemented as specified and are working as expected. Issues, or unexpected problems with the system, will probably arise during this process. Document all issues as they occur, using the worksheet, and note any resulting changes to the system requirements.

Tool filename (offline version): Tool2-B.xlsx; download tool (Internet connection required)

Documentation: iHRIS Operations Guide

Objective

Download, install, set up, and customize the iHRIS software.

Download and install the iHRIS software from <u>the iHRIS website</u>. There are four download options: **iHRIS Full Suite** includes the three iHRIS applications and core software, or you may download the applications **iHRIS Manage, iHRIS Qualify,** and **iHRIS Train** separately (for more information, refer to <u>Before You</u> <u>Begin</u>).

Before proceeding with the installation, read through all of the documentation. Available on our website is a set of tutorials for <u>iHRIS</u> implementers and <u>a guide for software developers customizing iHRIS</u>. It is important to read through and understand all of the documentation before attempting to customize fields, forms, or reports or import data into iHRIS.

If you haven't already done so, join the <u>iHRIS Global Support Community</u>. The iHRIS Global Support Community is available to answer questions and provide support with installing and setting up iHRIS. This is a forum of iHRIS implementers and developers from all over the world, including the core development team. Don't hesitate to ask questions if you need help.

It's a good idea to keep your own documentation of iHRIS operations pertinent to your implementation as you proceed with the customizations. This will serve as a reference as you install iHRIS at the pilot site and roll it out to other areas. We have provided an example of an iHRIS Operations Guide developed for the iHRIS Manage implementation in Malawi as an example.

Tool filename (offline version): Tool2-C.docx; download tool (Internet connection required)

Worksheet: Customization of Fields

Objective

Customize fields, forms, and modules in iHRIS according to the agreed-upon data standards.

It is unlikely that iHRIS as installed will collect all the data you need using the standards that the stakeholders have agreed upon. That is why iHRIS has been designed to easily be customized. The software developers will probably need to modify the fields and forms in your installation of iHRIS to support the data standards you need to use.

Use the worksheet to list all of the fields that will need to be modified or added. The worksheet was developed for use with iHRIS Manage, but it can be adapted to any iHRIS installation.

In most cases, you will only need to modify the attributes of existing fields to conform to data or functional requirements. You may also need to add some new fields to the module or even program a new module. The <u>iHRIS Developers' Guide</u> provides a technical overview of iHRIS and instructions on how to customize fields and modules.

Tool filename (offline version): Tool2-E.xlsx; download tool (Internet connection required)

Presentation: iHRIS System Administration Training

Objective

Develop and implement a program for training ICT staff on administering iHRIS.

Use this presentation as a template for developing a training program for teaching ICT staff how to administer and manage iHRIS. We have also developed an online e-learning course in iHRIS administration, which is available at the <u>HRH Global Resource Center</u>. The course can be taken independently, or it can be used as the basis for a group training program.

System Administration Training: Concepts

ICT personnel need to be trained to understand how iHRIS works and how to use the system. This knowledge should go beyond system administration tasks, such as installing the software, making backups, and managing user accounts. ICT support will be the first responders when users have questions, so they will also have to understand how to enter data, manage the database, and create reports.

You may find that trainees lack required ICT skills for supporting iHRIS. The staff may need additional training in administering servers, managing databases, and basic programming. Consider implementing any of the following to improve ICT skills:

- remote training, including 'just-in-time' training to introduce necessary skills as they are needed
- open source e-courses, often available free online at sites such as <u>Open Of Course</u> and the <u>Linux</u> <u>Foundation</u>
- partnering with computer science departments at local universities to offer courses in basic skills
- mentoring programs conducted in partnership with local universities to train computer students to become iHRIS administrators

Tool filename (offline version): Tool2-F.pptx; download tool (Internet connection required)

3. Pilot: Start Small and Show Value Pilot

After installation, a *pilot* provides the opportunity totest iHRIS on a small scale in a real-world environment, such as in one facility, district, or region. The main objective of the pilot is to determine whether iHRIS, as currently deployed, meets the HRH information needs of the SLG and identify any changes that need to be made early in the process. It should also become clear whether the system requirements are adequate to support the goals that the stakeholders want to accomplish. The pilot results can be invaluable for demonstrating the capabilities of iHRIS to stakeholders.

Begin by ensuring that all hardware, software, and other infrastructure needed to support iHRIS have been installed. These needs were identified during the <u>Assess</u> and <u>Plan</u> phases, but should be deployed before software installation can begin.

During the pilot, maintain close contact with the SLG to share results as they happen and come to quick decisions if changes are needed. All of this feedback contributes to the SLG's understanding of how iHRIS will work when it is deployed on a wider basis. Consider forming a *user group* to supply immediate feedback on system improvements and *usability*. The chair of the user group should also participate in the SLG.

Needs for additional functionality and support will probably become apparent during the Pilot phase. Examples include the need for data entrants to enter the backlog of health worker data into iHRIS in a timely manner or a server to back up iHRIS data. Consider adopting an *iterative development* approach to customizing iHRIS to keep up with emerging needs. This approach allows you to incorporate new requirements as you go. Ensure transparency of these needs with the SLG.

Objectives and Deliverables

Governance

Meet with the SLG to share the pilot plan and decide how results will be communicated.

Project Management

As the pilot progresses, document any issues that arise. Consult the SLG on any major changes that need to be made.

Software & Systems

Discuss with the software developers new requirements that emerge during the pilot. Decide which new features to develop using an iterative approach.

Data Sharing & Interoperability

Determine whether to establish a link with another information system and share data as part of the pilot project. With the SLG, create a data-sharing agreement to set policies for how data will be shared, used, and protected.

Training & Support

Train data entrants, iHRIS users, and HR managers participating in the pilot on how to use iHRIS. Collect and enter data for the pilot area.

iHRIS Users – Level 1 eLearning Course

Data Quality & Standards

Institute procedures to reduce data entry errors.

Data Use & Reporting

Run pilot reports and present them to the SLG. Based on feedback, make any additional customizations to the

reports. Share the successful results of the pilot with the SLG and other interested parties. Encourage the stakeholders to promote iHRIS.

Deliverable

Prepare a final report of the pilot findings for presentation to the SLG. Assess the results of the pilot.

Key question to answer before continuing:

• Did the pilot demonstrate sufficient value of iHRIS to support scaling up the system?

Go to Stage 4: Scale-up.

Presentation: Pilot Activities and Results

Objective

Meet with the SLG to share the pilot plan and decide how results will be communicated.

This presentation is a template for presenting a pilot plan, which you can adapt to meet your needs.

Pilot Plan: Concepts

Before initiating the pilot, share the pilot plan with the SLG. The plan should include the following information:

- when the pilot will take place and the timeline
- the specific steps in the process
- who is responsible for the process activities
- cost of the pilot activities
- how results will be shared and evaluated.

Generally, the SLG chooses the site for the pilot. The site should be neither too easy nor too challenging, but should represent a real-world test of the system. Ideally, there will be strong local leadership and adequate infrastructure and other resources in the chosen location. The pilot shouldn't take too long or the stakeholders may lose interest and momentum. The ideal length of time for a pilot is about six weeks.

Tool filename (offline version): Tool3-A.pptx; download tool (Internet connection required)

Example: Project Risks Status Update

Objective

Document issues that come up during the pilot and consult the SLG on major changes that need to be made.

This example status report from Namibia shows how to report issues that arise to the stakeholders and make recommendations for actions to take in response. Use this report as a model for documenting issues during the pilot test.

Issues and Risks: Concepts

The pilot is an opportunity to test the system requirements and customizations made during deployment. New issues and needs that weren't considered will almost definitely arise during this time. It should also become clear whether the system requirements are adequate to support the goals that the stakeholders want to accomplish.

While implementing the pilot, analyze its capabilities for meeting such needs as:

- the system's capacity to accept the HR data generated;
- the ability of the system to generate the reports required to effectively manage the health workforce;
- users' ability to understand and use the system;
- the ease with which the system can be implemented on a larger scale.

Also identify any potential problems associated with using the system during the pilot, such as inadequate ICT expertise to provide technical support or deficiencies in infrastructure. Document the maintenance needs of the system and any technical problems experienced, such as data corruption, system crashes, or issues with security of the data. This information will be helpful when planning for resources and technical support during the scale-up phase.

If major changes are needed—for example, the pilot reveals that the system will need extensive customization before it is ready for scaling up—present the findings to the SLG for a decision.

Tool filename (offline version): Tool3-B.pdf; download tool (Internet connection required)

Tipsheet: Iterative Software Development

Objective

Develop any new software features using an iterative approach.

Iterative development is a software development process that supports development of a system incrementally. The process builds in regular and frequent cycles for feedback from end users to a working, although incomplete, system. This enables the development team to deepen their learning and understanding of the system as development progresses and adapt to changes in requirements as they come up. This process helps ensure that the end result will be a system that best meets the current needs of all stakeholders, yet can change or grow to adjust for new and unforeseen needs.

In this way, the iterative development process reflects what most of us actually experience as the reality of software development, that requirements cannot be frozen and new requirements are frequently discovered once programming is under way. This methodology enables the software development team to remain flexible as new needs come up or the unforeseen happens, which they always do. Instead of trying to impose artificial deadlines and milestones on a project, as is common in traditional models of software development, the team can tailor the development process to conform to the situation as it actually exists, and therefore increase the chances for success.

Principles to Follow

- Manage requirements not tasks, based on user goals and nonfunctional requirements.
- Manage to meet business goals, due dates, and budgets. Be willing to change requirements to fit these, not the other way around.
- Practice the art of doing only what is necessary and no more. Every requirement should satisfy a user goal.
- Learn as you go; be adaptable to new or changing business needs that become clear only after development begins.
- Analyze existing implementations frequently to assess whether they are meeting business goals.
- Begin with a simple implementation of a subset of the requirements that demonstrates key aspects of the system.
- Design around isolated, easy-to-find modules that group small sets of related requirements. Complete or re-code one module per iteration.
- Work in short cycles composed of overlapping phases: requirements, design, programming, testing.
- During the iteration, the external customer or project manager cannot change the scope for that iteration, but the development team may change the scope by dropping features if the end date will not be met.
- Build on what was built before and produce a working product at each stage. Gather customer feedback at the end of each iteration. Plan for a release every 3-4 iterations.

- Any difficulty in design, coding, and testing a module should signal the need for redesign or re-coding.
- Modifications should become easier to make as the iterations progress. If not, redesign is needed.

The Iterative Development Process

A couple of decisions have to be made before plunging into development. The first is how long the iterations will be. Depending on the complexity of the development, they can last anywhere from one to six weeks. The important thing to remember is to try to produce something that works at the end of the development cycle, even if it's not final, and to work on only the number of requirements that can be completed within that timeframe. In other words, don't extend the deadline to accommodate more requirements; rather, scale back the requirements to meet the deadline.

The second decision is how formal or informal the development process should be. This will impact the kinds of documentation that need to be produced and the intensity of testing. It may be easiest to document as you go, even if it's just notes in a wiki that can be cleaned up later. At the very least, keep an ongoing list of changes made, features to be addressed, and bugs or issues that arise during development. A more formal process may require a full-time documentation manager who can manage changes to the use cases and issues list, as well as automated and human testing from test cases. The key is flexibility; adapt the processes to fit the project, not the other way around.

Here are the general steps in each iteration of development:

- 1. Planning: Before starting the iteration, sit down with the development team and ask these questions: What have we learned from the previous iteration? Have the vision, goals, and/or scope of this project changed? What feature subset will be coded in this iteration?
- 2. Design and develop in order to produce a working end product.
- 3. Test and correct bugs; this phase can overlap the previous phase.
- 4. Update documentation and generate user help materials, if needed; this phase can overlap the previous phase.
- 5. Collect feedback from the user group, which leads to planning for the next iteration.
- 6. Update the issues lists and related documentation with changes based on the user group's feedback. Refine the project plan and related estimates, such as cost estimates.

Guidelines for Making Iterative Development Work

These guidelines are intended to combat the typical issues that arise in software development projects:

1. **Identify a project point person:** The Project Manager should identify a point person from the Stakeholder Leadership Group, who must agree before work begins to be available to attend meetings, answer questions, and review work, often with quick turnaround times. The project point person needs to have decision-making authority, including approval of budgets. If the project point

person does not fulfill this obligation, this should be documented by the Project Manager as early as possible in the project, and a new project point person should be identified or the project put on hold.

- 2. Generate a specific requirements list: For each iteration, a clear set of requirements should be generated that can be translated into specific actionable items for the software developers to work from. Often, it is the Project Manager's job to generate these requirements and get approval of them by stakeholders.
- 3. Set a definite start and end date for the iteration: The end date should be immovable; requirements should be changed to accommodate the end date, not the other way around. While working with the developers, check in and request submissions of completed work daily to ensure they stay on track.
- 4. **Institute a change request process:** During the development time, any new feature requests or changes to the pre-approved requirements should be submitted as change requests. The change request should result in a change to the scope of work to ensure that the project can still be completed in the allotted timeframe; for example, a lower priority feature may be dropped or postponed in favor of a new request. Change requests that cannot be accommodated should be placed on the requirements list for the next iteration.
- 5. **Treat each iteration as a new project:** Once the end date arrives, a new requirements list should be generated and end date set for the subsequent iteration. It should not be assumed that the same developer will complete subsequent iterations or that the developer will be "on call" to make minor changes once the project has ended.

Tool filename (offline version): Tool3-C.docx; download tool (Internet connection required)

Presentation: Creating a Data-Sharing Agreement

Objective

With the SLG, create a data-sharing agreement to set policies for how data will be shared, used, and protected.

Use the presentation to explain to the SLG the benefits of sharing data and start a discussion on the terms of data-sharing agreements.

Data Sharing: Concepts

There are many reasons to share data among systems. Data sharing increases the ability to analyze data to make decisions or form policies. It discourages duplication of effort in data collection and encourages transparency. Data from multiple sources can be combined to allow for comparisons across geographical or departmental boundaries.

For all organizations to agree to share data, they usually must be able to see a demonstrated benefit first. As part of the pilot, you may want to establish a link with another system to demonstrate how data sharing can work and the benefits it can impart.

For example, a health service delivery organization often requires validation of a candidate's licensure. Linking the registry of the health professional council that maintains licenses to the HRIS would facilitate the process. The organization could share back with the council in-service trainings that the health worker obtains to maintain licensure.

Another option is for sharing data between ministries. For instance, in Botswana iHRIS Manage was synchronized with the payroll system. The benefit is that once an employee's information is updated in iHRIS, it can be shared directly to payroll, reducing duplication of effort. In return, iHRIS can extract accurate salary grade information from the payroll system.

Data security is an important consideration when sharing information between organizations. The following measures need to be taken into consideration:

- physical security; for example, only authorized personnel can physically access data through a computer, printout, or other areas where information is stored
- authentication of users, through passwords, PIN codes, or other means, to ensure that the user is indeed authorized to access the data
- restrict access of information to groups on a "need to know" basis.

A data-sharing agreement is a formal contract that clearly documents which data are being shared and how

the data can be used. Such an agreement protects the agency providing the data, ensuring that the data will not be misused. It also prevents miscommunication by making certain that any questions about data use are discussed.

Tool filename (offline version): Tool3-D.pptx; download tool (Internet connection required)

iHRIS Training Program Materials and User's Manuals

Objective

Train data entrants, iHRIS users, and HR managers participating in the pilot on how to use iHRIS.

We have provided a full set of training materials adapted from various iHRIS training programs. These training materials were developed for training users in iHRIS Manage, but can be adapted for any iHRIS training program. They include a sample agenda, evaluation forms, and a presentation template. We have also provided user's manuals for iHRIS Manage, Qualify, and Train to hand out at the end of the training. The HRH Global Resource Center hosts an e-learning course for iHRIS users that can be used as the basis for a training program or that users can take on their own to learn how to use iHRIS.

iHRIS Training: Concepts

Training iHRIS users is critical to the success of using the system for decision making and improvement of population health. Since implementation of iHRIS will introduce new workflows, tasks, and processes, users need comprehensive training followed by effective monitoring. At the systems level, there are many users of the system with different functions and responsibilities, but for training purposes all the users can be divided into three groups:

- 1. **High-level officers** responsible for decision making and resource allocation (Minister of Health, Permanent Secretary, department or division heads)
- 2. **Data/project managers** responsible for creating reports and high-level database management, data quality assurance, etc.
- 3. **System administrators** responsible for the technical aspects of the database, such as maintenance, offering technical support to users, and upgrading users' computers.

The training curriculum should be designed to address the functionalities and responsibilities of each group. To be more effective, the trainer can conduct rapid assessments of each group to determine how they currently work and what challenges they face. During training, highlight these challenges and explain how iHRIS can mitigate them.

As part of the introduction, it is important to present a global view of iHRIS, its various modules, and how it provides data for decision making. This approach increases participants' awareness of the important role they play, no matter how mundane their job may seem to them.

All data entrants will need to know the following after training:

- Overall functions of iHRIS, modules being used, and purpose of collecting health workforce data
- Why data standards and lists are important

- Policies and procedures for ensuring data quality and security
- How to use a web browser to log in to iHRIS and change user password
- How to interpret data collection forms or health workforce data registries and transfer that data into iHRIS
- How to update records or enter additional data when there are changes
- How to get help when there are problems
- How to import large numbers of electronic records into iHRIS (if applicable)
- How to print lists and reports and how to make simple graphs
- How to export the lists and reports in different formats (PDF, excel, zipped files)

Data or HR managers should be trained in how to do everything a data entrant can do, but they need additional training to understand the database and standardized data lists. They will also require training in maintaining iHRIS from an administrative level, which includes these tasks:

- Set up and manage user accounts and roles
- Perform routine backups
- Make simple changes to lists
- Run standard reports and edit report views
- Check data for accuracy and interpret data-entry logs
- Enforce data-quality procedures.

Plan for training to take three to five days. Users should have access to iHRIS as part of the training, so personal computers and a reliable Internet connection need to be available. In case the training is taking place offsite and there is no Internet connectivity, a copy of the database can be copied into a computer that will be used as a server. A router and multi-Ethernet switch can connect the server to the trainees' computers. While you should provide printed user's manuals at the end of the training session, don't teach from the manuals. The goal is for the trainee to be able to use the system without referring to the manual except when troubleshooting a problem.

During the training, let participants enter data as part of the hands-on exercises. To assess the skills of the trainees, give them real-world scenarios to complete. For example, ask groups of trainees to enter actual health worker records in the system. Each group presents their work and is evaluated. Review any mistakes or issues that come up with the entire group to reinforce learning.

In order to meet deadlines, you may choose to hold separate trainings, training pilot data entrants first so they can immediately begin entering data, followed by a more thorough training for those who will be using and managing iHRIS regularly. Have all trainees assess the training and incorporate suggestions as applicable in later trainings.

Tool filenames (offline version): Tool3-Fa.docx; <u>download tool (Internet connection required)</u> Tool3-Fb.pptx; <u>download tool (Internet connection required)</u> Tool3-Fc.docx; <u>download tool (Internet connection required)</u> Tool3-Fd.docx; <u>download tool (Internet connection required)</u> Tool3-Fe.docx; <u>download tool (Internet connection required)</u>

Example: HRIS Data Quality Guidelines

Objective

Institute procedures to reduce data entry errors.

Use the example guidelines from Uganda as a model for preparing a data quality plan, with the goal of minimizing errors during data entry.

Data Quality: Concepts

When entering data from paper forms, maintaining the quality, or accuracy, of the data is the most important consideration. Introduce procedures to minimize data entry errors, even if those procedures slow the data entry process.

Dual data entry, in which a paper record is entered into an electronic database at two separate times by two staff members, is the most effective way to reduce errors; any discrepancies between the two entries can be caught at the point of entry, compared against the original document, and corrected.

Should dual data entry be prohibitively expensive or time-intensive, a system of spot-checking, in which a randomly selected list of electronic records is checked against the original data collection forms, can be substituted. Log data-entry errors and review errors frequently to identify needed improvements in training methods, data collection forms, and software modifications.

Data entrants should be contracted to transfer data from paper to electronic form. To encourage quality of work, it is recommended that the data entrants should be paid on a per-record basis, and only on the records that have passed the validation test. To determine the per-record reimbursement, time tests should be done on a sample of the paper records to determine a reasonable number of records that can be performed in a normal working day. The rate should be reflective of this number of records and will incentivize increased efforts by the data entrants.

Well-defined roles are useful for enforcing accountability in updating staff data. To distinguish roles and responsibilities in the chain of command, user levels and permissions can be set within iHRIS. These roles can also be connected to the facility, department, district, or region that they manage. Each level has explicit accountability for data accuracy and completeness.

Tool filename (offline version): Tool3-E.pdf; download tool (Internet connection required)

Example: Pilot Report

Objective

Run pilot reports and present them to the SLG.

The example reports from Tanzania will give you an idea of the kinds of reports and their formats that would be useful to share with stakeholders when reporting on the pilot.

Pilot Reports: Concepts

You should produce pilot reports showing real data from iHRIS as early as possible in the pilot for sharing with the SLG. Distribute actual reports so stakeholders can see for themselves the value of the HRIS. If no data are available in iHRIS for these early reports, we recommend using "dummy data," or sample data, so that users can familiarize themselves with reporting formats and learn how to analyze the data. They can also identify gaps in the reports and highlight any information that is unclear.

Presentation of data in reports is important. Users should be able to easily read and interpret the information. Reports should be labeled with titles, dates, and keys for data elements. If graphs and tables are created to represent data, they should be titled and have the correct information in the x-axis and y-axis.

When presenting reports, take advantage of the opportunity to educate stakeholders in how to analyze the reports and critically review HRH data. Clearly link the evidence from iHRIS to inform recommendations to address policy and management decisions. This will help with "selling" iHRIS to other regions or facilities during the scale-up process.

Tool filename (offline version): Tool3-G.pdf; download tool (Internet connection required)

Example: Pilot Findings Report and Assessment Checklist

Objective

Prepare a final report of the pilot findings for presentation to the SLG. Assess the results of the pilot.

The purpose of the pilot is to demonstrate the effectiveness of iHRIS to stakeholders. After the pilot phase is completed, share the results with the SLG and other relevant stakeholders. This is a crucial step. You will have to demonstrate, based on the pilot results, that iHRIS has proved its worth and should be scaled up.

Use the evaluation checklist to quantitatively assess the pilot. Use the example report of a successful pilot in Ghana as a model of how to write the final pilot report.

The report should show how iHRIS makes a positive difference in day-to-day operations and in making crucial policy and planning decisions. Be as specific and practical as you can. Help the stakeholders to see the kind of information they can now get from iHRIS and what they can do with that information.

Tool filenames (offline version): Deliverable3a.docx; <u>download tool (Internet connection required)</u> Deliverable3b.doc; <u>download tool (Internet connection required)</u>

4. Scale-Up: Extend Your Pilot to All Stakeholders Scale-up

The decision to scale up iHRIS to its planned reach—to all districts in the country, for example—should not be taken for granted. It depends on the successful conclusion of the pilot demonstration. A successful pilot often creates momentum and enthusiasm for adopting iHRIS more widely, including adding additional components of the iHRIS Suite.

Scaling up has its own set of challenges. Human resources and infrastructure may be limited in some areas, or there may not be adequate funding to support the deployment. Instead of scaling up all at once, a *phased rollout* may be the best plan.

Buy-in is important so that the regions don't see iHRIS implementation as a central project that doesn't involve them. In a large scale-up, users at all levels must be aware of the benefits the software can provide them to ensure data reliability. For example, the data can be used for decision making at the facility level, not just for country-wide planning. Those employees responsible for maintaining the data will be more accurate when they can realize the direct benefits.

What kind of scale-up will you be doing? This depends on the available infrastructure in the areas where iHRIS will be rolled out. For example, will there be a central server that everyone has restricted access to or will there be several servers? Both options have their own set of issues to plan for and resolve. The central server may need to be improved, or you may need to provide additional ICT training in the scale-up locations.

The installation of a new system in any organization will require changes in policy and procedure. These changes must be managed for each organization in the scale-up region to ensure that the system is used effectively. Document changes to policies, procedures, and employee responsibilities that will be required in each area to accommodate the new system. Make sure these are communicated and implemented into everyday tasks.

Training efforts must be scaled up as well. Plan for training of trainers to ensure that the iHRIS implementations can be sustained over time. Educating senior executives in the effective use and interpretation of data is essential to ensure that iHRIS improves workforce planning.

This may also be a good time to promote sharing of data among different organizations. For the data to be used, it must be considered reliable and trustworthy, so procedures for ensuring data quality need to be in place. When rolling out iHRIS to multiple districts or facilities, it is important to give a single agency overall responsibility for ensuring data quality, access, and reporting. Ideally, this is the same body that is responsible for health workforce planning and policy. This body should ensure that data standards are enforced across the rollout region.

Objectives and Deliverables

Governance

Institute routine reporting of scale-up progress to the SLG.

Project Management

Prepare a phased rollout plan for scaling up iHRIS. Include projected costs and funding, as well as infrastructure, human resource needs (including roles and responsibilities), technical support, and training plans.

Software & Systems

Assess available ICT infrastructure and support in the districts and/or facilities where iHRIS will be deployed.

Data Sharing & Interoperability

Determine whether any HIS in the rollout regions can benefit from sharing data with iHRIS. If so, establish a method and agreements for sharing data.

Data Quality & Standards

Work with the organization responsible for oversight of data to create a plan for ensuring data quality.

Data Quality Considerations in Human Resources Information Systems (HRIS) Strengthening (CapacityPlus,

<u>2008)</u>

Training & Support

Prepare a training plan for each area where iHRIS is implemented. Include a plan for training of trainers who can orient new employees or users to iHRIS.

Implement a training program in data use for senior executives and other data users.

Data Use & Reporting

Assess routine reporting needs. Document standard operating procedures for reporting.

Improving Data Use in Decision Making: An Intervention to Strengthen Health Systems (*MEASURE Evaluation*, 2012)

Deliverable

The deliverable for this phase is the successful rollout of iHRIS in each location where it is to be deployed. Since this is a phased rollout, implementation of iHRIS will likely now be in different phases in different locations. Some locations will have moved on to the Sustain phase, while others may be just starting to deploy iHRIS.

Key questions:

- Has iHRIS been deployed in all appropriate locations?
- Are data being shared routinely between rollout locations and the central location?

Go to Stage 5: Sustain.



Example: HRIS Progress Report

Objective

Institute routine reporting of scale-up progress to the SLG.

During the scale-up process, routine reporting of progress to the SLG is critical. The SLG needs to be kept apprised of activities undertaken, their results, and next steps in order to ensure that the objectives of the iHRIS implementation are being met. Progress reports should be submitted quarterly or more frequently. If challenges arise, also include recommendations in the report so that the SLG can make informed decisions. Use the example report from Malawi as a template for preparing your own progress reports.

Tool filename (offline version): Tool4-A.docx; <u>download tool (Internet connection required)</u>

Example: Rollout Plan

Objective

Prepare a phased rollout plan for scaling up iHRIS.

The rollout plan is similar to the implementation plan you prepared earlier in the process. It should lay out the schedule for implementing the rollout, projected costs, and expected funding. It should include the results of the pre-visit assessment, with recommendations for infrastructure, training, and human resource needs. Use the example plan for rolling out iHRIS to the districts in Namibia as a model for preparing your own complete rollout plan.

Tool filename (offline version): Tool4-B.docx; download tool (Internet connection required)

Worksheet: eHealth Readiness Assessment Checklist

Objective

Assess available ICT infrastructure and support in the districts and/or facilities where iHRIS will be deployed.

Before rolling out iHRIS to any new area, ensure that there is adequate support and infrastructure for the system. Visit the rollout areas to conduct pre-assessments, using the worksheet as a guide. The worksheet includes a template for reporting on the findings of the pre-assessments.

Rollout Pre-Assessments: Concepts

In Uganda, "pre-visits" to the districts conducted before rolling out iHRIS provided the best insights. During the pre-visits, they engaged the stakeholders at the district level and conducted assessments to determine how they had been collecting HRH data and their readiness for computerizing the systems. They also carried out a situational analysis to determine where computers needed to be installed and related network requirements. High-level support significantly contributed to the success of these pre-visits.

The following is a list of questions to answer when conducting the pre-assessments:

- Are there power issues at the client sites?
- How does data roll up to the central level? Is there network connectivity or will "sneaker net" need to be used? If there is connectivity, what is the bandwidth and reliability?
- How many users are expected? Can the system handle a large number of users accessing it at the same time?
- How many records are expected?
- Will there be many scanned documents and photos?
- Will there be enough processor speed and memory to generate reports, or is a separate reporting system needed?
- How will you provide technical support?
- Is an appropriate backup solution in place?
- Do you need to translate the software to a local language? Who will be responsible for translation?
- How will you train users at each site? How do you train new employees?

Tool filename (offline version): Tool4-C.docx; download tool (Internet connection required)
OpenHIE Provider Registry: Interconnecting Human Resource Information Systems

Objective

Determine whether any HIS in the rollout regions can benefit from sharing data with iHRIS. If so, establish a method and agreements for sharing data.

Health Information Exchanges: Concepts

It is likely that the health worker data managed in iHRIS is just a segment of the available data on health workers in the country. In many cases, multiple systems collect and manage data on the same health workers. It is also very common for iHRIS to be deployed by the Ministry of Health across multiple areas that wish to aggregate data to a national installation of iHRIS. For these reasons, iHRIS has built-in functionality to exchange data with other iHRIS applications and other HIS.

Several open source HIS may be in use other than iHRIS. The most frequently used systems are:

- DHIS2, a health information system that tracks service delivery and disease statistics.
- <u>OpenMRS</u>, a medical records system that stores and maintains patient data on clinical encounters.
- <u>RapidSMS</u>, a mobile clinical support system for community health workers.

All of these systems require information on health care providers and can benefit from sharing data. Because these systems were developed with standard open source formats, their data formats are compatible and can easily be shared.

Now may be a good time to link to these systems in order to share common data, such as facility lists and geographic data, and reduce duplication of effort. This is an important step for countries to compare data such as service delivery demand (from DHIS2) with health worker skills supply (from iHRIS), for example. The quickly emerging and most ideal model for a data exchange is to set up a health information exchange (HIE) where all HIS adopt the same standard for data exchange. The HIE model uses technologies to aggregate health worker, facility, or patient data across various systems into a single registry.

To facilitate sharing data among different open source systems in Rwanda, Capacity*Plus* developed a Health Worker Registry (HWR) based on the iHRIS platform. The HWR pulls data from regional health worker management systems (such as iHRIS Manage, FBOs, and private-sector systems) and regulatory bodies like nursing councils to provide a national picture of a country's health workforce into a centralized database. The HWR contains a minimum dataset on all providers of healthcare services that can be shared to all systems that need them.

The HWR is part of the Open Health Information Exchange (<u>OpenHIE</u>), which gives health workers access to patient's health records across the country. OpenHIE can also provide access to a central Patient Registry

and a Facility Registry to systems that need the data.

The OpenHIE technologies are based on the <u>Care Services Discovery (CSD) international standard</u>. iHRIS is compliant with the CSD standard, and developers will find the code base very similar to iHRIS. With adequate Internet connectivity, multiple iHRIS installations or other systems that are CSD-compliant can use the OpenHIE Health Worker Registry to share data.

Tool filename (offline version): Tool4-D.doc; download tool (Internet connection required)

Training of Trainers' Guide

Objective

Prepare a training plan for each area where iHRIS is implemented. Include a plan for training of trainers who can orient new employees or users to iHRIS.

In implementing iHRIS, you are introducing new ways of working. Users, data managers, and system administrators will require support and mentoring at each office where iHRIS is deployed. Once key personnel are trained in how to use iHRIS, it is important to retain that knowledge in the organization. Ensure that someone has the assigned role and capacity to train new employees in how to use iHRIS. Use the Training of Trainers' Guide to plan a program for training them. While this guide is intended for training users in iHRIS Manage, it can be adapted for any of the iHRIS applications.

Tool filename (offline version): Tool4-Fa.docx; download tool (Internet connection required)

Case Study: Human Resources Management Training

Objective

Implement a training program in data use for senior executives and other data users.

Training senior executives in the effective use and governance of information is essential to ensure that iHRIS improves workforce planning. Collaborate with the SLG to select trainees guided by their job descriptions or anticipated tasks. Key trainees include directors, assistant commissioners, executive officers, records officers, and bio-statisticians.

Your training should show these busy executives how reports generated by iHRIS are essential tools for doing their jobs effectively. By ensuring that decision makers are comfortable with analyzing iHRIS reports, you can create data demand and positive data use.

Tool filename (offline version): Tool4-Fb.docx; <u>download tool (Internet connection required)</u>

Example: Human Resources Quarterly Management Review

Objective

Assess routine reporting needs. Document standard operating procedures for reporting.

The Human Resources Quarterly Management Review provides an example of how routine reports produced by iHRIS may be presented to decision makers, based on quarterly reports made to Lutheran Medical Services in Namibia. Use this example as a model for designing your own routine reporting presentation.

Increased data demand is favorable for positive data use. Standard operating procedures should be established to institutionalize data use and routine reporting of HRIS data. It may also be helpful to produce a logic model highlighting all of the inputs, processes, outputs, and anticipated outcomes of data use. A logic model for strengthening the use of data in decision making is included in the tool Improving Data Use in Decision Making; this tool also provides a conceptual framework illustrating the role of data-use activities in health systems strengthening.

Tool filename (offline version): Tool4-G.pptx; download tool (Internet connection required)

5. Sustain: Maintain and Support the System Sustain

iHRIS requires ongoing support and improvement to ensure sustainability. Further development of iHRIS should be driven by its usefulness to stakeholders and data users. Regular *monitoring and evaluation* determines what iHRIS is accomplishing, what needs to be improved, and whether results are being achieved. HRIS performance measures are benchmarks for evaluating how efficient and effective the system is. Regular use of the system for decision making, with most stakeholders accepting its data as reliable and valid, would be the ultimate measure of the system's performance.

The goal of any performance monitoring plan (PMP) is not to focus on what is wrong and condemn it; rather, it is to highlight the positive aspects of the system that make it work, as well as to identify what went wrong as a basis for improvement. Ideally, a working group—often a subcommittee of the SLG—is responsible for implementing the PMP. Monitoring efforts should become a regular activity.

To encourage data demand and use for management of health workers, iHRIS needs to support everyday *business processes*, including new processes that may be developed. The stakeholders, via the SLG or another oversight mechanism, should continue to provide feedback about changing needs. System maintenance involves meeting these additional requirements, making iHRIS easier to use and more efficient over time, and incorporating new technologies as necessary.

It is important to communicate to stakeholders and the general public how iHRIS data have been used to address HRH policy and management challenges. This feedback links iHRIS with improving health outcomes. The SLG may consider making some reports publicly available, perhaps through a website or mobile application.

Be sure to document and store information on the evolution and growth of iHRIS, such as changes to the system and reasons for those updates. As new users enter the arena, a historical reference can be useful. Also document any challenges and how they were overcome. Sharing challenges and successes with the global iHRIS community helps everyone learn and contributes to the iHRIS development project as a whole.

Objectives and Deliverables

Governance

Plan for regular customizations of iHRIS to support emerging business processes

Analyze Business Processes Before Automating Them: An iHRIS Case Study (Marino Holguin, Guatemala, 2013)

Project Management

Develop a plan for systematic monitoring and evaluation of iHRIS using pre-defined *indicators*.

Application of PRISM Tools and Interventions for Strengthening Routine Health Information System Performance (*MEASURE Evaluation*, 2013)

Software & Systems

Create a maintenance plan for supporting iHRIS. Follow up with users to determine how iHRIS is performing.

Determine whether new customizations or extensions of iHRIS are required to meet users' needs. Document the requirements and develop them iteratively.

Data Sharing & Interoperability

Consider sharing data from iHRIS regionally or internationally.

OpenHIE Health Worker Registry

IT Infrastructure Technical Framework Supplement Care Services Discovery (CSD) Trial Implementation (*IHE International*, 2013)

African Atlas of the Health Workforce

Data Quality & Standards

Develop a routine schedule and procedure for collecting and updating human resources data.

Institute a regular data audit to validate the accuracy of HRH data.

Training & Support

Plan for how to provide technical support for iHRIS over the long term. Establish a *helpdesk* and user documentation such as *Frequently Asked Questions*.

iHRIS Frequently Asked Questions (FAQ)

Free Helpdesk (open source helpdesk software)

Plan for continuing ICT skills development.

iHRIS Academy

Data Use & Reporting

Establish routine evaluation of how data from iHRIS is used.

Tools for Data Demand and Use in the Health Sector: Framework for Linking Data with Action (*MEASURE Evaluation*, 2011)

Building the Bridge from Human Resources Data to Effective Decisions: Ten Pillars of Successful Data-Driven Decision Making (*Capacity*Plus, 2008)

Discuss with stakeholders the value of making reports from iHRIS publicly available. Consider methods for publicly distributing this information that are appropriate for the context. Share success stories from iHRIS such as money saved.

Bringing Health Workforce Information to the Public in Uganda (CapacityPlus)

Ongoing

Open source projects like iHRIS depend on contributions from its users to expand features and fix issues. Sustaining iHRIS includes joining the Global Support Community on <u>www.ihris.org</u> and sharing your improvements to iHRIS so everyone can benefit from them. You can contribute code changes, new modules that you've developed, or even an entirely new application to solve a health workforce information issue. It is also valuable to share documentation and tools you've found useful like the ones in this Toolkit. Even making a simple bug report or sharing a helpful tip can improve iHRIS for everyone.

Worksheet: Business Processes Documentation

Objective

Plan for regular customizations of iHRIS to support emerging business processes.

When business processes change or new processes are developed, document them using the worksheet. Use this documentation as a basis for making modifications to iHRIS to support the new processes.

Business Processes: Concepts

There may not someone on the team who has the system analysis skills to ensure that iHRIS is continually optimized. Now would be the best time to establish such a role. This resource should focus on business processes and how iHRIS can support them. Based on analysis, this role may also redesign business processes to use iHRIS more efficiently. This will help ensure that iHRIS continues to be useful and appropriate improvements can be made when new requirements emerge.

Tool filename (offline version): Tool5-A.docx; download tool (Internet connection required)

HRIS Assessment Framework

Objective

Develop a plan for systemic monitoring and evaluation of iHRIS using pre-defined indicators.

The HRIS Assessment Framework is designed for use by countries to assess the maturity of HRIS implementations. It is based on WHO's Health Metrics Network framework, Minimum Data Set for health workforce registries and HRH framework (person-centric health workforce life-cycle). The framework has additional 'cross-cutting factors' on sustainability and interoperability.

Instructions for Using the HRIS Assessment Framework

Definition of functions and maturity level: The HRIS functions are listed on the first column. The level of maturity of the country's implementation of specific HRIS function is defined in five stages. The maturity stages have been adapted from the Capability Maturity Model (CMM) approach.

The level of maturity of an HRIS function must be **fully** accomplished. For example, if levels one and two are fully accomplished, but level three is only partially accomplished, the function should be scored at level two.

Assumptions:

The following assumptions guide the use of the HRIS assessment framework:

- A country can have one or more HRIS implemented with either unique or overlapping functions depending on the primary stakeholder and focus of the HRIS. In case of more than one HRIS in a country, the assessment framework is applied to each.
- Countries may focus on specific HRIS functions that they consider critical for the data needs of specific HRH stakeholders. These stakeholders may include but are not limited to public sector health workforce managers, regulatory boards, training institutions, and others. In such countries, only the relevant functions should be assessed using the framework. However, countries should articulate the reasons for not addressing the missing functions and future plans, if any, to do so.
- Functions 3, 4 & 5 are currently written with a focus on the national public sector. It is possible to use this tool to assess other sectors as well, including FBO, NGO, and private sectors. When HRIS in these sectors are supported by a national association or other umbrella organization (for example, a Christian health association or private sector association) then these sectors may be treated in aggregate, otherwise, these functions may need to be assessed on a per-organization basis.
- Maturity stages of relevant functions may vary for different cadres of health workers or regulatory boards. In such cases, a maturity stage is considered fully achieved if the HRIS function covers the key cadres (nurses, doctors/clinical staff and laboratory professionals).

Conducting HRIS assessment at country level:

- The HRIS assessment should be conducted as objectively as possible in order to identify the gaps in the functions. An objective assessment is the only way to ensure that future investments in HRIS are well targeted.
- This tool can be used for informal assessments by individuals or consultants.
- The official assessment of country progress should be led by a cross-functional country HRIS assessment team. This team should be multidisciplinary and constituted from key HRH stakeholders including representatives of the: MOH, regulatory boards, training institutions, HRIS implementers, HIS working group and donors.
- HRIS assessment will be conducted annually by the team described above.

A score is assigned for each function. This score may be the same as the level of maturity. If the assessment team wishes to aggregate them for a total score, functions may be weighted depending on their priority for the assessment team.

Tool filename (offline version): Tool5-B_draft.xlsx; download tool (Internet connection required)

Template: HRIS Follow-Up Report

Objective

Create a maintenance plan for hardware and infrastructure supporting iHRIS. Follow up with users to determine how iHRIS is performing.

Regularly check in with users and stakeholders to find out how iHRIS is performing. Are they able to easily perform job tasks using the system? Do they have a need for data not currently available in the system? Perhaps they would like to link iHRIS to another health information system or access it from a mobile device. Use the template as a guide when following up with users and documenting the results.

System Maintenance: Concepts

Managing an information system is an ongoing process. A system maintenance plan includes periodic reviews of the software to ensure that it is performing well and meeting user needs. The plan should specify the scope of the maintenance, who will provide the maintenance, and estimated costs. Also outline a process for responding to proposed changes or extensions of the system that would require customizations of the software code.

An important part of maintenance is staying informed of new software versions as they are released, and installing and testing the upgrades. This applies not only to the iHRIS software, but to all supporting software, including the operating system, database, and programming language. Monitor the <u>ihris.org website</u> or <u>community forum</u> to stay informed of new releases and other changes.

Tool filename (offline version): Tool5-Ca.doc; download tool (Internet connection required)

Documentation: iHRIS Train System Requirements

Objective

Determine whether new customizations or extensions of iHRIS are required to meet users' needs. Document the requirements and develop them iteratively.

We have provided the system requirements developed in Uganda for iHRIS Train to use as a model when documenting requirements for new extensions to iHRIS.

Developing New iHRIS Applications: Concepts

Emerging needs may require more extensive customizations of iHRIS. It may even be necessary to create a new iHRIS application to meet those needs. (However, always review existing iHRIS applications first, even if you aren't presently using them, to see if existing code might be modified to meet the new need.) This will prompt a new cycle of capturing and documenting requirements, programming the customizations, testing the software with a pilot installation, and training users, managers, and ICT personnel to use it. Again, we recommend an iterative development approach to making these customizations.

As an example, in Uganda the Ministry of Health required iHRIS to capture data on in-service trainings. During the requirements-gathering process, it emerged that preservice training data also needed to be captured. Developers in Uganda adapted the core iHRIS code to meet these requirements. This resulted in a new application, iHRIS Train, which has now been added to the iHRIS application suite. As with any iHRIS implementation, deploying iHRIS Train required collecting and entering data, local testing, improving the new application based on feedback, developing user manuals, and training the core user groups on the software. Now iHRIS Train is another tool in the toolbox that teams in other countries have been adapting to meet their needs for capturing health worker training data.

Tool filename (offline version): Tool5-Cb.docx; download tool (Internet connection required)

Example: Employee Record Update Protocol

Objective

Develop a routine schedule and procedure for collecting and updating human resources data.

Establish a procedure and schedule for updating data in iHRIS. We have included a routine data update protocol developed in India as an example.

Data Maintenance: Concepts

To provide an accurate picture of the available health workforce, iHRIS should be updated routinely to document changes in health worker records as they occur. Regularly reviewed, up-to-date data improves accuracy over time and enhances policy makers' ability to make informed decisions in order to meet future health care needs. For example, HR managers can quickly note workforce changes, such as an increase in the number of out-migration requests or a drop in student enrollment, and can respond to these changes more effectively.

Ensure that data collection procedures occur on a regular schedule, depending on the data being collected. To establish a schedule, look for and build upon any existing sources of routine data, such as payroll updates, license renewals, or training completions.

To validate data, have employees review their own records, if possible. Additionally, health professionals can validate their information when they renew their registrations or licenses. Another way to validate data is to provide regular reports to representatives at the district or facility level, which can then be reviewed and updated.

Tool filename (offline version): Tool5-Ea.doc; download tool (Internet connection required)

Worksheet: Data Quality Assessment Form

Objective

Institute a regular data audit to validate the accuracy of HRH data.

Distribute the Data Quality Questionnaire to internal users of iHRIS as part of a regular data audit.

Data Audits: Concepts

Conduct a regular (monthly, quarterly, or yearly) data audit to identify problem areas in iHRIS data collection, entry, and management procedures. As part of an audit, you might compare iHRIS data to similar data from another source, such as a survey, census or payroll system, to check for discrepancies. Another way to verify data quality is to check randomly selected electronic records against paper versions of data collection forms. Software logs should provide information on usage and maintenance of the system. Also solicit feedback from iHRIS users on their assessment of data quality.

Watch for these issues when conducting the data audit:

- Does the total number of records match the expected number?
- Are any duplicate records found?
- How many records are out of date (for example, a worker has changed position or left employment, but the change has not been recorded)?
- How many key fields are incomplete (such as worker contact information, cadre, or job title)?
- How frequently are records being updated? Are they updated in accordance with routine maintenance procedures?
- Are there any invalid user accounts (such as for data entry staff who no longer work on the HRIS)?

Tool filename (offline version): Tool5-Eb.doc; download tool (Internet connection required)

Worksheet: Helpdesk Log

Objective

Plan for how to provide technical support for iHRIS over the long term. Establish a helpdesk and user documentation such as Frequently Asked Questions.

Ongoing ICT support must be available to sustain the system. If you haven't already, now is a good time to institute helpdesk procedures. The helpdesk is on call to answer any questions about iHRIS, fix problems as they arise, and consider requests for new features and customizations. You may want to use an open source program such as <u>Free Helpdesk</u> for managing helpdesk requests.

All helpdesk calls should be logged as part of ongoing system documentation. Use the worksheet provided to log helpdesk calls and track their status.

You should develop documentation to help support iHRIS. An easy form of documentation to create is a Frequently Asked Questions (FAQ) list, based on questions that technical support receives often. The FAQ should be posted in a public place and updated often. For an example, see the general <u>iHRIS FAQ</u>.

Tool filename (offline version): Tool5-Fa.xlsx; download tool (Internet connection required)

Report: Internship Program

Objective

Plan for continuing ICT skills development.

Skills development is necessary for maintaining computerized information systems like iHRIS. Consider strategies like internship and mentoring programs for ensuring ongoing skills development of ICT staff supporting iHRIS. Consider attending or hosting an <u>iHRIS Academy</u>, which brings together software developers and system administrators for training.

For example, the Uganda Capacity Program partnered with a local university's computer science department to set up an internship program. Students learned data entry, database management, system administration, and PHP programming while interning in an office using iHRIS. After completing the internship, these students could be listed as ICT resources to provide technical support on an as-needed basis. See the Internship Program Report for more information about this program.

Another sustainability strategy could include developing local or regional user groups to facilitate problem solving and share system improvements, possibly in collaboration with educational institutions. iHRIS's Community Manager can help put you in touch with other iHRIS developers in your area.

Tool filename (offline version): Tool5-Fb.pdf; download tool (Internet connection required)

Checklist: Monitoring the Use of Data

Objective

Establish routine evaluation of how data from iHRIS is used.

We have provided a checklist that can assist in data monitoring. We recommend frequent data monitoring in order to improve data quality and use.

Data Monitoring: Concepts

Stakeholders must value their data to increase data use. Allowing for feedback will improve data users' experiences in understanding and analyzing data and expand the overall use of HRIS data. It will also increase the value of the data and foster data demand.

Data users' needs will change over time, so plan for updating reports. In conjunction with making improvements to iHRIS, training on data use should be routine. As new users become engaged, they need to be able to understand the value of iHRIS as an HRH strengthening tool, as well as interpret iHRIS data for decision making.

Monitoring, evaluating, and communicating how data are used will improve data demand and use over time, ensuring the value of iHRIS. Suggested areas for feedback and evaluation are:

- availability of data
- quality of data
- content of reports and variables in iHRIS
- presentation of data, including charts and graphs
- flow of information and lag time in reporting
- skills in using data, including data analysis and interpretation
- interoperability of iHRIS with other systems
- engagement of users and stakeholders
- use of data to make recommended policy and management changes

Tool filename (offline version): Tool5-G.doc; download tool (Internet connection required)

Back Matter Implementation Matrix

The following table lists the six steps in the implementation process (0-5), the cross-cutting areas to be considered at each step (A-G), and the specific outcome to achieve for each.

| <u>0-A.</u> Identify | / <u>0-B.</u> Define | <u>0-C.</u> Map | <u>0-D.</u> | <u>0-E.</u> Assess | <u>0-F.</u> Identify | <u>0-G.</u> Begin |
|----------------------|-----------------------|-----------------------------|----------------------|-----------------------|----------------------|--------------------|
| and build | desired | the health | Understand | data | available | defining |
| leadership. | outcomes | workforce | eHealth | managers | support | policy and |
| | and | information | architecture, | and | resources | management |
| | project | architecture. | strategy, and | sources of | and training | questions. |
| | scope. | | key | HRH data | needs. | |
| | | | stakeholders | .and related | | |
| | | | | standards. | | |
| <u>1-A.</u> Form | <u>1-B.</u> Create | <u>1-C.</u> Define | <u>1-D.</u> | <u>1-E.</u> Identify | <u>1-F.</u> Train | <u>1-G.</u> Define |
| the | an implement | nsystem requi | Standardize | data | data | reports. |
| Stakeholder | tation plan. | rements. | data formats | standards, | collectors. | |
| Leadership | | | and usage | lists, and | | |
| Group and | | | across | sources for | | |
| implementat | | | systems. | them. | | |
| ion team. | | | | | | |
| <u>2-A.</u> | <u>2-B.</u> Manage | e <mark>2-C.</mark> Install | 2-D. | <u>2-E.</u> | <u>2-F.</u> Train | 2-G. |
| Institute | customizatio | iHRIS and | Understand | Customize | system admi | Customize |
| standard | ns to | understand | how to | fields and | nistrators | and develop |
| operating | requirements | show it | import and | forms. | and | reports. |
| procedures. | • | works. | export data | | helpdesk. | |
| | | | from iHRIS. | | | |
| | 2 D | 2.0 | | | | 2.0 |
| <u>3-A.</u> Work | <u>3-B.</u> | <u>3-C.</u> | <u>3-D.</u> Pilot in | t <u>3-E.</u> Collect | <u>3-F.</u> Irain | <u>3-G.</u> |
| with SLG | Implement | Iteratively | eroperability | and enter | pilot data | Produce |
| and team to | pilot. | adapt to | with initial | data. | entrants and | pilot reports |
| guide, share, | , | pilot fin din e e | systems. | | users. | and analyze |
| and learn | | maings. | | | | tor dissemin |
| | | | | | | auon. |
| results. | 1 D Dlam for | | 4 D | 4 E. Creat | | 4.0 |
| 4 - 4 | 4-B , Plan Tol | r4-U., Ensure | 4-IJ. | 4-E. Create | 4-F. Scale | 4-LT |

| Measure and | l scale. | system | Integrate | and | up training. | Establish |
|------------------------|----------------------|---|--|--|-----------------------|--|
| share | | works at | with other | implement | | routine |
| success. | | scale. | systems | data quality | | reporting. |
| | | | architecture. | management | ; | |
| | | | | processes. | | |
| <u>5-A.</u> Suppor | t <u>5-B.</u> | <u>5-C.</u> | 5-D. | <u>5-E.</u> | <u>5-F.</u> Plan for | <u>5-G.</u> |
| business processes. | Monitor performance. | Maintain, upgrade, and iteratively improve systems. | Broaden Idata-sharing initiatives. | Establish routine data validation. | technical support. | Continue cycle of data use and feedback for system improvemen |
| | | | | | | t. |

Credits

This iHRIS Implementation Toolkit is offered by Capacity*Plus*. If you have further questions or needs for assistance, please e-mail the iHRIS project team at iHRIS @ intrahealth.org or contact us at the address or telephone number below.

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accomplishments of the Capacity Project, which worked in 47 countries. Project partners include IntraHealth International, Inc. (lead partner), Abt Associates, IMA World Health, Liverpool Associates in Tropical Health (LATH), and Training Resources Group, Inc. (TRG). Associate partners are African Population & Health Research Center (APHRC), Asia-Pacific Action Alliance on Human Resources for Health (AAAH), West African Institute of Post-Graduate Management Studies (CESAG), and Partners in Population and Development (PPD).

Capacity*Plus* would like to hear your feedback on this Toolkit. Please let us know how you are using this Toolkit in your iHRIS implementation efforts, and share any comments or suggestions you may have for improving it. <u>Contact us</u> or leave a comment on any Toolkit page. Thank you!

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&Anthologize

Omne tulit punctum qui miscuit utile dulci — Horace