About This Manual

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License

Revision History

VERSION AND REVISION NUMBER	DATE OF PUBLICATION	REASON FOR REVISION
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Introduction

iHRIS Plan is a software program designed to support health workforce planners and decision makers in planning for their health workforce needs in developing country settings. The software enables planners and decision makers to evaluate their current and future human resources needs by cadre and then compare those needs to available health workers. The software graphically models available workers and workforce needs over time, enabling the user to visually assess the gap between them. The user may define and test various interventions -- or changes to the health workforce pool -- to try to close the gap between actual and required resources, and see the results of those interventions as they are dynamically calculated. In addition, tabular reports can be produced projecting actual numbers as well as health worker costs.

Using iHRIS Plan, workforce planners and decision makers can understand what will happen if different actions are taken to influence the health workforce or if no action is taken. These projections will help them prioritize policy changes by demonstrating which changes have greater or lesser impact on the health workforce. The projections will also alert planners to potential problems in the health workforce supply.

The workforce planning model helps workforce planners and policy makers answer the following types of questions:

- In the absence of any policy change, what will my country's health workforce look like in ten years?
- Based on current population projections, how many more nurses should I hire to meet the need?
- How much will increasing the mandatory retirement age increase available staff over the next ten years?

iHRIS Plan is intended to support health workforce planners, either working in or consulting with a Ministry of Health, in projecting workforce needs and impacts of policy on the health workforce at the national level, and presenting those projections to health policy and decision makers. iHRIS Plan will supply credible evidence to support health workforce planning and policy decisions. The goal is help decision makers focus on the path to take to achieve their envisioned outcome for the health workforce. These results should provide the basis for a short-term, national, strategic health workforce plan.

Workforce Projection and Modeling: An Overview

Excerpted from "An Overview of Human Resources for Health (HRH) Projection Models" (draft), a technical brief written by Dr. Pamela McQuide and published by the Capacity Project (2008).

Health workforce planning is necessary in order to ensure that trained and knowledgeable health workers are available to deliver health care services when and where they are needed. Ensuring adequate human resources for health (HRH) is crucial in order to continue progressing toward the realization of the Millennium Development Goals (MDGs). The purpose of workforce planning is to determine the most appropriate balance among the mix, distribution and number of health workers. As Thomas Hall has noted, workforce surpluses or shortages can decrease productivity and efficiency, deplete scarce resources and squander worker capabilities. Training health workers requires a significant investment of time and resources; therefore, restoring balance to a system in which the health workforce supply is out of sync with the demand for health services can be a lengthy process. In this context, health workforce projections can be very useful.

iHRIS Plan is intended to support and provide an interface to a standard, internationally accepted model for workforce planning. Initial iterations of the software will adopt the WHO HRH Projection Model, as recommended by an advisory group of health workforce planning experts at the HRH Workforce Planning Workshop held by the Capacity Project in December 2007. The first iteration uses a simplified version of the model, with the goal of enabling users to quickly enter data and produce projections. Subsequent iterations will introduce more complexity to the modeling. These future versions will also provide extensive help with understanding the concepts behind the model, the meaning of different data inputs and how to make assumptions when projecting requirements or modeling interventions.

The first iteration of iHRIS Plan projects health workforce needs based on a health worker-to-population ratio. This model estimates the current ratio as well as the desired future ratio of doctors-to-population and of other health professionals-to-population. This method uses a base year ratio using the targeted number of health worker positions required in each cadre for that year and the current population, and estimates annual changes in future numbers of health workers. Projected future health worker supply is compared with projected need, and projected costs are compared with projected available funds. Assumptions about growth rates are adjusted until desired ratios are reached.

Using a health workforce-to-population ratio assumes that the relative proportion of health workers in a given area is the most important determinant of ability to deliver health services. Additionally, this approach assumes that reasonable decisions can be made about the preferred doctor-to-population and health worker-to doctor ratios. Assumptions about desired ratios may be based on the ratio of a region or reference country selected as a comparator.

This approach is quick, relatively simple and may be satisfactory if realistic assumptions are made about growth rates. However, the health workforce-to-population ratio does not take into account the effects of changes in health services utilization or changes in health workforce mix, productivity, task-shifting, etc. Furthermore, disparities in health worker distribution that exist in the base year will likely continue through the target year.

In order to take steps to address the demands on the future health workforce, decision makers must be able to understand and analyze current workforce capacity. Projections provide insight into possible future scenarios, enabling decision makers to take action today in order to address tomorrow's needs.

Nevertheless, planners should remember that projections are only estimations of what is to come and that the process of HRH planning should be iterative. To remain useful, projections should be updated regularly to incorporate higher quality data and to reflect developments in population trends and health services utilization. Additionally, historical projections should be compared with outcomes in order to improve the accuracy of forecasting techniques and models. Finally, although projection models should anticipate health sector developments for 10 to 30 years into the future, policies based on projections should look no more than three years ahead.

For more information, please see the Supporting Resources on the HRH Workforce Planning Model Workshop website.

Features

Version 1.1.1 is intended to be an early pilot of iHRIS Plan. This pilot will be pilot-tested in a developing country and reviewed by workforce planning experts, who will provide feedback on priority features to include in later versions of the software.

The following features are included in this version:

- Define one or more pools of human resources by health worker cadre based on current health workforce data
- Project workforce supply for any number of years by specifying the number of health workers projected to leave or join the workforce each year
- Project health workforce targets based on population change
- Generate graphical models showing the gaps between actual workforce changes and projected workforce needed over time
- Aggregate or dis-aggregate models by health worker cadre
- Enable and disable cadre pool changes and display the effect of the changes on the model
- Project salaries and other costs of needed health workers
- Copy a projection
- Group projections by user-defined categories
- Windows (offline) version (included in Offline iHRIS 3.1.1)

The following features ensure security and accuracy of data stored in the system:

- Capture the sources of all data for verification
- Automated logging of the username, date and time when data are entered or changed for auditing purposes
- Permanent archiving of all data changes to ensure a consistent record
- Issue password-protected logins to allow only authorized users to access the data

iHRIS Plan will be extensible to the Capacity Project's other iHRIS products, iHRIS Qualify, a certification and licensing management system for health professionals, and iHRIS Manage, a human resource management system. Both of these systems are currently under development. For more information, please contact the iHRIS Development team (see Contacting the iHRIS Development Team).

Planned Features

The following features are planned for inclusion in later versions of iHRIS Plan:

- Export and print projection data

- Wizard interface to guide new users through creating a projection
- Extensive on-screen help developed by health workforce planning experts
- Incorporate current training data into the health worker pool to improve projected health worker supply
- More robust reports including a workforce plan template
- Enable users to input more data, if available, and generate more complex, robust and sophisticated projections by adding in other components of the WHO HRH Workforce Projection Model
- Analyze health workforce data by gender, age, public or private sector, geographical location, facility or institution type
- Import workforce data from iHRIS Manage and iHRIS Qualify

New features and development are ongoing. As this is an Open Source development project, volunteers and other organizations may also contribute to the core code. Check the iHRIS Plan page on the HRIS Strengthening Website for the most up-to-date list of planned features and a development calendar.

Data Checklist

Before you get started using iHRIS Plan, you will want to collect data on the current health workforce as well as changes to the workforce and general population information to enter in the program. The health workforce data may be available from a human resources information system, such as iHRIS Manage or iHRIS Qualify, or from a recent survey or census. It is important to note the sources of all data you obtain for later verification and updating of the projections.

Note that you can enter the data by health worker cadre. For example, you will create a separate health worker pool for nurses, doctors and allied health professionals. You should collect current supply and target data for each cadre, rather than for the health workforce as a whole.

You will need to collect the following data to enter in the program:

- ***population*** of the country or region where you are generating projections
- ***annual population growth rate***, expressed as a percentage of the total population
- ***total number of staff*** actually employed in each health worker cadre
- ***target number of positions*** needed in each health worker cadre for the starting year or target health worker-to-population ratio for each cadre
- ***average annual salary*** of a health worker in each cadre
- ***average annual salary increase*** of a health worker in each cadre, expressed as a percentage of the average annual salary

The following are assumptions you can enter about changes to the health workforce over time. You do not need to have the data for all of these assumptions in order to create a projection, but the more data you enter, the more accurate your projection will be.

- average annual rate (expressed as a percentage) or total number of health workers exiting the health workforce each year due to ***retirement***, by cadre
- average annual rate (expressed as a percentage) or total number of health workers exiting the health workforce each year due to ***death or illness***, by cadre
- average annual rate (expressed as a percentage) or total number of health workers exiting the health workforce each year due to ***out migration***, by cadre
- average annual rate (expressed as a percentage) or total number of health workers exiting the health workforce each year due to ***other reasons***, by cadre
- average annual rate (expressed as a percentage) or total number of health workers entering the health workforce each year after ***graduating from a training program***, by cadre
- average annual rate (expressed as a percentage) or total number of health workers entering the health workforce each year due to ***in migration***, by cadre

- average annual rate (expressed as a percentage) or total number of health workers entering the health workforce each year due to ***recruitment or other reasons***, by cadre

Note that you can also enter a percentage change in the total number of health workers entering or exiting the health workforce each year due to any reason. You can enter a maximum limit for the number of health workers if they are calculated due to a percentage change. Short-term changes can be limited to a specific number of years within the total span of the projection.

- average cost per worker of each intake or exit from the workforce, if applicable, such as training costs, recruitment costs or severance pay

About Windows iHRIS Plan

A Windows version of the iHRIS Suite has been developed for use in locations where there is no or limited Internet access or where no Linux server is available. It installs a single-user instance of all three components of the iHRIS Suite on the Windows desktop: iHRIS Manage, iHRIS Qualify and iHRIS Plan.

Choose the Windows version for installation in decentralized locations, such as a hospital, health facility or local government office, where network connectivity and technical support may not be as reliable, understanding that there are greater security and data quality risks associated with the Windows version. In that situation, it is recommended that iHRIS be installed on a Windows computer that is physically secure from unauthorized access, that is not used for any purpose other than running iHRIS and that access to iHRIS be limited to as few users as practicable.

Windows iHRIS may also be installed with sample data as a demonstration of the program before installing the full server-based version. Advanced users may export data from Windows iHRIS for import into a server-based version of iHRIS using the PHP MyAdmin tool included with Windows iHRIS.

Installing Windows iHRIS Plan

You must download Windows iHRIS as a separate installer. Go to the Software Downloads page on the HRIS Strengthening website to download the software.

Windows iHRIS requires Windows XP, 500MB hard disk space and 1GB RAM. A web browser is required to run the software. Firefox 2+ or Internet Explorer 7+ is highly recommended.

Follow these steps to install the software:

1. Download the executable file (latest version) from Launchpad to a Windows XP computer.

2. Quit all running programs.

3. Run the executable. The installation wizard will start.

4. When prompted, read and accept the license agreement, and click Next.

5. Choose the directory where to install the program. The default directory is recommended for fastest loading times. Click Next.

6. Select which of the iHRIS components to install: iHRIS Qualify, iHRIS Manage and/or iHRIS Plan.

7. Select whether to install PHP MyAdmin; this tool will help you manage the database and import or

export data (advanced users).

8. Click Next.

9. Specify an SMTP server and email address to use with the software. If unsure, keep the defaults and click Next.

10. For each component installed, select whether to limit access to the local computer only or make it available on a local area network.

11. Enter the appropriate ports for the Apache and MySQL servers. If unsure, keep the defaults.

12. Enter and re-enter a password for the MySQL database, and click next. You cannot proceed with the installation without entering a database password.

13. Specify whether to automatically launch Windows iHRIS once the installation is completed (recommended).

14. Select whether to create a Quick Launch and/or a Desktop icon for Windows iHRIS, and click Next.

15. Click Install and wait for Windows iHRIS to install.

16. Click Finish when the installation is complete.

Note: If you have installed Windows Firewall, you will be prompted to unblock the firewall for Windows iHRIS at the end of installation. Select the option to unblock the firewall.

Starting Windows iHRIS Plan

If Windows iHRIS does not launch immediately following installation, launch it from Programs on the Start menu, or double-click the desktop icon. The iHRIS icon appears in the taskbar (lower right hand corner of your screen) when Windows iHRIS is running.

1. The splash screen appears in your web browser with the components of the iHRIS suite that you installed. Click on a component to load it.

2. The first time a component loads may take some seconds. Do not click Reload while the component is loading.

3. You will be prompted to change your password. Click "Change Password" on any page to do this. (For more information, see the section "Change Password.")

4. You will be prompted to create a non-administrator user for everyday use. Click "Configure System", then "Administer Users" to do this. (For more information, see the section "Add a User".)

5. You will be prompted to load modules and sample data. The choices are:

- **Training Management module (iHRIS Manage only):** This module enables you to set up a training program and schedule training classes for employees.
- **Base Data (iHRIS Manage and Qualify):** Includes standard data lists such as marital status and countries; recommended for most users. Base data can be edited after loading.
- **Medical Base Data (iHRIS Manage and Qualify):** Includes standard data lists for public health such as cadres and facilities; recommended for public health (such as Ministry of Health) users. Medical base data can be edited after loading.

- **Sample Data (all components):** A fictional dataset intended for demonstration purposes only. Not recommended for users who intend to enter their own data in the system.

If you intend to use Windows iHRIS to enter and manage data, we recommend unchecking all sample data.

Note that enabling modules and sample data takes a few seconds. The system displays a message when the modules and data are successfully loaded.

Using and Exiting Windows iHRIS Plan

While Windows iHRIS is running, the iHRIS icon appears in the taskbar in the lower right corner of your screen. To switch between any of the components or return to the main screen, left-click this icon.

You can also launch PHP MyAdmin, a tool for directly managing your databases and exporting or importing data (advanced users only). For help with using PHP MyAdmin, see the PHP MyAdmin website.

To quit Windows iHRIS, right-click the taskbar icon and select Exit.

Using iHRIS Plan

This section provides step-by-step instructions for completing each action in iHRIS Plan, corresponding with the menu and other options presented after connecting to the system. Following each subsection is a "Troubleshooting" section for solving common problems encountered while working with the system.

If you have any suggestions or questions, or if you have an issue that the user's manual does not address, we encourage you to send us feedback. Click the Feedback burton in the top navigation bar of any screen of iHRIS Plan and complete the form that opens, or contact us directly (see Contacting the iHRIS Development Team).

Access the System

Before performing any task in iHRIS Plan, you need to log in. You cannot log in unless a user account has been created for you and you have been given a username and password. If you do not have a user account, contact your System Administrator.

1. Connect to the system. The Welcome page appears.

2. In the Log In form, enter the **Username** and **Password** that were provided to you.

3. Click the Login button.

4. The Home page opens listing the actions that you can perform based on your role.

Troubleshooting

The password is not correct.

You will be prompted to re-enter the password. If you cannot remember your password, you can generate a new password (see Retrieve a forgotten password or username).

The username is not correct.

You will get an error message. If you cannot remember your username, you can retrieve it (see Retrieve a forgotten password or username).

I still cannot log in.

Your account may have been disabled. Contact your System Administrator for assistance.

Retrieve a Forgotten Username or Password

If you have forgotten your password or username, you can generate a new one.

1. From the Log In page, click Forget username or password? The Forgot Password page opens.

2. To reset the password, enter your **Username** in the box next to "Reset Password" and click the Reset button. The system will email your new password to you.

3. To recover your username, enter your **Email Address** in the box next to "Display Username" and click the View button. The system will display your username.

4. Click the link to Return to login page and log in as normal.

Troubleshooting

The system does not recognize the email address.

Contact your System Administrator for help.

Change Password

At any time after logging in, you can change your password for logging into the system.

1. Click Change Password in the navigation menu.

2. Enter your **Old Password** (current password).

3. Enter the desired **New Password.**

4. Re-enter the password under **Confirm New Password** to confirm it.

5. Click Save to save the new password.

Troubleshooting

An error message appears when Confirm is clicked.

Re-enter the password twice. The two passwords must match or the system won't accept the new password.

Log Out

When you are finished working in the system, log out to prevent any unauthorized person from accessing the system.

1. In the upper left corner on any page, click Log out (next to the padlock).

2. The Welcome page appears. You will have to re-enter your username and password to regain access to the system.

Manage Projections

Click Manage Projections to create and save a new workforce projection or to search for a projection that was previously created. You can also update or continue entering data into any projection that had been saved or generate a workforce projection model to analyze the health workforce.

Add Projection

The first step is to set up a new workforce projection by clicking the Add Projection option. You will be prompted to enter general information about the projection and save it. Once the projection is generated, additional options for adding workforce data will become available. You can create as many projections as you like. Each projection represents the total health workforce at the national, regional or district level.

1. On the Home page or in the left side menu, click Manage Projections.

2. Click Add Projection.

3. Enter the **Projection Name**, which will identify the projection in lists.

4. Enter a **Category** for the projections; projections are grouped by category on the search page.

5. Enter the **Targeted Goals for the Workforce**; these are the proposed outcomes that you are hoping to achieve by the end date of the projection.

6. Select the **Country** where the health workforce is being modeled.

7. Select the **Start Year** for the projection. This should be the most recent year for which there are known data as to the health workforce supply and population. You will not be able to enter any data in the projection for prior to this base year.

8. Enter the **Projection Duration** in number of years. For best results, enter a number between 10 and 30 years.

9. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

10. The new projection is generated with options to add additional information divided into sections.

Note that you can click the Hide/Expand option at the top of any section to hide or display that section. You can edit or update a projection at any time by searching for the projection (see Find Projection).

Troubleshooting

An error message displays when the Confirm button is clicked.

Make sure all required fields have been completed. Required fields will be outlined in red. Fill in the missing information and try saving again. If you do not want to add a new projection after all, click Return (do not save changes .

The country is not available for selection.

You must add the country to the system before you can select it (see Add a country).

The projection name or other information needs to be changed.

In the Projection Information section under "Edit This Information," click Correct This information to make any changes.

Add Population

The next step in creating a projection is to enter population data for the country or area where you are modeling the workforce.

1. From the projection, click Add Population under the "Projection Information" section.

2. Select the **Year** for which you are entering the population. Ideally, this is the same year as the start year for the projection. Note that you cannot select a year before the start year for the projection.

3. Enter the current **Population** (do not use any commas).

4. Enter the **Population Growth Rate**, the percentage by which the population increases each year.

5. Enter the **Source** for the population data (this will be helpful if the data need to be verified).

6. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save the population information.

7. The population data will appear in the projection in the "Population Information" section.

You may update the population during subsequent years by clicking Add New Data beside the population data. The system will maintain a record of all population data entered for each year. To view this record, click View Population History.

Troubleshooting

An error message appears when Confirm is clicked.

Make certain that all of the required data have been entered. All required fields are outlined in red. Fill in the missing information and try saving again. If you do not want to enter the population information after all, click Return (do not save changes .

The population or other information needs to be changed.

In the Population Information section under "Edit This Information," click Correct This information to make any changes.

Add a Cadre Pool

A cadre pool is a pool of health workers in a particular cadre, such as nurses or doctors. You can create a pool for each cadre in the health workforce you are modeling. You will then be able to generate models for each cadre separately or for any of the cadres combined.

1. In the projection under the "Cadre Pools" section, click Add Cadre Pool.

2. Enter a **Name** to identify the cadre pool.

3. Select the **Cadre** from the dropdown menu.

4. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

Troubleshooting

An error message appears when the Confirm button is clicked.

Make certain that all required fields have been completed. Required fields are outlined in red. Fill in the missing information and try saving again. If you do not want to add a cadre pool after all, click Return (do not save changes).

The cadre is not available for selection.

You must add the cadre to the system before you can select it (see Add a cadre).

The cadre pool name or cadre needs to be changed.

In the projection, under "Cadre Pools," click View/Update This Pool beside the pool you want to change. Then click Correct This information to edit the pool name or select a different cadre.

Add Supply Data

After creating a cadre pool, you will need to add information about the current workforce for that cadre, or the workforce *supply.*

1. In the projection under the "Cadre Pools" section, click View/Update This Pool.

2. Under the "Cadre Pool Information" section, click Add Supply Data.

3. Select the **Year** for which you know the number of actual workers in the cadre; ideally, this is the same as the start year for the projection. Note that you cannot select a year for before the start year of the projection.

4. Enter the total **Number of Employed Staff** in the cadre.

5. Select the **Currency** and enter the annual **Average Salary** for a worker in the cadre (do not enter any commas).

6. Enter the **Source** of the data; this will be helpful if the data need to be verified later.

7. Enter the average **Salary Increase per Year** for a worker in the cadre, expressed as a percentage of the average annual salary.

8. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

You may update the workforce supply during subsequent years by clicking Add New Data beside the supply data. The system will maintain a record of all supply data entered for each year. To view this record, click View Supply History.

Troubleshooting

An error message appears when the Confirm button is clicked.

Make certain that all required fields have been completed. Required fields are outlined in red. Fill in the missing information and try saving again. If you do not want to add the supply after all, click Return (do not save changes).

The currency is not available for selection.

You must add the currency to the system before you can select it (see Add a currency).

The population or other information needs to be changed.

In the Pool Supply section under "Edit This Information," click Correct This information to make any changes.

Add Target Data

The next step is to enter the number of positions in that cadre that you need, or the workforce *target.*

1. In the projection under the "Cadre Pools" section, click View/Update This Pool.

2. Under the "Cadre Pool Information" section, click Add Target Data.

3. Select the **Year** for which you know the number of positions needed in the cadre; ideally, this is the same as the start year for the projection. Note that you cannot select a year for before the start year of the projection.

4. Enter the **Targeted Number of Positions** in the cadre *or* enter the **Targeted Ratio of Positions**, the number of population that 1 health worker should serve (such as 1000 if the health worker-to-population ratio is 1:1000).

5. Enter the **Source** of the data; this will be helpful if the data need to be verified later.

6. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

You may update the workforce target during subsequent years by clicking Update this Information beside the target data. The system will maintain a record of all target data entered for each year. To view this record, click View Target History.

Troubleshooting

An error message appears when the Confirm button is clicked.

Make certain that all required fields have been completed. Required fields are outlined in red. Fill in the missing information and try saving again. Also make sure that you have not entered both a targeted *number* and a targeted *ratio* of positions. You cannot enter both. If you do not want to add the supply after all, click Return (do not save changes).

Add Pool Change

A pool change calculates a year-by-year decrease or increase in the number of health workers in the cadre. Decreases may be caused by attrition due to retirement, illness, death, out migration or other reasons. Increases may come from training program graduates, immigration or recruitment of health workers. You can enter as many pool changes as you like depending on the data that you have available. Each one will be considered in projecting the total workforce supply. It is best to enter each intake and attrition change separately, as they can be toggled on and off when modeling the projected health workforce. This will help you more easily see the effects of each change on the workforce supply.

1. In the projection under the "Cadre Pools" section, click View/Update This Pool.

2. Under the Pool Changes section, click Add Pool Change.

3. Enter a **Name** to identify the pool change (such as "Retirement" or "Training Graduates").

4. Enter a longer **Description** of the pool change, if desired. This should include any assumptions you have made in determining the amount of change.

5. From the **Enabled?** menu, select **Yes** to enable the pool change and show its effects when projecting the health workforce. Select **No** to disable the change and hide it when modeling projections.

6. Select whether the change is an **Intake** (increase) or **Exit** (decrease).

7. Enter the **Source** for the data; this will be helpful if the data need to be verified later.

8. Enter either the **Amount of Change**, the number of workers entering or leaving the cadre, or the **Rate (%) of Change**, the percentage of decrease or increase in workers.

You can enter either the **Amount of Change** or the **Rate of Change**. If you enter an amount, the projected workforce will increase or decrease by that number each year in the projection. You may also choose to enter a **Rate (%) Amount of Change Increases Each Year**; this will increase the number of workers by that amount each year. If you enter a rate of change alone, the projected workforce will increase or decrease by that percentage of the current supply each year.
- For example, if you enter an intake **Amount of Change** of 100, the number of workers will increase by 100 health workers each year.

- If you enter an intake **Amount of Change** of 100 *and* a **Rate Amount of Change Increases** of 10%, then the number of workers added to the cadre will increase by 10% each year. 100 workers would be added the first year, 110 would be added the second year and so on.
- If you enter an intake **Rate of Change** of 10%, the number of workers will increase by 10% each year. If there are 100 workers in the first year, 10 will be added the second year to equal 110 workers, and 11 will be added in the third year (10% of 110), and so on.

9. If you like, enter a **Maximum Amount of Change.** This caps the rate of change so that it cannot grow beyond the maximum amount.

10. If you have costs associated with the change, select the **Currency** and enter the **Average Cost** per worker. For example, you may enter scholarship costs for training students, recruitment bonuses or severance paid to laid-off workers. You may also choose to enter a **Cost Increase (%) Per Year** if the costs go up by a known percentage each year.

11. Select the **Initial Year** of the change, the year in the projection when the changes will start. The initial year may not be the same as the start year for the projection, if the change requires some intervention that will take time, such as completing a pre-service training program. If an initial year is not chosen, the change begins with the first year of the projection.

12. Enter the **Duration in Years of Change**, the number of years in the projection that the change should take effect. Leave this field blank if the change affects every year in the projection.

13. Click Confirm and confirm that the information entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

Troubleshooting

An error message displays when the Confirm button is clicked.

Make sure that all of the required fields have been completed. The required fields are outlined in red. Fill in the missing information and try saving again. If you do not want to add a special payment after all, click Return (do not save changes).

The currency is not available for selection.

You must add the currency to the system before you can select it (see Add a currency).

The pool change needs to be changed, disabled or enabled.

In the projection under "Pool Changes," click Correct This information beside the pool change to change any field. Select **No** from the **Enabled?** menu to disable the pool change or select **Yes** to re-enable it.

Model Projection

Once you have created a projection with one or several cadres, you can generate a graphical model of the projection. The model graphs the changes in the actual health workforce as compared to the changes in needed health workers to serve the population over the duration of the projection. The actual workforce is calculated based on the pool changes you entered applied to the supply. The needed number of health workers is calculated based on a ratio of health workers to population, calculated from the initial target and population you set. The annual salary and other costs are graphed separately.

1. With the projection open, click Model Projections in the navigational menu on the left side of the screen.

2. A list of all cadre pools created for the projection is displayed. Select the cadres to model. (Select more than one cadre by holding down the CTRL key while clicking each cadre's name.)

Note: You can also click Model Projections beside the name of any cadre pool in the projection. This will create a model just for that cadre.

3. Click the View button to display the projection.

4. The projected health workforce supply and needs is displayed. The needs graph is red, and the supply graph is blue. Over time, you can clearly see how close the projected supply will be to meeting the projected needs, based on the pool changes you entered. The annual costs display just beneath the projected workforce.

Note that if you enter supply and target data for subsequent years, the actual and required number of health workers will be graphed separately for each year on the projection. This allows you to compare one year to the next.

Below the graph, all of the projection and costs data are displayed in a table. Note that actual data you entered (as opposed to projected numbers) are indicated by an asterisk (*).

You can disable any of the pool changes to see the effect on the projection by clicking the checkbox next to the pool change data in the tabular display. Then click the Update button to redraw the graph. You will see the changed workforce supply graphed in blue, while the original supply remains as a green line for easier comparison.

Find Projection

After creating a projection, it will be saved for future updating and modeling.

1. From the Home page or left menu, click Manage Projections.

2. Click Find Projections.

3. Enter the **Projection Name** and select the **Country** to search for.

4. Click Find to find the matching projection or click Find All to find all projections.

5. A list of matching projection displays grouped by category. Click the name of the projection you want to review.

Troubleshooting

The record is not found.

The system displays an error message. Click Return to return to the Search Records page and search again.

Copy a Projection

If you want to create a new projection based on a projection that has already been entered, you can copy the original projection. This copies all of the population and cadre pool data, which you can then change in the copied projection without affecting the original. Copying a projection will save a lot of time on data entry if you plan to reuse cadre pools or pool changes in the new projection.

1. From the Home page or left menu, click Manage Projections.

2. Click Find Projections.

3. Enter the **Projection Name** that you want to copy.

4. Click Find to find the matching projection.

5. Click the name of the projection you want to copy.

6. The projection opens. Click Copy Projection to copy all the data.

7. Change the data as you like.

Configure System

Click Configure System on the main menu to access options for setting up and customizing iHRIS Plan. Here is where you can configure modules that will be used in the system, create and update user accounts, and administer the database. Only the System Administrator can access the Configure System page.

For more information on system configuration, consult the System Administrator Manual. This manual is planned for release in June 2009.

Configure Modules

Click Configure Modules to enable new modules and customize all modules that have been installed for use in iHRIS Plan. This page lists all modules that have been installed for the system, including those that were installed with the main software package and any modules you may have installed separately. Only the System Administrator can configure modules.

A checkbox appears beside most module names. If the checkbox is checked, the module is enabled, or turned on. Most modules are enabled by default. Click the checkbox to remove the check and disable the module, if it is not needed. The module can be re-enabled at any time. Note that if the checkbox does not appear, the module is required for iHRIS Plan to operate properly and cannot be disabled.

Beside most modules a Configure link appears. Click Configure to open a new screen showing all options for that module. These modules will change depending on the module that is selected. Use this page to customize settings for the module.

See the System Administrator Manual for more information about configuring modules. (The System Administrator Manual will be available in June 2009.)

Administer Database

To ensure that standard data types such as cadre, country and the like are enforced across the system, those standard data types must be created as lists. These lists are used to create selection menus that provide standard options for selection when adding records, jobs and positions. Click Administer Database to create and update standards lists of data for selection in system menus. Only the System Administrator can create data types.

Add a Cadre

The cadre refers to a category of health workers. The health workforce is made up of several cadres. Specify at least one cadre to represent each type of health worker you want to include in projections.

1. From the home page or left menu, click Administer Database under Configure System.

2. Select Cadre.

3. Either select Add New Cadre or select an existing cadre to edit.

4. Enter the **Name** of the cadre.

5. Click Confirm and confirm that the cadre entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

Troubleshooting

An error message appears when Confirm is clicked.

Make certain you have entered a name for the cadre and that it is not the same as a cadre that was already entered. Change the name and try saving again. If you do not want to create the cadre after all, click Return (do not save changes).

Add a Country

You will need to add at least one country to the system for selection when creating a new projection. This should be the country where you are modeling the health workforce. You can model the workforce for more than one country.

1. From the home page or left menu, click Administer Database under Configure System.

2. Select Country.

3. From the menu select Add New Country and click the Add button. (To edit an existing country, select its name from the menu and click the View button; then click Update This Information.)

4. Enter or edit the **Name** of the country.

5. Enter the **2 Character Alpha Code** for the country.

6. Enter the **ISO Numeric Code** for the country (optional).

7. If the country is the primary country where you are creating projections, select **Yes** in the **Primary Country** menu. This will place the country name at the top of all country selection menus. Otherwise, leave the default as **No**. There can be multiple primary countries.

8. Click `Confirm` and confirm that the country entered is correct. If it is not correct, click `Edit` to change it. If it is, click `Save` to save it.

Troubleshooting

An error message appears when the Confirm button is clicked.

Make sure that the country and two-letter country code have not previously been entered into the system. The system will not allow duplicate countries. Also check that the country name and code have been entered -- these fields are required. Required fields will be outlined in red. Try completing the missing fields or changing the country name and saving again. If you do not want to add the country after all, click `Return (do not save changes)`.

The required 2-Character Alpha Code is not known.

Find a complete list of 2-letter country codes on the International Organization for Standardization (ISO) website}.

Add a Currency

Add the currency for projecting health workforce costs. At least one currency should be added.

1. From the home page or left menu, click Administer Database under Configure System.

2. Select Currency.

3. From the menu select Add New Currency and click the `Add` button. (To edit an existing currency, select its name from the menu and click the `View` button; then click Update This Information.)

4. Enter the **Currency Code**, an abbreviation that will identify the currency in selection menus.

5. Enter the **Name** of the currency (optional).

6. Select the **Country** for the currency (optional).

7. Enter the **Symbol** for the currency; the symbol will also appear in selection menus (optional).

8. Click `Confirm` and confirm that the currency entered is correct. If it is not correct, click `Edit` to change it. If it is, click `Save` to save it.

Troubleshooting

An error message appears when Confirm is clicked.

Make sure the currency code was entered and that it is not the same as a code that has already been entered. Change the code and try saving again. If you do not want to add the currency after all, click `Return (do not save changes)`.

The currency code is not known.

Find a list of all standard currency codes at the International Organization for Standards (ISO) website.

The country for the new currency is not available for selection.

Under the "Country" menu, click Add New and add the country. Then click Administer Database and follow the steps above to add the new currency. You will need to re-enter any information you previously entered for the currency.

How do I enter a currency symbol that does not appear on my keyboard?

If you are using a Windows computer and have a separate numeric keypad on your keyboard, you may enter a currency symbol by holding down the ALT key on the numeric keypad and typing in the code for the symbol, then releasing the ALT key.

- British pound: ALT+0163
- Euro: ALT+0128
- Yen: ALT+0165
- Florin: ALT+0131
- Generic currency symbol: ALT+0164

The symbol is optional and may be omitted.

Administer Users

Click Administer Users to create, update and disable user accounts to enforce secure access to the system. Only the System Administrator can add user accounts to the system.

Add a User

In order to allow a user to access the system, the System Administrator must create a user account for the person, with a unique username and password. Each user is assigned a role, which determines the actions that the user can perform in the system.

1. On the Home page or left menu, click Administer Users.

2. Select Add New User from the dropdown menu and click the Add button.

3. Enter a **Username** for the user: one word with no special characters (letters and numbers only).

4. Enter the **First Name** and **Surname** of the user.

5. Enter an **Email** for the user, if known (optional).

6. Select the **Role** of the user:

- Administrator: has full access to the system
- Health Workforce Planner: creates and models projections but cannot configure the system or edit user accounts

If no role is selected, the user will be disabled and cannot access the system in any capacity.

7. Select the option to randomly Generate a New Password or enter a **Password** for the user. If the password is entered, re-enter it to confirm. The two passwords must match.

8. Click Confirm and confirm that the account entered is correct. If it is not correct, click Edit to change it. If it is, click Save to save it.

If an email address was entered, an email message will be sent to the user with the username and password. Otherwise, you will have to provide the user with the username and password.

Troubleshooting

A required field was not completed.

The system will display an error message. The required field(s) will be outlined in red. Complete the missing fields and try saving again. If you do not want to add the user account after all, click Return (do not save changes).

The username is already in the system.

The system will generate an error for duplicate usernames. Return to the Administer Users screen and select the username from the dropdown menu to edit the user account (see Update a User).

Update a User

If information about a user has changed, the System Administrator can update the user account with the change. Usernames and passwords may also be changed. If a user no longer has access to the system, the account can be disabled.

1. On the Home page or left menu, click Administer Users.

2. From the menu select the user account to change.

3. The user account information is displayed. Make the change or select "No Access" from the **Role** menu to disable the account.

4. Click Confirm and confirm that the changes are correct. If not, click Edit to change them. If it is, click Save to save them.

Troubleshooting

A required field was not completed.

The system will display an error message. The required field(s) will be outlined in red. Complete the missing fields and try saving again. If you do not want to update the user account after all, click Return (do not save changes).

Glossary of Terms

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z

A

account
See user account

add
To enter a new list item for selection in dropdown menus.

administrator
See system administrator

alpha code
The unique two-character code that identifies a country established by the International Organization for Standards (ISO).

attrition
See exit

average cost
See cost

average salary
The average annual salary paid to an employee in a particular group, such as a cadre or pool of workers.

B

background process
An autonomous process that runs without requiring user interaction.

base year
See start year

base year ratio
The ratio of health professionals to population calculated for the start year of the projection; this ratio is used to calculate health professional targets for each year in the projection by maintaining the base year ratio as the population changes over time.

C

cache
A temporary store of data on the user's computer designed to speed up access to that data.

cadre
A broad category or subset of health workers characterized by the specific training, degree or other qualifications required to practice or be licensed in that field (i.e., nurse).

cadre pool
A pool of health workers, composing part or all of a cadre, to which assumptions are applied in a workforce projection. *Also pool.*

configure
The process of setting up the system or a module for use.

confirm
The process of reviewing data entered in the system and verifying that the data are correct.

copy
To create a new projection containing all of the original projection's data, which can then be modified.

cost
The amount of money associated with a change in the number of workers based on salary and other associated costs, such as training costs or severance pay. *Also average cost.*

cost increase
An annual increase in the cost associated with a change in the number of workers expressed as a percentage of the original cost.

currency
The medium of exchange of money used in a country or other location.

currency code
The unique three-letter code used to define a currency established by the International Organization for Standards (ISO).

currency symbol
The symbol used to identify a currency, such as $ for dollars.

D

data source
The verifiable source of data entered in the system, such as a census, survey or information system.

duration
The number of years in a projection, usually between 5 and 30 years. Also refers to the number of years that a pool change affects the projection.

E

edit
The process of changing data entered in the system before saving it, such as when there is a mistake in the data.

enable
To turn a module on so that its functions can be used.

exit
A decrease in the supply of workers due to employees leaving the workforce. *Also attrition.*

export
To pull all data out of the system for use in another program.

F

feedback
To provide suggestions or ask questions about the system to the developers.

G

goal
See target

graphical model
See projection

H

health worker
A health professional who is a member of a cadre and provides health services in a country, either in the public sector or the private sector.

health worker-to-population ratio
A targeted number of health workers based on a ratio of one health worker per a certain number of people to be served. *Also targeted ratio.*

health workforce planner
A role that has access to the projection creation and modeling functions but cannot configure the system or access user accounts; this is the primary user role for the system.

I

import
To bring data into the system from another source.

initial year of change
The first year in a projection that a pool change takes effect; the initial year of change may be the same as the start year of the projection.

intake
An increase in the supply of workers due to employees entering the workforce.

ISO numeric code
The unique numeric code that identifies a country established by the International Organization for Standards (ISO).

L

log in
To enter a username and password in order to access the system.

log out
To stop using the system and disable access unless a correct username and password are entered.

M

magic data
Configuration data used in the system.

model
The formula used to project workforce supply in future years based on the current supply of workers plus projected new workers minus projected losses. *Also workforce planning model.*

module
A component of the system that performs a specific function and may be disabled or enabled.

N

need
See target

no access
A role that prevents a user from accessing the system, or disables the user account.

O

out migration
The process of a health worker leaving the country where s/he was trained in order to practice in a foreign country.

P

password
A hidden phrase that provides secure access to the system.

percentage change
An annual change in the number of workers based on a percentage of the available number of workers leaving or entering the workforce. *Also rate of change.*

pool
See cadre pool

pool change
A change applied to a cadre pool that calculates either an increase or decrease in the number of available workers in that pool.

population
The total number of people inhabiting a specific area, such as a country.

population growth rate
The percentage by which the population of an area will grow annually.

population history
A record of all populations entered in the system and the year for which the population was entered.

position
An instance of a job that can be filled by one employee in one facility and represents one box on an organizational chart.

primary country
The country that is selected as the primary location for projections; more than one country may be set as the primary country.

projection
A calculation of the workforce supply and required workers over time based on workforce data and assumptions made about future changes to the workforce that compares the supply to the requirements and shows the gap between the two. *Also graphical model, workforce projection.*

R

rate of change
See percentage change

requirements
See target

retirement
The point at which a worker permanently leaves the workforce, usually due to reaching a specific age.

return
The process of abandoning data entered in the system without saving it.

role
Determines the activities that a user can perform within the system.

S

salary
The amount an employee is paid per year for a particular job.

salary increase
The amount that a salary is increased each year, expressed as a percentage of the salary.

save
The process of writing data to the system; saved data may be corrected or updated at a later point, but the original data are always retained.

start year
The year in which a projection of the workforce begins, for which there is known workforce data. *Also base year.*

static change
An annual change in the number of workers based on a specific number of workers leaving or entering the workforce.

sub-module
A component that is part of a module and depends on that module to function; sub-modules may be enabled or disabled separately from their parent module.

supply
The actual number of workers available for deployment, calculated by adding the current stock to an estimate of the number and types of staff who will be available in the future.

supply history
A record of all actual workforce supply data entered in the system, organized by supply year.

supply year
The year for which the actual available number of workers is known, which is used as the basis for projecting future numbers of workers; ideally, the supply year is the same as the start year of the projection.

surname
Family name or last name.

system administrator
A role that has full access to all functions in the system; this role is responsible for configuring the system and managing user accounts. *Also administrator.*

T

target

The number of health workers necessary to meet the health service need. Also a goal or proposed outcome for workforce plans or projections, such as to meet a specific need or staff up to a certain level. *Also goal, need, requirements.*

target history
A record of all actual workforce target data entered in the system, organized by target year.

target year
The year for which the required number of positions is known, which is used as the basis for projecting future needed workers; ideally, the target year is the same as the start year of the projection.

targeted ratio
See health worker-to-population ratio.

training program
A course offered by a training institution that, when completed, qualifies a person to be registered or licensed in a particular cadre.

U

user
A person who has access to the system.

user account
A record that enables a person to access the system via a username and password, and determines the role of the person in the system. *Also account.*

username
A unique name used by a user to access the system.

W

workforce
The total number of people available to work.

workforce planning
A process to determine the policies and strategies to balance workforce supply and demand in order to have the staff in place to deliver the agreed-upon level of health care services over the long term (5 to 20 years).

workforce planning model
See model

workforce projection
See projection

Contacting the iHRIS Development Team

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- Click the Feedback button at any point in the iHRIS Manage system.
- Visit the HRIS Strengthening Website at <http://www.capacityproject.org/hris/> and click "Contact

Us."

- Send us an email at: hris@capacityproject.org
- Write us at:

HRIS Strengthening Information
IntraHealth International, Inc.
6340 Quadrangle Drive Suite 200
Chapel Hill, NC 27517

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