The Capacity Module is an Excel-based tool that estimates the human resources required to effectively reach a specified number of individuals with various interventions. The Capacity Module was developed in conjunction with the Goals Model, a strategic planning tool that examines resource allocation among HIV interventions.

TO ACCESS THE CAPACITY MODULE

The Capacity Module is part of the Excel version of the Goals Model and is available at

http://www.healthpolicyinitiative.com/index.cfm?id=software &get=GOALS.

Under Software, select: Goals Model–Data (Excel)

The Capacity Module uses the target number of people to reach from the Goals Model. The number of people reached by each intervention is the basis for identifying gaps in existing capacity to meet HIV and AIDS strategic goals.
The module can address the following questions:

- How many personnel are needed to provide the services necessary to achieve the country targets?
- How many staff must be trained to meet the personnel needs?
- How much funding is needed to meet the training needs?
- What is the gap in human resources?
- What operational policy changes might be necessary to achieve country targets? (e.g., Are regulations needed to allow nurses or clinical officers to dispense drugs? Do more physicians need to be retained in the public sector? Do national physicians need to be attracted back from overseas posts?)

Estimates from the Capacity Module can enhance knowledge about required human resources and related training and capacity-building needs to implement HIV prevention, care and treatment, and mitigation interventions that reach a specified number of individuals.

**Human Resources for Health**

Health workers are in absolute shortage in 57 countries—36 of which are in Africa, where the need for additional workers is most acute. The World Health Organization (WHO) “estimates that the WHO African Region has a shortfall of 817,992 doctors, nurses, and midwives, which means a need to more than double the workforce among these professional categories.” The issue of scarcity of trained professional staff becomes especially problematic in the context of expanding antiretroviral treatment (ART) services; staffing requirements for ART are often equal to a third or more of current availability of staff for all public health services in a country, where HIV is not the only public health problem. Scaling up ART in resource-poor environments places tremendous strains on laboratory, pharmaceutical, and physician capacity.

The Capacity Module enables planners to link a country’s strategic plan and targets for HIV prevalence with existing capacity and future staffing needs. The Capacity Module’s linkage to the Goals Model allows discussions on human resource requirements to occur within the context of budgets and resource allocation decisions. Choices about how resources will be allocated between prevention and treatment interventions affect the number of people reached with services, ultimately affecting prevalence, and help determine the number and type of health personnel needed to reach clients. This provides decisionmakers with a useful lens through which to view the feasibility of national plans to scale up HIV programs, as it helps them attain coherence on the human resources required to achieve national targets and timelines.

**USING THE CAPACITY MODULE IN CHINA**

The Capacity Module was used to estimate the human resource requirements for expanding HIV treatment and care in China’s Yunnan and Guangxi provinces. The application focused on understanding the existing and needed human capacity for HIV prevention and other programs, including voluntary counseling and testing, the prevention of mother-to-child transmission, treatment, and HIV testing for surveillance and monitoring of the epidemic. Based on regional plans with specific targets for HIV care and treatment, the module generated information on current workforce composition, worker attrition rates, and a widening gap in the workforce available to meet provincial targets. The module was used to identify how and where task shifting could be most useful given current configurations of available resources to meet provincial goals.
Country Application: Staffing Needs to Expand ART in Uganda

The WHO estimates that Uganda has only one doctor for every 22,000 patients and an overall health worker deficit of up to 80 percent. The expansion of HIV treatment has highlighted the shortage of medical doctors and other health workers trained to deliver HIV care and treatment, along with ART. The government of Uganda has adopted a decentralized approach to scaling up treatment in its National ART Plan and is actively exploring and testing initiatives to enhance the role of non-physician clinicians in delivering HIV care and treatment. A recent Ugandan study found that 64 percent of people who prescribed ART were clinical officers, nurses, or midwives—41 percent of whom had not been trained in initiating ART and 64 percent of whom had not been trained in monitoring ART.3 As ART expands and clinical officers, nurses, and midwives begin prescribing treatment, governments will need to understand and plan for the human resource needs and training requirements associated with this expansion.

In late 2006/early 2007, the USAID | Health Policy Initiative, Task Order 1, worked with the Uganda Bureau of Statistics and the Ugandan National Strategic Plan Steering Committee to apply the Goals and Resource Needs models to examine current levels of funding, resources available, costing elements of the strategic plan, and various future funding scenarios and their potential impact. The steering committee decided to use a medium funding scenario where funding increases to US$360 million by 2011/12 (i.e., double the level of funding from 2006).4 This level of funding allowed the committee to set priorities for its efforts: scaling up the most cost-effective prevention interventions, achieving the most rapid expansion of ART coverage possible within the funding limits, and tripling resources for support of orphans and vulnerable children. With this information, it was possible to estimate the number of people reached by scaling up ART each year (see Table 1).

Using the Capacity Module and data from multiple sources, the Health Policy Initiative estimated Uganda’s capacity for ART interventions. Projected capacity is based on the number of staff trained in ART in 2006 and adjusted for attrition and newly trained staff over time. Table 2 shows that over five years, capacity for ART is expected to grow, with the largest increase anticipated in nursing staff.

However, each year, required capacity to meet the strategic goals also grows—leading, for example, to a widening gap between projected available staff and the required staffing needed for the ART intervention alone. Table 3 presents the estimated total staffing required for expanded ART and Figure 1 shows the gap between the available and needed human resources. Thus, even with investments in training, the Capacity Module projected a gap in staffing needs to meet the required goals of expanding ART through 2011.

### Table 1. Number of People Reached with ART Based on a Budget of US$360 Million by 2011/12

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td># of people</td>
<td>73,483</td>
<td>118,938</td>
<td>173,161</td>
<td>237,849</td>
<td>315,634</td>
<td>410,363</td>
</tr>
</tbody>
</table>

### Table 2. Projected Capacity for ART, 2006–2011

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>67</td>
<td>184</td>
<td>257</td>
<td>380</td>
<td>507</td>
<td>671</td>
</tr>
<tr>
<td>Clinical Officers</td>
<td>66</td>
<td>163</td>
<td>242</td>
<td>351</td>
<td>475</td>
<td>627</td>
</tr>
<tr>
<td>Nurses</td>
<td>176</td>
<td>291</td>
<td>467</td>
<td>656</td>
<td>893</td>
<td>1,291</td>
</tr>
<tr>
<td>Lab Technicians</td>
<td>50</td>
<td>159</td>
<td>217</td>
<td>324</td>
<td>432</td>
<td>572</td>
</tr>
</tbody>
</table>
Table 3. Estimated Total Staffing Needed for Expanded ART, 2006–2011

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>170</td>
<td>275</td>
<td>401</td>
<td>551</td>
<td>731</td>
<td>950</td>
</tr>
<tr>
<td>Clinical Officers</td>
<td>144</td>
<td>233</td>
<td>338</td>
<td>466</td>
<td>617</td>
<td>803</td>
</tr>
<tr>
<td>Nurses</td>
<td>267</td>
<td>433</td>
<td>629</td>
<td>865</td>
<td>1,229</td>
<td>1,492</td>
</tr>
<tr>
<td>Lab Technicians</td>
<td>128</td>
<td>206</td>
<td>299</td>
<td>412</td>
<td>546</td>
<td>710</td>
</tr>
</tbody>
</table>

Figure 1. Gap in Staffing Needed to Expand ART

Using the Capacity Module, the Health Policy Initiative also estimated the annual training needs and costs for pre-service training, in-service training, and continuing education. The model projected the need for continued investment in current staff, in addition to the investment for pre-service training programs for ART.

How Can Uganda Use These Findings?

In the short term, information about human resources and costs can help to

- Identify alternative staffing structures, shift non-specialized tasks to other personnel when there are limited specialized staff, and identify other underutilized qualified personnel;
- Improve performance in terms of time allocation for ART and assist governments with coordinating program implementation with nongovernmental agencies; and
- Assess whether the innovative task-shifting models in ART that Uganda’s Infectious Disease Institute\(^5\) has been piloting not only meet cost and quality concerns but also meet the staffing needs associated with a national effort to scale up ART.

ENDNOTES


