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**ESI** ENHANCING  
STRATEGIC  
INFORMATION

# END-OF-PROJECT REPORT



**JULY 2008 TO MAY 2013**

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The Enhancing Strategic Information Project in South Africa is implemented by John Snow, Inc.

The Enhancing Strategic Information (ESI) project is funded by the United States Agency for International Development (USAID), and implemented in South Africa by a consortium led by John Snow, Inc. (JSI). The ESI project builds upon existing initiatives, guided by the PEPFAR Partnership Framework, and further concentrates efforts to strengthen the capacity of South African individuals and institutions to collect, analyze, and use information to inform the rapid scale-up of sustainable and quality HIV and AIDS programs, which are implemented with support from the US President's Emergency Plan for AIDS Relief (PEPFAR).

This report was made possible by the generous support of the American people through the United States Agency for International Development (USAID) through contract # GHS-I-00-07-00002-00. The contents are the responsibility of John Snow, Inc. (JSI), and do not necessarily reflect the views of USAID or the United States government.

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# ACRONYMS

<b>AIDS</b>	acquired immune deficiency syndrome	<b>JSI</b>	John Snow, Inc.
<b>ART</b>	antiretroviral therapy	<b>MDGs</b>	Millennium Development Goals
<b>ARV</b>	antiretroviral	<b>M&amp;E</b>	monitoring and evaluation
<b>CB</b>	capacity building	<b>MER</b>	monitoring, evaluation, and research
<b>CBIS</b>	community-based information system	<b>NAP</b>	national action plan
<b>CPD</b>	continuous professional development	<b>NACA</b>	National Agency for the Control of AIDS
<b>DQA</b>	data quality audit/assessment	<b>NDOH</b>	National Department of Health
<b>DSD</b>	Department of Social Development	<b>NIDS</b>	national indicator data set
<b>DOTS</b>	directly-observed therapy short-course	<b>OGAC</b>	Office of the Global AIDS Coordinator
<b>DHMIS</b>	district health management information system	<b>OVC</b>	orphans and vulnerable children
<b>DHIS</b>	district health information system	<b>PIMS</b>	Partnership Information Management System
<b>EOP</b>	end-of-project	<b>PEPFAR</b>	President's Emergency Plan for AIDS Relief
<b>ESI</b>	Enhancing Strategic Information	<b>PMTCT</b>	prevention of mother-to-child transmission
<b>EPI</b>	Expanded Program on Immunisation	<b>SAG</b>	South African government
<b>GIS</b>	geographic information system	<b>TOC</b>	table of contents
<b>GWM&amp;E</b>	Government-wide Monitoring and Evaluation Framework	<b>TA</b>	technical assistance
<b>HMIS</b>	health management information system	<b>TB</b>	tuberculosis
<b>HPCSA</b>	Health Professions Council of South Africa	<b>UNGASS</b>	United Nations General Assembly Special Session on HIV/AIDS
<b>HAST</b>	HIV and AIDS, STI, and TB	<b>USAID</b>	United States Agency for International Development
<b>HCBC</b>	home- and community-based care	<b>USG</b>	United States government
<b>HIV</b>	human immunodeficiency virus		
<b>IRS</b>	indoor residual spraying		
<b>IT</b>	information technology		
<b>ITNs</b>	insecticide treated nets		

# I. BACKGROUND

The Enhancing Strategic Information (ESI) project began against the backdrop of an HIV and AIDS epidemic in South Africa that at the time had the largest number of people infected globally. In 2008, The U.S. President's Emergency Plan for AIDS Relief program in South Africa (PEPFAR/SA) was being implemented by nearly 130 partners that were helping the South African government fight a generalized epidemic. According to a 2010 national ante-natal HIV and syphilis prevalence survey, HIV prevalence among pregnant women increased from 29.4% in 2009 to 30.2% in 2010. And according to the Office of the Global AIDS Coordinator (OGAC), the PEPFAR budget for South Africa was the largest of any single country in the world, reaching \$560 million in 2010, but expected to drop to \$240 million by 2017. Beyond HIV prevention and treatment, PEPFAR/SA placed an emphasis on improving national health management information systems (HMIS) and community-based information systems (CBIS) in order to strengthen sustainable efforts and enhance client outcomes.

Technical assistance for strategic information to strengthen HIV and AIDS surveillance, HMIS, and monitoring and evaluation were the cornerstones of the ESI project, a PEPFAR initiative funded by USAID/South Africa and implemented by John Snow, Inc. (JSI). In line with the Partnership Framework Agreement between the United States government and the South African government, ESI's role was to enhance the availability and quality of routinely collected health and community-based information at all levels, manage the availability and analysis of data for programmatic decision making, and to build capacity for monitoring and evaluation. The ESI project's core components included working with both data

## Box 1: ESI's Core Components

- Working with data users to build a managerial demand for information and define the essential health data to collect.
- Developing innovative approaches for collecting higher quality data, including using new technologies and lower-cost methodologies.
- Translating data into information that informs program planning and policy-making.
- Disseminating information to improve its use in influencing policy and improving program planning.
- Facilitating the use of data by ensuring that data users be included in the data collection, analysis, and dissemination process.
- Increasing the capacity of data users and producers at all levels.

producers and data users (see Box 1). ESI also supplemented PEPFAR/SA's efforts to build South African government capacity in HIV and AIDS surveillance, HMIS, and monitoring and evaluation.

From 2008 to 2012, JSI implemented the ESI project in South Africa, Swaziland, and Lesotho to strengthen the capacity of individuals and institutions to collect, analyze, and use information for HIV and AIDS programs. The key clients were local PEPFAR agencies, PEPFAR implementing partners, and ministries of health and social development at the national, provincial, and district levels. JSI-lead consortium partners included Khulisa Management Services, Tulane University School of Public Health and Tropical Medicine, Health Information Systems Programme (HISP), and Manto Management.

***ESI's role was to enhance the availability and quality of routinely collected health and community-based information at all levels, manage the availability and analysis of data for programmatic decision making, and to build capacity for monitoring and evaluation.***

### **Box 2: Strategic Objectives Supported by ESI**

- **SO1:** Enable partners to build capacity for strategic information (SI) in health facilities to inform their evidence-based management system.
- **SO2:** Achieve comprehensive information system development to implement strategic information for orphaned and vulnerable children (OVC), prevention of mother-to-child transmission (PMTCT) of HIV, HAST, and other program areas.
- **SO3:** Design and implement action plans for the enhanced use of data within the South Africa Department of Health as well as PEPFAR partners.
- **SO4:** Provide technical assistance and training for maximizing data quality in results-reporting, particularly targeting the managerial level.
- **SO5:** Develop and maintain a United States government data warehouse and results-reporting database.
- **SO6:** Create high-quality multivariate geographic information systems (GIS) to highlight critical data patterns.

From 2012 to 2013, the Enhancing Strategic Information project phase II (ESI 2) expanded the practices and lessons learned from this regional implementation, focusing exclusively on assisting the South African government with improving data quality, reporting, and use to inform the rapid scale-up of a sustainable and quality HIV and AIDS program at national level and tailored technical assistance provided at the provincial level by JSI.

ESI worked to improve the quality of monitoring and evaluation for the following initiatives: prevention of mother-to-child transmission (PMTCT) of HIV; HIV and AIDS, STI, and TB (HAST); and antiretroviral therapy provision. Within these three areas, ESI helped the South African National Department of Health improve use of data to accomplish the Millennium Development Goals of reducing the number of infections by 50% by 2011 and providing 80% of HIV-positive individuals with antiretroviral therapy. In order to accomplish these goals, the activities implemented by ESI supported six strategic objectives (see Box 2).

# 2. THE ESI PROJECT

## BUILDING CAPACITY FOR STRATEGIC INFORMATION IN COMMUNITIES

**E**SI's mission was to reduce the burden of HIV and AIDS in South Africa by enhancing the use of information for evidence-based decision making. This was achieved through collaborating with and building the capacity of government officials, PEPFAR partners, and stakeholders at all levels of the health system. The project worked to strengthen integrated and sustainable information systems in order to make relevant and credible information widely available and create an information culture. ESI built capacity in the areas of data collection, data analysis and interpretation, information use for reporting, monitoring and evaluation, decision making, and policy information.

As stated above, the target groups for capacity building were government employees, specifically health care providers; data collectors; and line, program, M&E, and information managers at all levels of the health system. PEPFAR partner staff who supported South African government staff to achieve HIV-related targets also received capacity building from ESI.

Three of the ESI capacity building courses were accredited by the University of Pretoria for continuous professional development for practitioners and registered with the Health Professional Council of South Africa (HPC-SA). Facilitators used real data and challenges to address data quality and health program shortcomings. The facilitators not only trained, but also provided tailored technical advice, mentoring, and support to trainees.

ESI also built a capacity-building network to train, mentor, and support trainees to use ESI materials for facilitating workshops in their

own districts. This, of course, helped roll out capacity building efforts at lower levels of the health system.

### Box 3: Principles of ESI Capacity Building

- **Evidence-based practice** integrating experience with the best possible empirical evidence in making decisions to deliver services efficiently.
- **Adult learning principles** for material and instructional approaches, including prior knowledge and experience, learning pace, real-life working environments, group/team work and stated outcomes-based learning objectives aligned with measurable performance outcomes.
- **Systems strengthening** centered on the M&E logical framework (inputs, processes/activities, outputs, outcomes, and impacts) to demonstrate how M&E leads to improved health programs and health status.
- **Results-based** monitoring, evaluation, reporting, feedback, and action aimed at strengthening the RHIS and the health care system.
- **Resource-based monitoring and reporting** using paper, electronic monitoring, electronic patient management on stand-alone computers, sentinel surveillance, and full electronic patient management systems as available at health care delivery level.
- **Use of existing evidence** to identify training, mentoring, and support needs and to monitor progress.

Over the life of the project, ESI developed ten training manuals, offered six routine courses, and trained 5,851 people. For a list

of training materials developed by ESI and the various courses offered by the project, please see annexes A and B, respectively.

Eastern Cape	909
Free State	364
Gauteng	2,170
KwaZulu Natal	548
Lesotho	47
Limpopo	277
Mpumalanga	425
Northern Cape	96
North West	661
Pretoria	15
Swaziland	40
Western Cape	299
<b>GRAND TOTAL</b>	<b>5,851</b>

## ACHIEVING COMPREHENSIVE INFORMATION SYSTEM DEVELOPMENT FOR OVC

The ESI project sought to improve the information systems available in South Africa for managing the orphans and vulnerable children (OVC) component of the HIV response, contribute to enhancing efficient planning and implementation of the National Action Plan for OVC (NAP) 2009-2012, add value to the Department of Social Development's HIV response work, and contribute to the broader processes of social transformation throughout South Africa.

ESI also sought to bring together the various monitoring and evaluation outcomes listed in several government documents, for example the government-wide monitoring and evaluation framework (GWM&E), the comprehensive monitoring and evaluation framework for the National Strategic Plan 2007-2011, the broader Department of Social Development monitoring and evaluation framework, and the draft monitoring and evaluation framework for the national action plan.

The purpose of bringing together all of the monitoring and evaluation outcomes was to:

1. Enhance the measurement of coverage and impact of OVC programs within all spheres of government and the broader public sector; and
2. Determine the extent of program contributions toward achieving MDG, UNGASS, and South Africa development indicators.

The objectives of this work were to:

1. Improve how the benefits and coverage of national OVC interventions are measured in order to better support policy making, especially resource allocation and planning;
2. Evaluate OVC program performance and identify factors that help or hinder service delivery outcomes;
3. Address fragmentation of M&E systems within the national OVC sector;
4. Develop standards for OVC and care indicators and harmonize them; and
5. Improve M&E coordination at national, provincial, district, and sub-district levels.

The project worked closely with the Department of Social Development (DSD) to enhance the monitoring, reporting, and evaluation of the National Action Plan (NAP) for OVC by developing the NAP M&E framework and relevant indicators as well as an integrated national M&E IT system for managing OVC-related data. Project staff worked together with the DSD to ensure that the appropriate institutional mechanisms at national, provincial, district, and sub-district levels for NAP M&E framework implementation were in place and advocated at all levels for OVC indicator

adoption and harmonization with national and international development partners. In addition, the project assessed partner M&E systems and developed tailored capacity-building plans to address the identified gaps. Action plans to address identified gaps in capacity of government and OVC partners officials to collect, collate, analyze, report and use data were also written. A national OVC database was designed, developed, and tested of a national OVC database aligned with existing reporting systems. Strategic and operational M&E support to the USG OVC team was also provided, including support for the regular updating of SASI manual for the South Africa PEPFAR program.

Over the life of the project, ESI:

- Developed an M&E readiness assessment tool to assess the HR capacity of national and provincial Department of Social Development officials; produced and presented the tool to the Department of Social Development.
- Developed an M&E framework for the National Action Plan 2006-2012.
- Developed indicators to monitor performance of the National Action Plan 2006-2012 and developed indicator protocol reference sheets for all selected indicators.
- Conducted a baseline assessment of the initial National Action Plan 2006-2012 and subsequently revised indicators; presented reports to the Department of Social Development.
- Developed and implemented an online tool for assessing the M&E systems, structures, and processes of NACCA's national partners; drafted report of findings and key recommendations.

- Supported the revision of the home- and community-based care (HCBC) routine indicators and developed a community-level booklet detailing HCBC and NAP indicator protocols; booklet was published by the Department of Social Development and distributed to more than 4,500 HCBC organizations nationally.
- Supported an assessment of the home- and community-based care IT system and presented a report with key findings and recommendations.
- Developed the functional and technical specifications of a prototype for rebuilding the home- and community-based care IT system.
- Supported the development of the home- and community-based care IT system, called the community-based intervention monitoring system (CBIMS), which was adopted by the Department of Social Development as the national standard.
- Developed a proposal for strengthening the Department of Social Development's M&E system, which was approved for funding by Global Fund.
- Supported the development of the results statement of the Department of Social Development's HIV and AIDS Prevention Strategy.
- Drafted a concept note for the HIV and AIDS chief directorate at Department of Social Development that proposes steps to achieve an integrated monitoring, evaluation, and research system; facilitated workshops to develop a consensus on that system.
- Facilitated consultations and developed a capacity-building plan to support HR deployment for the integrated

monitoring, evaluation, and research system implementation.

- Supported revision of the National Action Plan and developed a log frame for the National Action Plan 2013-2016.

### **DESIGNING AND IMPLEMENTING ACTION PLANS FOR ENHANCED USE OF DATA**

The North West Province Department of Health and ESI signed a memorandum of understanding detailing how ESI would assist the North West Province to improve data quality to further develop the province's monitoring and evaluation system. The MOU was critical for gaining provincial support for ESI's work and the proposed action plans for enhancing the use of routine data. Improved data quality and improved use of strategic information increased the North West Province's ability to use data and employ evidence-based management systems. ESI developed a model to provide technical assistance in the North West Province to improve data quality for the HIV and AIDS, STI, and TB and PMTCT programs and thus, advance health care in South Africa.

The methodology for achieving improved data quality centered on conducting training sessions for teams that looked at real data and used it to identify the technical assistance needs for the province. ESI provided support to strengthen the data quality assessment methodology and align it with the national approach, which seeks to develop data quality improvement action plans after each data quality audit conducted by the auditor general of South Africa. ESI then encouraged the province to provide support to the district level Department of Health. This communication between governmental levels enabled the alignment of indicators and

procedures. It also streamlined the provincial data-aggregation process by preventing districts from collecting information for unnecessary indicators.

ESI provided the North West Province with eight ESI-trained individuals, two in each of the four districts. Their primary purpose was to build the capacity of district and sub-district information officers to develop and implement action plans so as to improve the data quality and strengthen M&E reporting for the priority HIV and AIDS programs. These individuals advanced the idea that using strategic information is critical to improve the condition of HIV and AIDS in South Africa. ESI worked with the North West Province to determine job descriptions, select employees, and place the employees in each district. Each district was responsible for day-to-day supervision while ESI provided training, sustained mentorship, salary, and travel funding. After three years, the individuals were successfully absorbed into the North West Province staffing structure and they continue to sustainably support the districts in which they are based.

## MAXIMIZING DATA QUALITY IN RESULTS REPORTING

In South Africa, routine monthly aggregated data is collected in the district health information system (DHIS). Collecting routine health information is an integral part of service delivery as it captures data about health care provision, service delivery, management, administration and finance, and births and deaths. The national indicators measure every component of the health care system; for example, inputs, process, outputs, outcome, and impact.

The district health information management policy states that the National Department of Health shall provide formal quarterly

feedback on analyzed data (reports, tables, and graphs) to provincial departments of health comparing their program performance and data quality with other provinces. The national-level feedback must be cascaded down to the facility level. Program performance is monitored and evaluated using data from the DHIS, and the results are provided to program managers to enable them to make informed decisions regarding the equitable distribution of resources, to identify shortcomings, and to implement corrective measures for service delivery and policy implementation. This is necessary for maximizing health outcomes.

ESI provided technical support to the National Department of Health (NDOH) to assist in preparing formal feedback for provinces on program performance, as described above. ESI used selected national indicator data set (NDIS) indicators, found in the DHIS, to illustrate program performance. These indicators were aligned with the reporting requirements for the Millennium Development Goals, NDOH annual performance plan, and the negotiated service delivery agreement for health.

Using the selected indicators, ESI developed graphs to illustrate provincial performance on the following health priorities:

1. Mortality,
2. Child health, including the expanded program on immunization (EPI), nutrition, and prevention of mother to child transmission (PMTCT),
3. Women's health, including maternal health, PMTCT, and reproductive health,
4. Communicable diseases, including HIV and AIDS, sexually transmitted infections, and tuberculosis, and
5. Non-communicable diseases.

ESI also developed a reporting format to allow for interpreting data, noting findings, and making recommendations. This is important because the DHMIS policy states that line managers can be held accountable for any omissions in the recommendations they make. The reporting format also allows for guidance to be provided regarding the principles of routine health information management, how to optimize data quality through the use of DHIS data, and potential reasons for poor quality data relating to specific indicators.

This report is prepared at the same time as the data quality feedback report in order to provide consistent quarterly feedback. The reporting protocol allows for a time lapse of 60 days (or 45 days, which is stipulated in the district health information management policy) for data to be available in the DHIS at the National Department of Health.

### **DEVELOPING AND MAINTAINING A RESULTS REPORTING DATABASE FOR PEPFAR SOUTH AFRICA**

PEPFAR South Africa is committed to supporting the implementation of the Partnership Framework (2012–2017) Agreement between the U.S. government and the South African government. To do this, a flexible and robust monitoring system was required to support PEPFAR operations and coordinate technical assistance to help build the capacity of the South African government.

Building upon previous efforts, ESI helped to create the Partnership Information Management System (PIMS). The objective of the system is to enhance communication, collaboration, and integration among U.S. government agencies and their partners that support South African health and social development programs. PIMS seeks

to improve their performance management, strategic planning, and monitoring and evaluation practices by leveraging the use of spatial data.

The system's emphasis on flexibility in aligning to national priorities strengthened mainstream data collection and analysis procedures and improved the quality of data that was reported to the Office of the Global AIDS Coordinator (OGAC). The PIMS application merged two strategic information applications previously used by the U.S. government for program management. These were the inventory, which provided inputs and processed data, and the data warehouse, which provided output data. Combining the two datasets and application features within PIMS brought PEPFAR closer to reporting on programmatic outcomes.

Technical features of PIMS include:

- A robust and customizable interface to assist with monitoring implementation of the Partnership Framework; including the ability to add partners, sites, and indicators to the system;
- Dynamic reporting and mapping capabilities to promote accountability and transparency; and
- Site-based data to cater to PEPFAR's multi-sectoral clinical and community-based program.

The system not only shows where PEPFAR implementers are providing services but also links to implementation results and resource information. This includes budget and expenditure data (when available) allocated geographically to various projects in South Africa, which enables better planning and reporting. Using PIMS, it became possible to better identify the locations of potential duplicate PEPFAR-provided services and highlight complementarities with South African government services.

PIMS is currently accessible online at <http://pims.sharing.org.za/> and is organized in the following way:



<b>Home</b>	Takes a user to the top level of the site and displays a geographic dashboard.
<b>View/Capture</b>	View available data, capture new data, or edit and create new partners, projects, and sites.
<b>Downloads</b>	Provides strategic information documents from PEPFAR and the South African government.
<b>Reports &amp; Maps</b>	Access static (pre-built) and dynamic (custom) reporting and mapping. Information can be represented as a standard report, graph, or map.
<b>User Management</b>	Security module to add, edit, block, or delete partners, projects, or sites.
<b>Import/Export</b>	Enables data exchange with systems built with the same standards.

## CREATING HIGH-QUALITY, MULTIVARIATE GIS MAPPING APPLICATIONS

The geographic information systems (GIS) unit of ESI provided a variety of services to the U.S. and South African governments. On an as-needed basis, ad hoc mapping support was given to USAID and the Centers for Disease Control (CDC) as well as the South African Department of Social Development. ESI also provided support to HIV911 in the development of their services directory.

ESI emphasized providing the maps in a timely manner when requested. In addition to providing high-quality visuals, ESI also strove to provide accurate, up-to-date data. For some examples of the types of maps produced by ESI, please see Annex E.

The project also helped PEPFAR South Africa produce a master facility list of all project implementation sites. Facilities that had no coordinates were geocoded and mapped. In addition, ESI provided the spatial data and standards that needed to be implemented during the development of PIMS.

ESI implemented online mapping in two ways; first on [www.mapsharing.org.za](http://www.mapsharing.org.za), an open-access online tool for searching and locating health facilities within South Africa that also displayed where PEPFAR-supported services and activities (e.g. ART provision, HIV testing and counseling) were located. Second, ESI provided online mapping specifically for PEPFAR stakeholders through PIMS. This part of the PIMS database displayed all results entered into PIMS on a mapping application for easy visualization.

Over the life of ESI, the following GIS-related results were achieved:

- Provided ad hoc mapping support to USAID and PEPFAR in South Africa.
- Developed maps for the HIV911 services directories.
- Conducted GIS training and capacity building.
- Conducted trainings and M&E workshops at the University of Pretoria for U.S. government activity managers.
- Geocoded facilities and compiled a master facility list.
- Provided GIS support to the PIMS development team.
- Acquired the latest spatial data from the South Africa Demarcation Board to facilitate mapping.
- Converted and verified data for implementation into PIMS.
- Developed online GIS tools.
- Made mapsharing available online.
- Implemented a PIMS mapping module.
- Provided ad hoc maps and spatial data to the Department of Social Development.
- Advised the Department of Social Development on using GIS for the OVC monitoring and evaluation database.
- Signed a data-sharing agreement with the National Department of Health to improve the accuracy of mapped health facilities.

### BASIC EXCEL FUNCTIONS MANUAL TUTORIALS FOR OFFICE 2003

This is a software training session on basic Excel functions for Microsoft Office 2003 users.

### BASIC EXCEL FUNCTIONS MANUAL TUTORIALS FOR OFFICE 2007

This is a software training session on basic Excel functions for Microsoft Office 2007 users.

### DHIS LEVEL 1 MANUAL

The acronym DHIS, for the purposes of this manual, stands for district health information software.

This manual was adapted from the HISP "Manual for the District Health Information Software v. 1.4.x, DHIS CORE Module (Adapted for Office 2007), DHIS Intermediate Course 2009." It is developed to enable DHIS users to gain an understanding of how the DHIS works and what they can get out of the software.

The DHIS functions are described in different chapters, each showing a step-by-step approach. This manual has incorporated features of version DHIS140136 (Build 136).

### DHIS LEVEL 2 MANUAL

The manual has been developed and adapted for Office 2007 users to provide a step-by-step guide for using advanced DHIS functions. It is presented in three (3) modules:

1. Maintenance
2. Data Entry Functions
3. Data Quality and Advanced Database Functions

### EVIDENCE-BASED HEALTH MANAGEMENT PRE-MODULE

The purpose of the pre-module is to provide an introduction to participants on the international and national goals and objectives for improving the health status of the population of South Africa. This will provide more insight into why it is necessary to manage health services based on evidence in order to measure progress against the government's vision of "A Long and Healthy Life for All South Africans."

### EVIDENCE-BASED HEALTH MANAGEMENT MANUAL

This manual was designed with the aim of strengthening existing health care systems and health programs to increase life expectancy, reduce child and maternal mortality, and combat HIV and AIDS and TB. The course is facilitated over five days. It is an interactive course that relies upon trainee participation.

### MONITORING AND EVALUATION COURSE MANUAL

This manual is aimed at providing the skills which are necessary to assist the public sector and all other organizations in identifying factors that contribute, or do not contribute, to service delivery results.

### MENTORING AND FACILITATION MANUAL

This course has been designed to capacitate trainers to facilitate the training courses presented by ESI in order to reduce the impact of the HIV and AIDS and TB epidemic.

The content of the course is divided into three broad themes:

Theme A provides the background that is necessary for course facilitators, namely about the South African health care system and HIV and AIDS basic epidemiology.

The HIV and AIDS basic epidemiology is presented in the format of a pre-module.

Theme B provides information on the concept of facilitation, the skills, roles and responsibilities of an effective facilitator, and the process of facilitation itself.

Theme C outlines the process of mentoring since many facilitators are also in a position where they may act as mentors to people at different levels of the health care system.

### STANDARD OPERATING PROCEDURES FOR DATA CAPTURERS

This manual was adapted from the HISP "Manual for the District Health Information Software v. 1.4.x, DHIS CORE Module (Adapted for Office 2007), DHIS Intermediate Course 2009." It was developed to enable DHIS users to gain an understanding of how the DHIS works and what they can get out of the software. A number of standard operating procedures for data capturers are explained in this manual to provide detailed instructions on how to carry out their tasks.

### TRAINING MANUAL FOR DATA CAPTURERS

This manual has been designed to build the capacity of data capturers to capture aggregated data into the DHIS program.

The capacity building unit of ESI developed and offered six courses for Department of Health staff, line and program managers, and M&E officers. Many of these courses, which were accredited and co-taught with University of Pretoria faculty, carried continuing education units (CEUs), are described below.

### EVIDENCE-BASED HEALTH MANAGEMENT FOUNDATION COURSE

#### INTRODUCTION

Although health technologies have reached a high level of sophistication, the gaps in health outcomes continue to widen in spite of effective and efficient health interventions for addressing priority causes of morbidity and mortality. In the quest for strengthening health systems to achieve the Millennium Development Goals (MDGs), managers and service providers should be clear about what the priority health care system shortcomings are, where they occur; when and what type of support is needed, and how successful (or not) interventions are. To enable identification of problems, best practices, and areas where the biggest impact can be made in the shortest possible period, managers need relevant, accurate, and timely routine health information from service delivery points to national levels.

This course is aimed at developing the knowledge and skills needed by line and program managers for using existing DHIS data to measure data quality and progress towards targeted international and national results in terms of HIV-related maternal and under-five mortality. Participants will also be equipped to use existing data to identify potential health care, M&E, and information system shortcomings and to measure progress after corrective strategies have been implemented.

Although HIV and AIDS (as one of the main conditions that contribute to the high maternal and child mortality rates in South Africa) is used to integrate theory and practice during this course, the principles of the Evidence-Based Health Management course can be applied to measure other health conditions and health programs.

Adult learning principles are followed in the interactive workshop.

#### TARGET GROUPS

Department of Health and DOH support staff, with emphasis on line and program managers, as well as M&E and information officers/managers.

#### PRE-REQUISITE SKILLS

Knowledge of and experience with MS Office Pro 97/2000/XP and Excel, specifically.

## COURSE CONTENTS

After completing the Evidence-Based Health Management course, participants should:

- Understand the strategic documents affecting health information management and the basic epidemiology of HIV and AIDS needed by line, information, and M&E managers for monitoring progress towards international and national targets;
- Describe how health care, routine information, and M&E systems can be strengthened to support improvement of health program outcomes;
- Demonstrate how existing routine data (in the DHIS) can be used to assess and improve data quality;
- Use routine health information to measure the results of PMTCT programs and to identify best practices, critical areas where immediate intervention is required, potential shortcomings to be investigated, and additional data to be collected.

## COURSE FACILITATION

- Five-day workshop, followed by a two-day follow-up three to six months after the initial workshop.
- Participants also have the option to follow a non-computer based program over four days.

Non-computer training will concentrate on creating hand drawn graphs and using your own data in the form of hard copy prints. Pivot tables will be demonstrated.

Computer training will concentrate on using the pivot tables in the DHIS.

## ASSESSMENT

Participants are assessed on an attendance rate of 100% and active participation during the workshop. Participants are further assessed by means of a test consisting of multiple choice questions.

A certificate of attendance will be issued.

The course is accredited for 30 CEU's with the University of Pretoria.

## DHIS 1.4 LEVEL I COURSE

### INTRODUCTION

The District Health Information Software (DHIS) was developed by Health Information Systems Program (HISP) in collaboration with universities and government administrations in South Africa and abroad.

The DHIS was adopted as a National Routine Health Information System for South Africa in 1999. Depending on the level of implementation, the DHIS contains selected/prioritized aggregated routine data (by public health facility by month), semi-permanent data (staffing, equipment, infrastructure, population estimates), survey/audit data, and certain types of case-based or patient-based data (for instance disease notification or patient satisfaction surveys). The DHIS is translated into many international languages and used in different countries including South Africa,

Malawi, Mozambique, India, Nigeria, Norway, Tanzania, Ethiopia, Vietnam, Namibia, Botswana, Swaziland, Zambia, Liberia, etc.

The DHIS 1.4 Level I course focuses on the basic skills required to use DHIS software effectively.

Adult learning principles are followed in the interactive workshop.

## TARGET GROUPS

- Information officers/managers at different levels who use the DHIS on a daily basis.
- Partners supporting Department of Health and need to be able to use DHIS.

## PRE-REQUISITE SKILLS

Knowledge of and experience with MS Office and Excel, specifically.

## COURSE CONTENTS

On completion of the DHIS Level I workshop, participants should:

- Use basic functions in the DHIS 1.4;
- Explore the different data collection tools that can be generated from the DHIS;
- Use DHIS functions to optimize data quality;
- View different basic reports generated from the DHIS.

## COURSE FACILITATION

The course will be facilitated over a period of five days during which theory and practice will be integrated.

## ASSESSMENT

Participants are assessed on an attendance rate of 100%, active participation, and practical exercises aimed at application of theory. The course contents as outlined in the participants' manual will be assessed by means of the course assessment tools.

A certificate of attendance will be issued.

## DHIS 1.4 LEVEL 2 COURSE

### INTRODUCTION

The District Health Information Software (DHIS) was developed by Health Information Systems Program (HISP) in collaboration with universities and government administrations in South Africa and abroad.

The DHIS was adopted as a National Routine Health Information System for South Africa in 1999. Depending on the level of implementation, the DHIS contains selected/prioritized aggregated routine data (by public health facility by month), semi-permanent data (staffing, equipment, infrastructure, population estimates), survey/audit data, and certain types of case-based or patient-based data (for instance disease notification or patient satisfaction surveys).

The DHIS is translated into many international languages and used in different countries including South Africa, Malawi, Mozambique, India, Nigeria, Norway, Tanzania, Ethiopia, Vietnam, Namibia, Botswana, Swaziland, Zambia, Liberia, etc.

DHIS 1.4 Level 2 course focuses on more advanced skills required to use the DHIS software effectively.

Adult learning principles are followed in the interactive workshop.

### TARGET GROUPS

- Information officers/managers at different levels who use the DHIS on daily basis.
- Partners supporting DoH and need to be able to use the DHIS.

### PRE-REQUISITE SKILLS

- Knowledge of and experience with MS Office and Excel, specifically.
- DHIS Level 1 course.
- Use the DHIS software at least 50% of work time for six months or more.

### COURSE CONTENTS

On completion of the DHIS Level 2 workshop, participants should be able to:

- Use advanced functions in the DHIS 1.4 (edit existing and add new organizational units, organizational unit groups, data sets, data elements, indicators, validation rules, etc.);
- Explore the different database maintenance functions;
- Use DHIS advanced functions to optimize data quality;
- View different advanced reports generated from the DHIS.

## COURSE FACILITATION

The course will be facilitated over a period of four days during which theory and practice will be integrated.

## ASSESSMENT

A pre-course assessment has to be completed by participants. This will be based on skills gained during the DHIS Level 1 course. Only participants who are successful will be allowed to continue with the DHIS Level 2 course. Participants are assessed on an attendance rate of 100% and active participation during the workshop. Practical exercises are aimed at application of theory. The course contents as outlined in the participants' manual and the facilitation skills of the facilitator will be assessed by means of the course assessment tools.

A certificate of attendance will be issued.

## DHIS FOR DATA CAPTURERS

### INTRODUCTION

The District Health Information Software (DHIS) was developed by Health Information Systems Program (HISP) in collaboration with universities and government administrations in South Africa and abroad.

The DHIS was adopted as a National Routine Health Information System for South Africa in 1999. Depending on the level of implementation, the DHIS contains selected/prioritized aggregated routine data (by public health facility by month), semi-permanent data (staffing, equipment, infrastructure, population estimates), survey/audit data, and certain types of case-based or patient-based data (for instance disease notification or patient satisfaction surveys).

The DHIS is translated into many international languages and used in different countries including South Africa, Malawi, Mozambique, India, Nigeria, Norway, Tanzania, Ethiopia, Vietnam, Namibia, Botswana, Swaziland, Zambia, Liberia, etc.

Data capturers play an important role in the information cycle and in improving data quality. They come from a variety of backgrounds and with varying skills regarding health information systems.

The DHIS course for data capturers focuses on building the capacity of data capturers in the South African health care system, basic epidemiology of HIV and AIDS, principles of information management, data quality, and the basic skills required to capture good quality data into the DHIS.

Adult learning principles are followed in the interactive workshop.

### COURSE OBJECTIVES

At the end of the course, participants should:

- Understand the health care system of South Africa;
- Understand the priority health programs, e.g. HIV and AIDS and PMTCT;

- Understand the district health information system and DHIS data capturing functions;
- Generate basic DHIS reports;
- Understand and apply the roles and responsibilities of data capturers;
- Understand Routine Health Information Management and the information cycle (data sources, tools, collection, collation, capturing, data flow, feedback, and use);
- Understand and apply basic criteria to assess data quality and give basic feedback;
- Understand the basic principles of indicators.

## TARGET GROUP

Department of Health and partners supporting DOH who capture aggregated data into the DHIS at facility or sub-district levels.

## PRE-REQUISITE SKILLS

Knowledge of and experience with MS Office.

## COURSE FACILITATION

The course will be facilitated over a period of four days during which theory and practice will be integrated.

## ASSESSMENT

Participants are assessed on an attendance rate of 100%, active participation during the workshop, and practical exercises aimed at application of theory. A test with multiple response questions will be written for which a minimum of 50% must be obtained.

A certificate of attendance will be issued.

## MONITORING AND EVALUATION – FOUNDATION COURSE

### INTRODUCTION

Government, and as such the Department of Health, is responsible for rendering health services to the majority of citizens in South Africa.

Government structures at all levels are accountable to report on budget, programs, and achievements. A range of legislative and policy frameworks compel these structures to comply in order to enhance accountability and improve performance and reporting. There is a national drive to improve monitoring and evaluation at all levels to improve service delivery.

Monitoring and evaluation is an essential management tool for each manager in government services as well as for the partners who support the Department of Health in rendering health services.

The Monitoring and Evaluation Foundation Course prepares participants to fulfil this responsibility. This course is aimed at developing the knowledge and skills needed by line and program managers to implement the principles of monitoring and evaluation to measure progress towards targeted international and national results.

Although HIV and AIDS (as one of the main conditions that contribute to the high maternal and child mortality rates in South Africa) is used to integrate theory and practice during this course, the principles of the monitoring and evaluation course can be applied to other health conditions and health programs.

Adult learning principles are followed in the interactive workshop.

## TARGET GROUPS

- Department of Health and DoH support partners, with emphasis on line and program managers.
- M&E and information officers/managers.

## COURSE CONTENTS

After completing the Monitoring and Evaluation Foundation Course, participants should:

- Understand relevant M&E legislation and policies;
- Understand M&E terminology;
- Describe how M&E and routine health information systems can support improvement of health program outcomes;
- Implement the principles, models, and types of M&E in the monitoring and evaluation process;
- Understand how indicators, targets, and baselines are developed;
- Develop an M&E plan.

## COURSE FACILITATION

The course is presented in a two day workshop.

## ASSESSMENT

Participants are assessed on an attendance rate of 100% and active participation during the workshop.

The course is accredited for 12 CEUs with the University of Pretoria.

A certificate of attendance is presented to participants.

## FACILITATION AND MENTORING COURSE

### INTRODUCTION

In an effort to establish and maintain a capacity building network, government officials and staff from partners supporting Department of Health are empowered in facilitation and mentoring skills.

An integrated approach is followed to develop knowledge and skills at national, provincial, district, sub-district, and facility levels to strengthen health systems to achieve the Millennium Development Goals (MDGs) within the framework of the health care system with a focus on HIV and AIDS-related morbidity and mortality.

This course is aimed at developing facilitation skills on the background of the HIV and AIDS epidemic, the use of information to identify problems, best practices, and areas of impact on priority health care system targets and the South African health care system.

The focus will be on principles of adult education, the concept of facilitation, the role of the facilitator, and the process of facilitation (including mentoring). The course will combine theory and practice.

### TARGET GROUPS

Department of Health and partners supporting DoH responsible for building capacity, facilitation, and mentoring.

### COURSE CONTENTS

After completing the course, participants should:

- Understand the principles of adult learning;
- Use the principles of adult learning to facilitate training programs;
- Demonstrate the skills, roles, and responsibilities of a facilitator;
- Facilitate capacity building programs.

### COURSE FACILITATION

The course will be facilitated over a three-day workshop in which theory and practice will be integrated. A report must be submitted by each participant about ESI-affiliated workshops they go on to facilitate within one week after facilitating such a course.

### ASSESSMENT

Participants are assessed on an attendance rate of 100% and active participation during the workshop. Participants are further assessed by means of a practical assignment during the course. A peer review will be done of facilitation skills. Initial courses facilitated by participants will be co-facilitated by ESI facilitators and followed by mentoring and support from ESI.

The course is accredited for 18 CEUs with the University of Pretoria.

## ANNEX C: ILLUSTRATIVE LIST OF ESI PAPERS AND ASSESSMENTS

ESI conducted a number of assessments, often specifically to fulfil a request from the NDOH or DMPE. Also, technical and position papers were written by project staff and their NDOH and DSD counterparts. The following illustrative list shows the breadth of these documents.

- Assessment of the South African Public Health Surveillance Systems (2013)
- Position Paper: Results-Based PMTCT MER Framework (July 2012)
- Position Paper: PMTCT Data Collection, Monitoring, and Reporting (July 2012)
- Technical Paper: Health Facility Classifications (July 2012)
- Standardized Use of Zero in the DHIS (2012)
- NDOH Rapid Information Needs Assessment (2011)
- Technical Paper: Patient Records in Health Services in South Africa (2011)
- DHIS Resource Assessment (October 2011)
- Data Quality Pivot Tables Technical Brief
- PHC Facility Data Collection Tools Assessment: A Case Study

## ANNEX D: DATA QUALITY ASSESSMENT (DQA) TOOLS DEVELOPED BY ESI

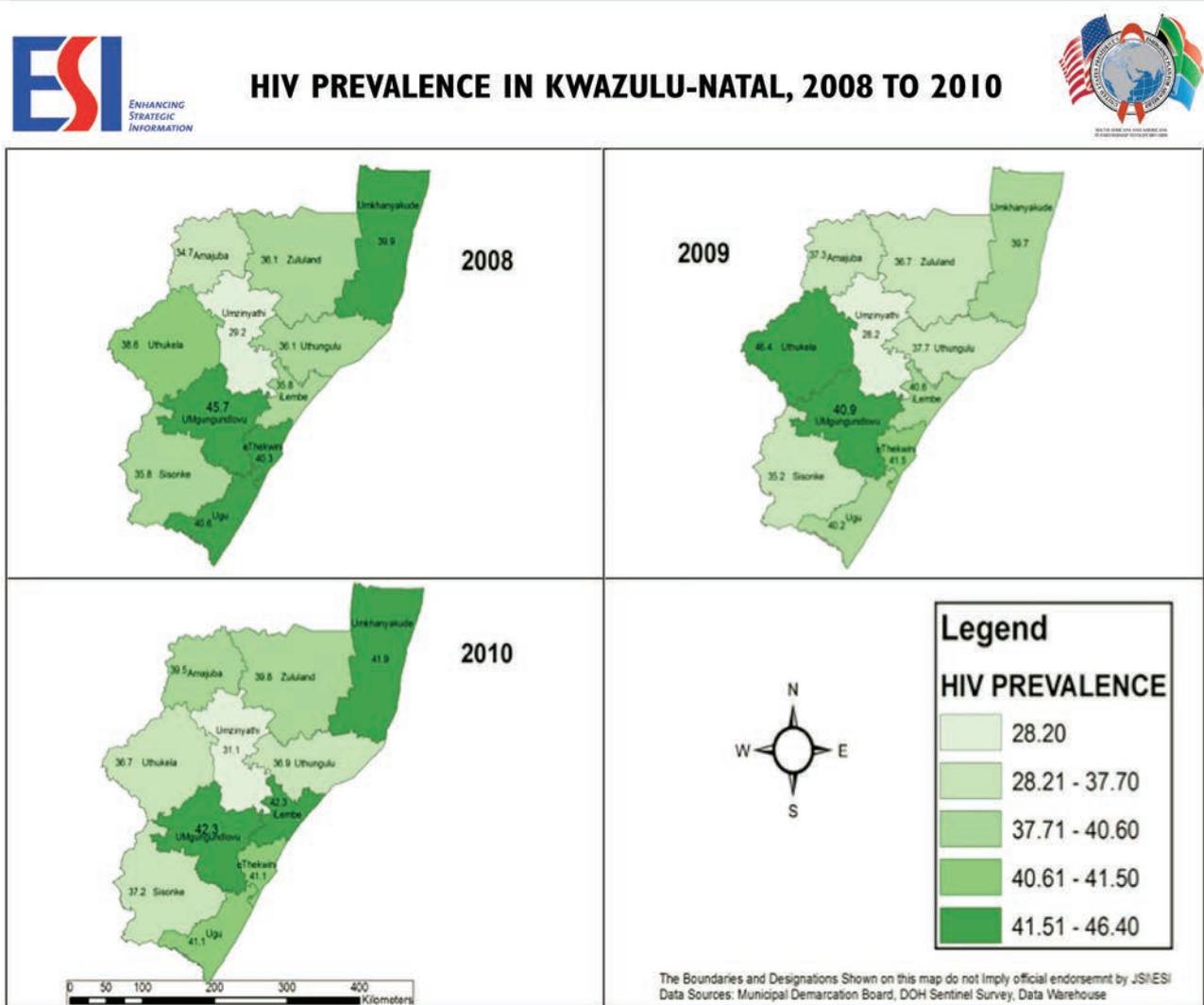
ESI worked closely with the NDOH and DSD to develop, revise, and update data quality assessment (DQA) tools for the following indicators:

1. Number of service deliverers trained;
2. Number of individuals with advanced HIV infection currently receiving anti-retroviral combination therapy (ART);
3. Number of condoms distributed;
4. Number of women receiving complete course of ARV prophylaxis;
5. Number of people counselled and tested for HIV including provision of test results;
6. Indoor residual spraying (IRS);
7. Number of ITNs distributed;
8. Number of people with uncomplicated or severe malaria receiving anti-malarial treatment (ACT/non-ACT);
9. Number of new smear-positive TB cases notified;
10. Number of people benefiting from community-based detection of tuberculosis;
11. Number of people benefiting from community-based tuberculosis treatment support;
12. Number of TB cases who started treatment for confirmed multi-drug resistant tuberculosis;
13. Number of new smear positive TB cases registered under DOTS who are successfully treated;
14. Assessment of data management and reporting systems;
15. Number of individuals with advanced HIV infection currently receiving anti-retroviral combination therapy (ART).

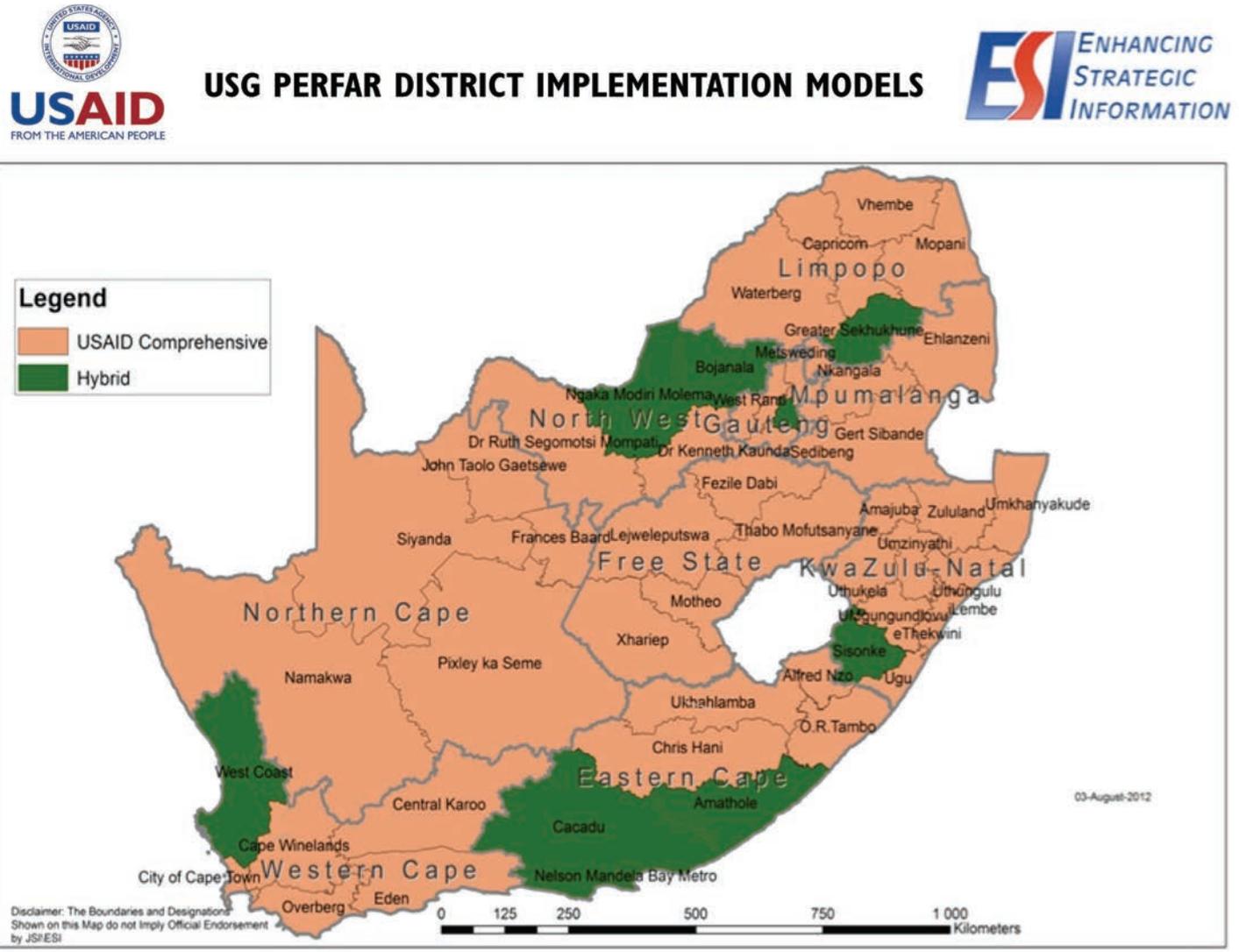
# ANNEX E: SAMPLING OF MAPS PRODUCED BY ESI

The ESI GIS unit provided ad hoc mapping support to USAID, PEPFAR, DSD, and the PIMS development team. Below are a few examples of the types of maps produced.

**Map 1: Prevalence transition in Kwa Zulu Natal, 2008-2011**

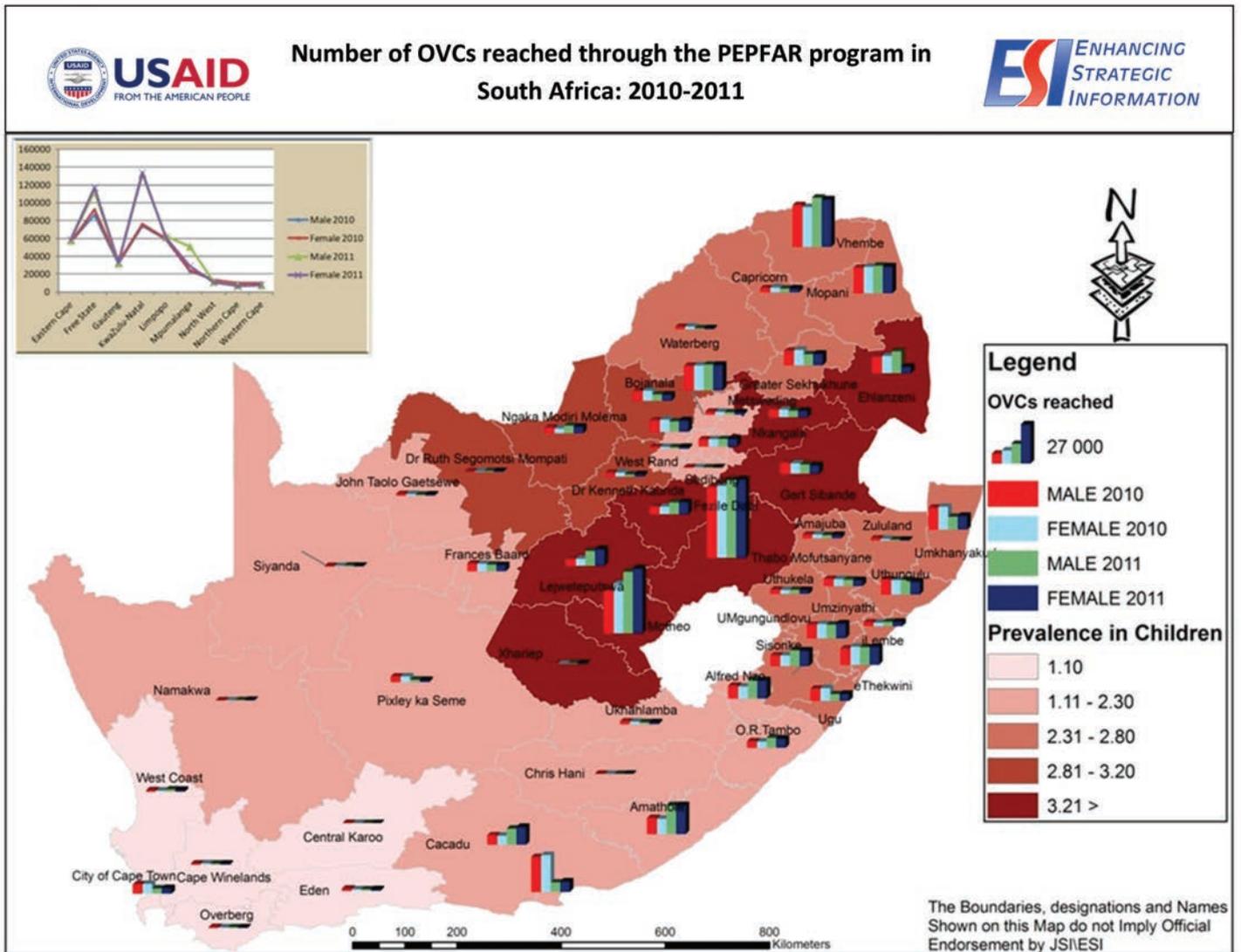


Map 2: USAID comprehensive coverage as of 2012



*This map shows the models by which the U.S. government has been implementing programs throughout the country. It shows the districts in which only the USAID comprehensive model is being implemented, compared to those with a hybrid model, i.e. those in which at least two models are being implemented. This map illustrates the breadth of the USAID comprehensive model throughout South Africa.*

Map 3: Number of OVC reached through PEPFAR program 2010-2012



*This map illustrates the number of orphans and vulnerable children (males vs. females) reached by PEPFAR services in the years 2010 and 2011. A comparison is made by plotting these data against HIV prevalence among children aged two to 18 for all the districts in the country.*

### **I. Adopting international standards to be applied in strengthening health information systems for HIV/AIDS: The case of building national consensus to use ISO 8000 in data quality improvements in South Africa.**

*Authors:* A. Schönfeldt, D. Kunaka, N. Orobato

**Background:** Despite massive investments, fragmented health information systems, low data quality have complicated the management of care for large and rapidly expanding number of patients on antiretroviral therapy in South Africa. To resolve this problem, a national consensus process, based on the propositions that the adoption of International Organization for Standardization (ISO) standards in conjunction with a nascent national culture of standardization can increase data quality on an ongoing basis.

**Methods:** An expert consultative meeting of 100 subject matter experts and policy makers from four government departments, donors and implementing partners, governing and professional bodies, and the private sector was held in March 2011. The meeting tackled issues such as standards and measurement, tools and methodologies, data use, data dissemination practices, and quality improvement initiatives.

**Results:** Many of the technical data quality issues faced by the Department of Health are resolvable by the adoption of ISO 8000 data quality standard. ISO 8000 includes standards for syntax, semantic encoding, meets requirements, provenance, accuracy, and data portability. It was adopted for national use. It was also agreed that the manner in which ISO 8000 was implemented needed to directly aid the strengthening of routine health information systems. Steps are being taken toward a data management governance model for South Africa. South Africa already has the South Africa Statistical Quality Assessment Framework, which forms a useful basis for reinforcing data management governance, intrinsic to ISO 8000 as well. Work on a data management governance model needs to be formally continued. It was recognized that data quality issues contribute to the culture of low use of data, which needed to be addressed.

**Conclusions:** The experts concluded that there was an urgent need for a coherent data quality standards strategy framework for the Department of Health in the context of a health data management governance framework. Capacity building is key to improving and maintaining data quality.

*Presented at:* XIX International AIDS Conference, Washington, DC, 2012.

## **2. Appropriate Web GIS for Public Health Mapping in a Resource-Constrained Setting.**

*Author:* T. Bwerinofa

The Geographic Information System (GIS) is still perceived as an expensive technology with unreliable and low quality outputs. Mapsharing is an innovative, inexpensive, and simple GIS tool for the poorly resourced health sector of South Africa, giving a wider audience access to spatially referenced health information where implementing a proprietary solution is prohibitive. Mapsharing generates interactive district-level health coverage maps and contributes to evidence demonstrating the potential web-based public health GIS in under-resourced environments. GIS provides a means for visualizing data and analyzing and revealing trends and inter-relationships. Health resources are mapped in proximity to their surroundings, i.e social infrastructures. Mapsharing can identify facility catchment and identify gaps and areas needing new facilities, providing an easy way to query health data. Mapsharing is therefore an important development for the health fraternity ensuring public access to health information quickly and easily.

Typical questions mapsharing is able to answer are:

- Where are the facilities?
- Where\what are the services being offered?
- How to map populations at risk?
- What resources are being allocated?
- What areas need more services and resources?

Mapsharing will additionally be synced with the Nokia data gathering tool to be able to collect field data instantly.

*Presented at:* USAID Mini University, Washington DC, 2012

### **3. Developing a standards-based data quality auditing tool and methodology for strengthening data management systems in low resource settings: the use of ISO 9001:2008.**

*Authors:* A. Schönfeldt, D. Kunaka, N. Orobato

**Background:** The South African National Department of Health in concert with Statistics South Africa through data audits uncovered three data quality gaps: relevant statistics were not being collected; common standards were missing for concepts, definitions, classifications, and methodologies, and inadequate human resources and related infrastructures.

In order to establish baseline measures against which to measure interventions to address these quality gaps, the South African Statistical Quality Assessment Framework (SASQAF) was applied to create a tool for this purpose. Initial versions upon testing were found to be complex and were unusable in low resource settings areas in the country. Just how should the design of a data quality tool for use in low resource-settings be undertaken without sacrificing standards? John Snow Inc.'s ESI project joined forces with Department of Health and Statistics South Africa.

**Methods:** The tool that was developed is a customized data quality audit tool, with built-in sector specific guidance, and assessment questions aligned with the SASQAF, the national standard, and ISO 9001:2008. The tool set out to verify data from the District Health Information System software against reported numbers. Detailed improvement plans are then developed in conjunction with health facility staff.

**Results:** Whilst preserving ISO 9001:2008 and SASQAF standards, a tool loosely based on the format of the Routine Data Quality Assessment (RDQA) tool was developed. The tool produces baseline and repeat measures in graphical form. They are also available in scores that self-calculate differences between different assessment outcomes on a Microsoft Excel dashboard. Little to no prior training on the use of tool was needed but some training on the assessment methodology is required.

**Conclusions:** The use of ISO 9001:2008 confirms the utility of that standards-based data quality assessment tool that is a user friendly and cheaper alternative, and is a critical step towards their sustained use in low resource settings.

*Presented at:* XIX International AIDS Conference, Washington DC, 2012

#### **4. Using Geographic Information Systems Mapping as a Decision Support Tool for PEPFAR South Africa.**

*Authors:* D. Kunaka, M. Mashamba

**Background:** PEPFAR South Africa saw a 2008 government policy shift in HIV opening doors to more formal collaborative planning and greater transparency in implementation of donor-supported programs. In 2010, PEPFAR commissioned a national survey to catalog: 1) geographic location of partners and sites; and 2) human and financial resources used for implementation. This dynamic online reporting, graphing, and mapping tool is called the PEPFAR Inventory and is accessible freely on the Internet. Its purpose is to provide strategic information to monitor implementation of the PEPFAR Partnership Framework between the United States and South African governments.

**Methods:** Data were captured into a single database and 6,600 sites were geocoded using open source tools. Sites were then assigned to sub-districts, municipalities, and provinces using additional open source proprietary software. A combination of open-source software was used to create searchable maps.

**Results:** The Inventory is integrated with results and budget data, which will be linked to targets. This will make it possible for the PEPFAR Inventory to monitor achievement and U.S. government investment across the country. Cluster maps enable program managers to view program coverage. MapGuide software provides an interface to display various data sets comparatively, such as population and HIV prevalence, pin-maps per agency, prime partner, site type, site ownership, and program area. Viewing which partners are working in the same geographical and program area helps to avoid duplication of effort.

**Conclusions:** The Inventory, developed by the USAID-funded Enhancing Strategic Information Project implemented by John Snow Inc., is a critical tool for monitoring the Partnership Framework. Aggregated provincial data can be integrated with other datasets at similar geographical levels to determine if PEPFAR resources are distributed to respond to the needs of the epidemic. It is envisioned that HIV/AIDS activities of other donors will eventually be linked to allow better coordination and more effective targeting.

*Presented at:* XIX International AIDS Conference, Washington, DC, 2012

## **5. Building Capacity for Evidence-Based Health Management**

*Author:* C. van den Bergh

South Africa has more than 5 million people living with HIV requiring a programmatic response across all levels of the District Health System. The ESI Project builds M&E capacity to achieve evidence-based health management through development and institutionalization of a linked progression of training courses from the facility through to national level. The flagship Evidence Based Health Management course (EBHM) brings together PEPFAR partners and the Department of Health Managers in the facilities or districts that they support to provide skills needed at each professional level. The course has been accredited with the University of Pretoria. This training approach has led to the development of a capacity-building network, primarily of PEPFAR partners who have gone through ESI's EBHM and training-of-trainer courses, to expand the training coupled with tailored technical assistance, mentorship, and support across these different levels. The emphasis is on providing healthcare workers with the knowledge and skills required to do their jobs. ESI provides expert trainers and develops, prints, and presents course materials, while leveraging PEPFAR partners to support venues and participant costs. The courses have been shared with government regional training centers which, once they have trainers available, will go through a similar capacity-building program as those who are part of the capacity building network. Other courses provided are for facility-level data collectors (usually nurses), and data capturers who enter data into the RHIS and the DHIS software which is the RHIS.

*Presented at:* JSI Global M&E Meeting, Accra Ghana, 2011

## **6. Creating Customized Maps using an Online Mapping Tool in South Africa**

*Author:* D. Kunaka

The Enhancing Strategic Information Project in South Africa is piloting an online mapping application. The tool allows for finding geo-coordinates of a selected point using a Google maps backdrop, finding the local municipality, district, and province of a given address or geo-coordinate, updating of facility names and geo-coordinates that were sourced from the DHIS, which is the national routine HIS. You can also create customized maps online using pre-determined base maps, health facility types, thematic maps for population, and ante-natal care surveillance as well data that were collected in an inventory of PEPFAR support conducted in 2010 and updated in March 2011.

*Presented at:* JSI Global M&E Meeting, Accra, Ghana, 2011

## **7. Data Quality Auditing: A South African Quality Assessment Framework Based Approach**

*Author:* A. Schönfeldt

Statistics South Africa (Stats SA) is the state agency responsible for collection and dissemination of official statistics. The Statistics Act (Act No.6 of 1999) mandates the Statistician-General to develop standards for all organs of state and other agencies that produce statistics; to designate as official, statistics or class of statistics produced by any organ of state, including Stats SA and to comment on any statistics produced in the public domain. A number of gaps in national statistics were identified and were characterized by:

- An information gap in terms of relevant statistics to meet the needs of users
- A quality gap in terms of common standards including concepts, definitions, classifications, methodologies
- A capacity gap in terms in terms of both human resources and infrastructure, e.g. lack of statisticians

In order to determine the quality of the data, Stats SA developed the South African Statistical Quality Assessment Framework (SASQAF) to address the quality gaps. SASQAF covers all activities related to the statistical value chain for both surveys and administrative records. SASQAF defines data quality as “fitness for use.” It further decomposes data quality in terms of comprehensive quality prerequisites and the eight dimensions of quality; relevance, accuracy, timeliness, accessibility, interpretability, comparability and coherence, integrity, and methodological soundness.

Within each quality dimension, there are associated indicators, standards, and benchmarks. The benchmarks range from a score of 1-4, with a score of 4 being quality statistics and a score of 1 being poor statistics.

This presentation covered an introduction to the SASQAF as well as a tool demonstration to illustrate its practical application in the field.

*Presented at:* Southern African Auditor and Training Certification Authority, Pretoria, SA, 2011

## 8. Evidence-based health care management

*Author:* C. van den Bergh

Many health systems strategies, cycles, and models are described in literature – management experts teach management cycles, M&E experts teach M&E models, and information experts teach information management cycles.

In the real world these strategies do not take place in separate 'cycles.' To make evidence-based decisions (aimed at optimizing public health status) these strategies, cycles, and models need to be integrated in a practical, workable, and user-friendly approach that can be used to strengthen health care systems at all levels.

The evidence-based health management (EBHM) cycle was developed in an effort to demonstrate how managers and other decision-makers can integrate the efforts of line and program managers, M&E and information management experts to make effective and efficient management decisions.

The high South African under-five mortality rate was used as an example to illustrate how the EBHM cycle can be applied in an effort to speed up progress towards meeting the Millennium Development Goals on under-five mortality.

Close cooperation between management, M&E, and information management experts is crucial to achieve priority international, national, and local health goals and targets. The EBHM cycle/process provides a way of integrating several existing cycles and processes to enable management teams to use available evidence for making decisions aimed at optimizing the health status of communities and to measure progress towards goals between official surveys and other studies.

*Presented at:* SAMEA 3rd Biennial Conference, Johannesburg, SA, 2011

## 9. Mapping PEPFAR in South Africa: A Case Study

Author: M. Potgieter

**Introduction and background:** The President's Emergency Program Fund for Aids Relief (PEPFAR) is currently shifting from an emergency focus to a heightened emphasis on sustainability, with a core emphasis on HIV prevention and treatment in concentrated and generalized epidemics over the next five years.

During July 2010, a national survey (inventory) was undertaken among 129 partners for PEPFAR in South Africa using an Excel tool developed for the purpose of capturing core program information. The end goal of the inventory was to provide a dynamic online reporting, graphing, and mapping tool that reflects: 1) contact details for partners; 2) what are used to do the work, (i.e. inputs such as budgets at provincial level); 3) staff; 4) program areas at a community; and 5) site-level data.

**Methodology:** The data were integrated into a single database and 6,626 sites were geocoded using open source tools such as Google maps, Google earth, and street maps instead of using costly fieldwork with global positioning systems equipment. The sites were then assigned to sub-districts, local municipalities, district municipalities, and provinces using a combination of open-source (Quantum GIS) and proprietary software (ArcGIS). Thereafter a combination of open source software was used to create a mashup on Google Maps, namely PHP, JAVA, and MapGuide open source.

**Results:** Cluster maps enable program managers to display coverage of the PEPFAR program without the map becoming cluttered while MapGuide Open Source enables the user to display various data sets comparatively, such as population and HIV prevalence, pin-maps per agency, prime partner, site type, site ownership, and program area. Users of the mapping system are also able to zoom to a particular province or district to view which partners are working in the same geographical and program area in order to avoid duplication of effort.

The aggregation to provinces, district municipalities, local municipalities, sub-districts, and priority health districts also enable possible integration with other data sets such as the population and HIV surveillance at similar geographical levels in order to show that the PEPFAR program is currently not distributed appropriately according to potential areas of need. Furthermore, this integration allows for the creation of indicators that could potentially be used by program managers to ensure better efficiency and effectiveness of program implementation.

*Accepted for:* URISA GIS in Public Health Conference, Atlanta, USA, 2011

## **10. Monitoring and Evaluation Systems – What do Managers Need?**

*Author:* C. van den Bergh

Monitoring and evaluation is essentially a management function but, as users of information, managers are dependent on health information managers and systems, as well as monitoring and evaluation managers and systems and researchers for the evidence they need to inform their decisions. While literature emphasizes the importance of information for policy development, improvement of health programs and accountability, it is noted that managers do not use information.

There are several reasons why line and program managers don't use the information produced by information and M&E systems. One oft-cited reason is that these systems do not provide managers with relevant and timely evidence.

So what do managers really need from these systems?

Many valuable surveys and research studies are conducted and reported on but, because non-routine methods of monitoring and evaluation are resource intensive, they are normally not conducted frequently and they are based on samples that lead to generalization of findings.

Managers in the rapidly changing health environment (influenced by the rapidly changing economic and political environments) need frequent evidence on all the components (inputs, processes, outputs, outcomes and impacts) of health care systems to inform their day-to-day decisions. While generalization may be acceptable from an international perspective, national and local managers need provincial, district, sub-district, facility and community data to identify health care needs, best practices and critical areas where support is needed to achieve health targets.

The use of routine data for setting up proxy indicators to measure the results of health care, as well as potential reasons for achievements and shortcomings can assist managers in meeting community-specific needs. Color-coded performance profiles can also assist managers in identifying inequities for focusing resources where the biggest possible difference can be made in the shortest possible period.

*Presented at:* SAMEA 3rd Biennial Conference, Johannesburg, SA, 2011

## **I 1. Not meeting health program targets – let the data ‘speak’. Use of existing routine data to improve data quality where needed most.**

*Author:* C. van den Bergh

When routine health information systems indicate that health program targets are not achieved, poor data quality is often cited as the reason. The first questions when the quality of large data sets is assessed, are whether all facilities report on the standard data elements every month. The District Health Information Software (DHIS) has a function called Snapshot report, where the facility reporting rates, minimum and maximum data entry violations, validation rule violations as well as gap and outlier analysis are auto-calculated. This is an excellent tool that enables people skilled in using the DHIS software to identify and address specific problems in specific geographical areas.

Managers often don't have the knowledge, skills, or time to use the DHIS software but most have MS Office installed and many are able to use pivot tables.

A pivot table that is refreshed from the standard DHIS data file was developed to enable managers at all levels to monitor the number and percentage of public health facilities that reported on a specific data element by month, by national, provincial, district, sub-district and/or facility level in a quick, easy, and user-friendly manner.

This tool is especially valuable for line and program managers in resource-constrained districts and provinces where this rapid routine data quality assessment can assist in identifying data management and health program intervention shortcomings to be addressed in specific geographical areas and/or health care facilities.

*Presented at:* SAMEA 3rd Biennial Conference, Johannesburg, SA, 2011

## **I 2. PEPFAR Inventory in South Africa**

*Author:* D. Kunaka

During July 2010, a national survey (inventory) was undertaken among 129 partners for PEPFAR in South Africa using an Excel tool developed for the purpose of capturing core program information. The goal of the inventory was to provide a dynamic online reporting, graphing and mapping tool that reflects: 1) contact details for partners; 2) inputs used to do the work, (e.g. provincial level budgets); 3) staffing by category; 4) program areas and; 5) site-level data. The data was integrated into a single database and over 6500 sites were geocoded using open source tools such as Google maps, Google earth and street maps. Sites were assigned to sub-districts, local municipalities, district municipalities and provinces using a combination of open source (Quantum GIS) and proprietary software (ArcGIS). Cluster maps enable PEPFAR program managers to display coverage and compare datasets such as population and HIV prevalence, pin-maps per agency, prime partner, site type, site ownership and program area. Users of the mapping system are also able to zoom to a particular province or district to view which partners are working in the same geographical and program area in order to avoid duplication of effort. Aggregation up to provinces also enables integration with other data sets at similar geographical levels such as regional health information systems.

*Presented at:* JSI BIG Global M&E Meeting, Accra, Ghana, 2011

### **I3. Standards Based Data Quality Assessment: The Case for ISO 8000 and ISO 9001:2008**

*Author:* A. Schönfeldt

During December 2010, the first Data Management Auditing Scheme was launched on ESI's premises under the auspices of the Southern African Auditor and Training Certification Authority (SAATCA). A first of its kind, the committee, which ESI chairs, set out to develop professional auditor registration and training criteria. As part of this process, ISO 8000 and ISO 9001:2008 were identified as the appropriate standards against which to audit/measure data quality. This workshop detailed how these standards are shaping changing the landscape of data quality auditing, and how a standards-based data quality approach can strengthen data management systems regardless of industry or sector.

*Presented at:* JSI BIG Global M&E Meeting, Accra, Ghana, 2011

### **I4. Strengthening M&E Systems for the Department of Social Development's Community-Based Programs**

*Author:* M. Motshweni

Orphan and vulnerable children (OVC) programs are significant in the care and support pillar of the National Strategic Plan for HIV and AIDS. Scale-up of OVC programs has happened across all provinces. The Department of Social Development (DSD) is driving policy and programming direction for OVC support through the OVC and home community-based programs. However, there is an information gap within the OVC/HCBC programs to support evidence-based management that informs policy and programming decisions. OVC activities are primarily community-based creating challenges to successful capture and use of reliable data. There is also the challenge of establishing an OVC database and management information systems in SA, compounded by a lack of harmony and standard indicators for OVC care, and the existence of a wide range of information systems.

ESI developed a harmonized national OVC data management system and strengthen integrated, sustainable information systems to make relevant and credible information widely available.

Some of the lessons include promoting a focus on strengthening community capacities to collect data, analyze and interpret it to understand the circumstances of OVC. Indicator design should be simple and applied uniformly across all levels and that data collection and reporting tool are user-friendly. Another important lesson is that there is no need to invest efforts in a single national OVC database but in a single reporting source into which the various databases report. The DSD has advanced the implementation of the HCBC M&E platform in provinces and therefore donors and OVC partners should be encouraged to use the HCBC indicators for data collection and reporting.

*Presented at:* 5th SA AIDS Conference, Durban, SA, 2011

## **I 5. Improving Accessibility of Routine Health Data for Program Management in the North West Province.**

*Author:* D. Kunaka

In order to effectively monitor program implementation and performance, managers depend on a reliable data management system to provide them with the information that they need when they need it. The information could be for the purposes of making an evidence-based decision, prioritizing an intervention or preparing a routine or ad hoc report. Literature suggests that information is necessary for policy development, program improvement, accountability and reporting but a key drawback is the availability and, primarily, accessibility of this information in government health programs.

While information systems and monitoring and evaluation (M&E) systems have been prioritized for development and strengthening, what is often overlooked even before the use of the information is how accessible this information is to the people who need it either for operational decisions or for making strategic choices during program implementation.

The North West Province Department of Health's Information Technology and Knowledge Management Directorate has long been trying to understand the reasons why managers of health programs were not engaging program-based management. With so many of them having attended M&E training, and information officers available to manage the M&E system and ensure that it was able to collect and collate the required information, some options were explored to assist in making the information easier to access.

With South Africa's political and economic environment being so fluid at the moment, options that could be considered needed to be cost-effective, flexible and easy to implement without any additional resources. Data from the M&E system is required frequently to help draw causal connections between health priorities, resources used, programs being implemented, services rendered and impact. Keeping track of performance against set targets for provincial, district, sub-district, facility and community data would go a long way towards identifying the priority health care needs, areas for coordination and replicable best practices.

The implementation of an intranet-based system to provide 24-hour, 7-day-a-week access to routine program data will be discussed as a way to improve the measurement of the results of health care provision in the province. Making the information available in a user-friendly format as well as providing orientation training on the data analysis methods, data collected by the routine health was made accessible and available for review online or download off the site for in-depth analysis using the available indicators and data elements.

*Presented at:* SAMEA 2nd Biennial Conference, Johannesburg, 2009

## **16. Standards-based Data Quality Assessment Approaches**

*Author:* A. Schönfeldt

The workshop detailed the different types of data quality assessments, how to develop/customize one's own assessment tool and methodology (routine data quality assessment tool as framework); alignment with current government best practices and the associated national and international data quality standards

Key outcomes:

- Understand the key elements of a successful data quality assessment
- Understanding the National Department of Health/Stats SA/Auditor General assessment approach
- Appreciation of ISO standards (ISO 9001:2008 and ISO 8000)
- Identify and implement key data quality standards – international and local
- How to customize/develop a data quality assessment tool
- Understand different types of assessments

Methodology: Practical demonstrations/case studies from both donor funded and government environments; participants will get to customize their own data quality assessment tool

*Presented at:* SAMEA 2nd Biennial Conference, Johannesburg SA, 2009

## ANNEX G: LESOTHO PROGRAM DESCRIPTION

ESI in Lesotho worked to enhance the capacity of monitoring and evaluation personnel within the country, improve data quality from the service delivery level to the national level, improve capacity to use data, develop the LePMS (Lesotho Project Management System), and develop a GIS. The GIS was a request from the Ministry of Health and Social Welfare to enhance government ability to analyze spatiotemporal data and develop the country epidemiologic profile. The GIS also improved the ability of the U.S. government team in Lesotho to manage reports and data from its implementing partners.

### National Level

At national level, ESI provided technical support to the National AIDS Commission and the Ministry of Health and Social Welfare. ESI funded and provided technical assistance for the development of a monitoring and evaluation plan for the National AIDS Commission. ESI also helped evaluate the human resource and management portion of the Annual Joint Review for 2010.

Other activities ESI undertook were participating in the National Strategic Framework review (helping with indicator development), assisting with the Lesotho Demographic and Health Survey 2009, assisting with the ANC Sentinel Surveillance 2009, helping prepare for the annual joint review for 2010, helping revise the HIV and AIDS national strategic plan 2006-2011, and providing regional monitoring and evaluation training.

ESI assisted in finalizing the essential services package indicators, which started off with 60 indicators and ended up with 38 through a process of prioritization and elimination. It was agreed that thirty-one of the indicators would be collected routinely on a monthly basis. The rest are collected on a semi-annual or annual basis through audits or surveys. ESI also helped to develop indicator reference protocol sheets. The purpose was to streamline and harmonize understanding of the indicators that different partners were tracking. The ESI team also supported the finalization of the Lesotho Outcome Monitoring System on HIV/AIDS (LOMSHA).

ESI introduced the project management system (PMS) to the U.S. government PEPFAR program. PMS marks a move from an MS Excel spreadsheet management system to an MS Access based system, which makes it easier to generate reports. The PMS not only handles program data but can also be linked to financial data and geographical information system (GIS) data. This provides a wider number of opportunities for both PEPFAR and implementing partners to process data.

### District and Community Levels

ESI conducted a series of routine data quality assessments (RDQA) in pilot districts. The assessments were performed in health facilities and community councils. The objectives of the RDQA were to strengthen the quality of data generated from sites to enhance program decision-making, implementation, and evaluation; strengthen the integration of existing information systems in pilot districts; and strengthen reporting systems and evidence based management in pilot districts.

At health facility levels, the RDQAs revealed several gaps, including a lack of designated M&E staff, ill-prepared employees who were given the task of handling data, and lack of guidelines, norms, and standards for staff on data management and reporting requirements. To address this, the project developed data quality plans for facility and hospital level activities and introduced information sharing and data use practices at the district level. Key results were the development of quality improvement plans and general agreement that the community council HIV and AIDS committees (CACCs) should serve as fora for discussing data and performance.

ESI provided technical assistance to the MOHSW to develop an epidemiological profile for the country. The project drafted a data collection plan, captured all Lesotho health facility coordinates, and generated GIS maps. For the National AIDS Commission (NAC), ESI provided technical assistance to procure GIS equipment that would best suit the needs of the NAC. ESI also provided training in GIS for NAC staff members.

At the district and community levels, ESI helped track main indicators, which were the number of health workers who successfully completed an in-service training program in HMIS and strategic information and the number of local organizations given technical support in strategic information activities. ESI trained health workers in HMIS and strategic information activities, how to conduct the routine data quality assessment (RDQA), how to use the data decision-making support platform (LePMS), a module entitled “M&E from concepts to practice,” and how to cost monitoring and evaluation work plans.

ESI provided technical assistance to implement a strategic information strategy focused on the data and Information management cycle. ESI met with community councils within the two pilot district and trained employees (health information officers, facility personnel assigned the task of handling data, nurses, clinicians, counselors, and assistant nurses) at the district level on various aspects of data quality and time management and introduced the RDQA training and tools. ESI exposed the same group to other aspects of data quality, tracing, and verification methods in the fourth quarter and they participated in carrying out the RDQA in the community councils and the health facilities.

**E**SI in Swaziland began in 2008. The goal of the project was to collaborate closely with the U.S. government strategic information team and partners in Swaziland to ensure that the country's health system received useful and high quality information that contributed to sustainable policy planning and programmatic decision making. In Swaziland, the project strategically built the capacities of institutions and individuals to perform relevant monitoring and evaluation and strategic information functions. ESI helped develop a cadre of skilled professionals ready to meet the demand for technical assistance and training.

While the project was approved to commence implementation in July 2008, the first staff placement occurred in March 2009. Due to the eight month delay, there was need to review project activities in light of emerging and changing circumstances to ensure that project activities remained relevant. ESI held a meeting in March 2009 with three representatives from the Ministry of Health and Social Welfare, a key partner, to review the remaining six months in the PEPFAR implementation year and agree on key activities to be implemented. At the meeting, participants decided to focus on two critical areas of the work plan:

1. Capacity building in basic monitoring and evaluation: Providing a basic monitoring and evaluation training aimed at building a culture of M&E among health care workers with substantial M&E functions such as data collection, entry, and analysis.
2. Strengthening data use: Generating information products (such as technical reports, special bulletins or newsletters, and quarterly/semi-annual data reports) aimed at the broader health community.

After the first six months, ESI returned to the broader scope of the project, which focused on three task areas. These were capacity building in strategic information, improving data quality, and strengthening the HMIS in the Ministry of Health and Social Welfare. All activities supported, at all levels of management, the successful implementation of the Health Sector Response to HIV and AIDS Plan 2006 – 2008.

### **Task 1: Build capacity for strategic information**

The first task focused on making monitoring and evaluation operational in the Ministry of Health and Social Welfare (MOHSW). On request from the monitoring and evaluation unit in the strategic information division of the MOHSW, ESI reviewed and updated the ministry's 2008 – 2013 monitoring and evaluation framework. The original framework lacked a clear articulation of how M&E would be implemented on the ground, taking into consideration the existing skill sets, functions, and mandate of the strategic information division.

The updated framework featured significant improvements that addressed some of these gaps, including how to operationalize M&E beyond HIV and AIDS to include other MOHSW program areas. The updated framework also helped define the role of M&E at the facility, regional, and national levels and provided guidance on the roll out of new tools and strategies for M&E officers. ESI then provided training for M&E officers on how to apply those methods and materials to do their jobs successfully.

ESI also conducted a pilot to build a community-based health information system (CBHIS). The CBHIS was developed to strategically repositioning Swaziland's rural health motivator program into a fully-fledged community-based health program (CbHP). The pilot was done in three stages:

1. Developed the technical capacity and infrastructure of the CBHIS, which included putting in place data collection tools (a CBH annual register, a daily CBH record form, and a monthly summary reporting record), updating the HMIS database to include a CBHIS module, and producing a CBH dataset.
2. Tested the tools and CBH module in the HMIS database and produced data reports.
3. Facilitated and supported rural health motivator program management response in terms of revising forms, tweaking the CBH module, and preparing for the formal adoption of the CBHIS in the Health Information Systems Steering Committee (HISSC).

ESI also worked to strengthen critical systems within the MOHSW's strategic information division. The ministry established the strategic information division in 2009, which involved transforming two former entities into the HMIS and M&E units and the creation of a research unit. During the process, there was much confusion about where responsibilities lay in the areas of data collection, data storage/analysis/processing, and facilitating information use in the ministry. ESI helped draft a terms of reference for hiring a consultant to conduct a skills audit to begin to address these challenges. ESI also facilitated in 2010 a strategic information division retreat that helped create a common understanding among SID staff on the impact and influence of key policy and planning documents including the HIS strategic plan and the M&E framework, develop a five-year SID work plan and related unit-specific annual plans, and engage in strategic planning re-alignment exercises aimed at creating common ground on communication, supportive supervision, staff development, and overall management of the SID.

Support to, and collaboration with the Global Fund (GF) and Japanese International Cooperating Agency (JICA) In 2009 and 2010, ESI supported the SID on two core activities in the Global Fund's Round 8 Health Systems Strengthening grant. These were the development of a strategic plan for private sector M&E and training for SID staff, specifically the M&E unit, in statistical analysis.

### Task 2: Improving data quality in results reporting

ESI worked with the MOHSW's strategic information division (SID) to develop an integrated data quality improvement strategy. Also, with technical assistance from ESI, the SID created a data quality improvement team comprised of select SID staff with M&E oversight responsibilities and representatives from implementing partners such as ICAP, EGPAF, WHO, and UNAIDS. The team's main function is to provide guidance and oversight on data quality for the HMIS.

ESI's work with the HMIS unit on improving the quality of data from the HMIS database led to the HMIS unit purchasing data quality improvement software called Talend. The software allowed the HMIS unit to streamline the design, function, and management of the database.

ESI also conducted several trainings for MOHSW staff on the following topics, data quality, routine data quality assessment, data profiling, cleansing and data warehousing using the Talend software data quality enterprise tool, and root-cause analysis for data quality issues.

The project also conducted a RDQA on out-patient, inpatient, and ART program data in selected health facilities and data profiling for the HMIS and ART database systems. Based on the findings from data quality assessment and profiling, ESI conducted a root-cause analysis, which allowed the project to identify and prioritize the true causes

of data quality issues, and deduce relevant recommendations to specifically address the exact root cause issues as opposed to addressing the symptoms of data quality issues. These initiatives led to developing the data quality improvement strategy described above, developing standard operational procedures (SOPs) for RDQA to improve data governance and stewardship, and forming the data quality stewardship team described above.

### Task 3: Strengthening HMIS

The Ministry of Health and Social Welfare requested assistance from ESI to develop an immediate notification system (INS) to strengthen their infectious disease response. ESI hired a consultant to develop a system to notify all invested parties instantly upon learning about the existence of any dangerous communicable disease (malaria, measles, H1N1, yellow fever, etc.). The completed INS uses a single process that immediately notifies all relevant programs and staff of communicable disease cases. It integrates all MOHSW programs, units, and regions as they now share a single database. Additionally, the system established a clear protocol for responding to notifications with each step tracked by the system. Lastly, ESI insisted that there be a “skills transfer” to ensure that the implementing institution is able to independently operate the system. The INS went live in July, 2010.

As a result, Swaziland now has a standardized community questionnaire to collect information on each disease that is then entered into the HMIS database. This ensures that all the critical information is collected in a standardized manner in every community for every disease and stored in a centralized location.

### Key results for ESI in Swaziland

1. Conducted M&E capacity building workshops for employees with M&E oversight in the MOHSW. Key outcomes were a clear understanding of how to apply M&E after the creation of the strategic information department and a mastery of M&E concepts.
2. Developed a draft M&E operational framework for the strategic information division. The framework facilitated the conduct of M&E at three levels in MOH – facility, regional and national levels.
3. Conducted two routine data quality assessment (RDQA) training workshops and exercises for more than 60 participants. Over 20 facilities participated in the RDQA exercise as a result of the trainings.
4. Leveraged Global Fund supported activities to meet objectives of ESI-related activities. Specifically, a conducted a workshop in 2010 on how to develop M&E plans, purchased and installed Talend software, trained the data quality improvement team in deploying the Talend DQA software. Also, ESI helped to develop the SID's first three-year work plan.
5. Contributed to systems strengthening for the SID through the hosting of the first ever staff planning retreat for the SID in 2010.
6. Contributed to the development of Swaziland's first Health Information Systems Strategic Plan.
7. Conceptualized a CBHIS and provided technical and financial support for a pilot study of the CBHIS.
8. Worked with the World Bank to develop a multi-sectoral HIV and AIDS monitoring and evaluation plan. The document was released in March 2010.

# BUILDING INFORMATION SYSTEM CAPACITY IN SOUTH AFRICA

Outcomes from the Enhancing Strategic Information (ESI) Project

Health of a population is supported by robust public and private health systems. To allocate resources and make strategic decisions around health services, governments need reliable, high quality data.

And to get that data, governments need to have the appropriate staff in place, people like Nandi.

In a country with more than **50.5 million people**, she is one of 1,000 health information officers. **That's only 1 officer for every 50,000 South Africans.**

## Meet Nandi.

Nandi lives in South Africa and works in the North West Province as a health information officer.

Nandi is both a Health Officer & Clinician who believes in the power of quality health data



Health information officers like Nandi face challenges.

There are computer issues...

- 77%** of health information officers, like Nandi, have a computer.
- 52%** of staff, including Nandi and many of her colleagues, don't have reliable access to the internet though, essential for transmitting data.
- 24%** of computers used by health information staff have never had an antivirus update, and even more computers tend to be slow and have out-of-date antivirus software.



**These challenges make it difficult to transmit data to the district system & communicate with colleagues.**

and limited training opportunities.

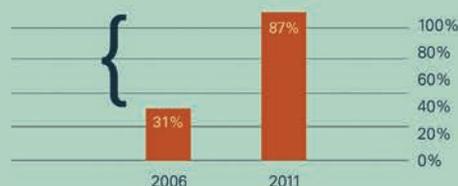
- 71%** of health information officers have received training in the past two years, but this statistic varies markedly by province.
- 56%** of the staff in Northern Cape province haven't received any training in the past two years though.
- 30%** of staff are not trained in the use of pivot tables, a key analysis tool for District Health Information Systems.

**Why?** Staff, like Nandi, often have clinical duties or other responsibilities.

So in the North West province, additional trainings have been scheduled to accommodate hectic schedules.

Despite these challenges, Nandi thinks there have been big improvements in the past four years.

Across the country, there was a **56%** increase in filled health information positions.



Having more trained staff in place has been instrumental to supporting quality data & data use.

All of these achievements point to **increased staff and mentoring and training** across the country, thanks to collaborative work between ESI & the government of South Africa.

In the **North West**, where Nandi lives, some additional trainings have focused specifically on using pivot tables for evidence-based health management.

Nandi has also been working with a mentor and monitoring and evaluation coordinator since 2009, like others throughout four districts in the Northwest. **Those who served as mentors are now provincial Department of Health officials.**

And at the national policy level, **Standard Operating Procedures** for DHIS and national trainings implemented across the country have been instrumental to making information officers like Nandi better equipped to do their jobs.





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