

World Bank Launch Workshop on Strengthening Health Information Systems

GDDS II project

with participation of

Botswana, Lesotho, Mauritius, Sudan, Tanzania

Reader

Supported by the Health Metrics Network

**Gaborone, Botswana
8-12 October 2007**

Introduction

The present Reader is the result of a collaboration between the World Bank and the Health Metrics Network which aims at improving statistics and health information in developing countries. It contains articles and documents that will be useful for the participants of an intercountry meeting on strengthening health statistics.

In compiling the reader two institutional approaches are given prominence, these are: the Health Metrics Network (HMN) and the General Data Dissemination System (GDDS) of the International Monetary Fund (IMF).

The GDDS framework is built around four dimensions -- data characteristics, quality, access, and integrity -- and is intended to provide guidance for the overall development of macroeconomic, financial, and socio-demographic data.

The Data Quality Assessment Framework (DQAF) includes five dimensions: assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility-- of data together with a set of prerequisites for data quality are the center of the IMF Data Quality Assessment Framework. The DQAF, which is used for comprehensive assessments of countries' data quality, covers institutional environments, statistical processes, and characteristics of the statistical products.

What does the reader cover?

The Reader is intended to cover basic health statistics which countries would want to have in their health information system. The references are grouped in three major sections, general references, assessing health information systems and strengthening health information systems. The content of the Reader can essentially be grouped in five main categories:

- Mortality and cause of death
- Morbidity and health status
- Risk factors
- Service provision
- Health resources

How to use this reader

To access a reference quoted in the Reader click (or Ctrl click) on the title. This will open the corresponding document. Additionally, many references are hyperlinked to the original source on the Internet. Obviously, directly accessing the document on the Web will work only when your computer is on line. Otherwise, the only equipment needed is a regular CD reader.

It is useful to consult periodically the websites of the Health Metrics Network, and the statistical sections of the sites of the World Bank and the International Monetary Fund¹.

¹ Regrettably some very interesting OECD publications could not be included in this Reader¹ due to OECD price policy.
http://www.oecd.org/document/30/0,3343,en_2649_37407_12968734_1_1_1_37407,00.html

1 General principles

Health information systems: the foundations of public health

<http://www.who.int/bulletin/volumes/83/8/578.pdf><http://www.who.int/bulletin/volumes/83/8/578.pdf>

Information to improve decision making for health

<http://files.dcp2.org/pdf/DCP/DCP54.pdf>

World Health Statistics 2007: A guide to statistical information at WHO

<http://www.who.int/whosis/en/index.html>

Guide to the General Data Dissemination System

<http://dsbb.imf.org/vgn/images/pdfs/gddsguide.pdf>

Developing health information systems in developing countries

UN Fundamental Principles of Official Statistics

<http://unstats.un.org/unsd/methods/statorg/FP-English.htm>

Building health information systems in the context of national strategies for the development of statistics

<http://www.who.int/bulletin/volumes/83/8/564.pdf>

1.1 Health Metrics Network

HMN Framework and Standards for the Development of Country Health Information Systems

http://www.who.int/healthmetrics/documents/hmn_framework200609.pdf

HMN Framework and Standards, Second Edition

HMN Strategy and plan of operations for 2007-2008

http://www.who.int/healthmetrics/governance/HMN_network_strategy.pdf

HMN Strengthening Country Health Information Systems: Assessment and Monitoring Tool guide, Version 2.00, 29 July 2007

http://www.who.int/healthmetrics/tools/hmn_assessment_tool_guide_ver2.pdfhttp://www.who.int/healthmetrics/tools/hmn_assessment_tool_guide_ver2.pdf

HMN Assessment Tool (xls) version 2

http://www.who.int/healthmetrics/tools/hmn_assessment_tool_ver2.xls

HMN Assessment Group Builder

http://www.who.int/healthmetrics/documents/hmn_assessment_groupbuilder_1_5.xls

HMN Roundtable Consultation on Standards and Challenges in Health Information Systems

<http://www.who.int/healthmetrics/documents/hmnroundtable01.pdf>

HMN Biennial Report 2005/2006

http://www.who.int/healthmetrics/governance/HMN_biennial_report.pdf

1.2 General Data Dissemination System

What is the General Data Dissemination System?

<http://dsbb.imf.org/Applications/web/gdds/gddswhatgdds/>

The data dimension of the GDDS – A. Comprehensive Frameworks

<http://dsbb.imf.org/Applications/web/gdds/gddstablea/>

The data dimension of the GDDS – B. Data Categories and Indicators

<http://dsbb.imf.org/Applications/web/gdds/gddstableb/>

1.3 Issues in Health Information

National and **subnational** health information systems

http://www.who.int/healthmetrics/documents/hmnissue_nationalsubnationalhealthinfosystems.pdf

Information needs for HIV/AIDS, tuberculosis and malaria **programmes**

http://www.who.int/healthmetrics/documents/hmnissue_info_aidstbmalaria.pdf

Integrating **equity** into health information systems

http://www.who.int/healthmetrics/documents/hmnissue_integratingequity.pdf

Improving systems for measuring and monitoring **vital** events

http://www.who.int/healthmetrics/documents/hmnissue_measuringandmonitoring.pdf

Household and facility **surveys**

http://www.who.int/healthmetrics/documents/hmnissue_householdfacilitysurveys.pdf

Disease **surveillance**

http://www.who.int/healthmetrics/documents/hmnissue_diseasesurveillance.pdf

Modelling and estimation

http://www.who.int/healthmetrics/documents/hmnissue_modelingandestimation.pdf

1.4 Health System Metrics

Health System Metrics, Report, Glion, 2006

http://www.who.int/healthinfo/health_system_metrics_glion_report.pdf

Monitoring Health System Performance

<http://www.who.int/healthmetrics/documents/balabanovahspacountries.ppt>

Policy and Institutional Assessment Indicator

<http://www.who.int/healthmetrics/documents/boscpia.ppt>

1.5 Data Quality

Data quality assessment framework – Generic framework

http://dsbb.imf.org/vgn/images/pdfs/dqrs_Genframework.pdf

The World Bank
GDDS II project

IMF Approaches to Data Quality
<http://dsbb.imf.org/Applications/web/dqrs/dqrsapproaches/>

IMF DQAF generic framework – worksheet
http://dsbb.imf.org/vgn/images/pdfs/dqrs_factsheet.pdf

OECD Health Care Quality Indicators Project: Conceptual Framework Paper
<http://www.oecd.org/dataoecd/1/36/36262363.pdf>

OECD Health Care Quality Indicators Project: Initial Indicators Report
<http://www.oecd.org/dataoecd/1/34/36262514.pdf>

1.5.1 The General Data Dissemination System framework (GDDS)

Botswana: GDDS Table C. Data integrity and access by the public
<http://dsbb.imf.org/Applications/web/gdds/gddscountrycategorydiapreport/?strcode=BWA&strcat=185>

1.5.2 Data quality assessment framework (DQAF)

Fundamental principles of official statistics (UN)
<http://unstats.un.org/unsd/dnss/fundprinciples.aspx>
<http://unstats.un.org/unsd/methods/statorg/FP-English.htm>

1.6 eHealth

eHealth – Health Information Systems – IST (Information Society Technologies in Africa) 2008, Call for papers, 14-16 May 2008
http://www.ist-africa.org/Conference2008/files/ISTAfrica2008_CallforPapers.pdf#

1.7 Forum on Development of Statistics in Africa

Second Forum on African Statistics Development
http://www.uneca.org/eca_resources/Speeches/Janneh/2006/090206_speech_Abdoulie_Janneh.htm

Mainstreaming statistics in Africa

Statistical Capacity Building in Africa

GDDS project

Implementation, Monitoring and Evaluation

Keynote Speech by Richard Manning
http://www.uneca.org/fasdev/speech_richard_manning.htm

1.8 National Strategies for the Development of Statistics

Progress report on NSDS in Sub-Saharan African countries
http://www.uneca.org/fasdev/documents/NSDS_Status_ReportE.pdf

1.9 Community based health information systems

Community based health information systems – RHINO Forum 2007

2 Assessing Health Information Systems

2.1 Assessing Health Information Systems

HMN Assessment Tool Guide, ver. 2.0
http://www.who.int/healthmetrics/tools/hmn_assessment_tool_guide_ver2.pdf

HMN Assessment Tool (Excel file) version 2.0
http://www.who.int/healthmetrics/tools/hmn_assessment_tool_ver2.xls

HMN Assessment Groupbuilder
http://www.who.int/healthmetrics/documents/hmn_assessment_groupbuilder_1_5.xls

Monitoring Health Information Systems
<http://www.who.int/healthmetrics/documents/stansfieldhis.ppt>

Measuring availability and accessibility coverage. Results of the GIS capacity and data availability analysis
http://www.gsdi.org/SDIA/docs2007/apr07links/GIS_Malawi_final.pdf

2.1.1 HMN country assessment

HMN Assessment Lesotho
Unpublished HMN document

HMN Assessment Sudan
Unpublished HMN document

HMN Assessment Zambia
Unpublished HMN document

Using the HMN Framework to assess county health information systems
http://www.who.int/healthmetrics/governance/hmnboard_meeting08_11statusofsmallgrants.pdf

HMN Country Assessments (Report by Boerma, 2007)
http://www.who.int/healthmetrics/library/Boerma_HMN_HIS_assessment_report.ppt

2.2 HIS Data Sources

2.2.1 Census

UN Census website

<http://unstats.un.org/unsd/demographic/sources/cwp2010/docs.htm>

Handbook on Census Management for Population and Housing Censuses

http://unstats.un.org/unsd/publication/SeriesF/SeriesF_83rev1e.pdf

UN Principles and Recommendations for Population and Housing Censuses

http://unstats.un.org/unsd/publication/SeriesM/SeriesM_67rev1E.pdf

Every death counts: measurement of maternal mortality via a census

<http://www.cpc.unc.edu/measure/publications/pdf/ja-01-19.pdf>

Measuring Maternal Mortality from a Census: Guidelines for Potential Users

<http://www.cpc.unc.edu/measure/publications/pdf/ms-01-04.pdf>

2.2.2 Vital registration

UN Principles and Recommendations for a Vital Statistics System

http://unstats.un.org/unsd/publication/SeriesM/SeriesM_19rev2E.pdf

Sample registration of vital events with verbal autopsy

<http://www.who.int/bulletin/volumes/83/8/611.pdf>

Sample Vital Registration with Verbal Autopsy in Tanzania

<http://www.cpc.unc.edu/measure/communications/monitor/Monitor.No2.Fall2006.pdf>

Demographic Surveillance System (DSS) in Tanzania

http://www.idrc.ca/uploads/user-S/10954307531TEHIP_Case_3_e.pdf

Demographic Surveillance System in Tanzania, in: Fixing Health Systems
(priced publication of IDRC)

<http://www.idrc.ca/openebooks/155-8/>

Demographic surveillance systems: Adult mortality

http://www.ceda.berkeley.edu/events/AMDC_Papers/Clark-amdc.pdf

Improving fertility, mortality and disability statistics in Africa

http://unstats.un.org/unsd/demographic/meetings/wshops/Ghana2004/docs/Ghana_Report.pdf

Coverage of vital registration of deaths

<http://www.who.int/whosis/whostat2006CoverageOfVitalRegistrationOfDeaths.pdf>

Evaluation of a village-informant driven demographic surveillance system

<http://www.demographic-research.org/Volumes/Vol16/8/16-8.pdf>

Demographic surveillance system, Vietnam

http://www.indepth-network.net/dss_site_profiles/filabavidss.pdf

2.2.3 Surveys

2.2.3.1 General

HMN Health Surveys Meeting, Calverton, 2007 - Report
http://www.who.int/healthmetrics/library/hmn_healthsurveysmeeting.pdf

HMN Health Surveys Meeting, Calverton, 2007 – Objectives
http://www.who.int/healthmetrics/library/Boerma_Objectives_Session_1.ppt

World Health Surveys
<http://www.who.int/healthinfo/survey/hspa58.pdf>

WHO Health Surveys
http://www.who.int/healthmetrics/library/Chatterji_WHS.ppt

Key Indicators Survey Tool
http://www.who.int/healthmetrics/library/Vaessen_KIS_Tool.ppt

A comparative study of survey instruments
http://www.ucw-project.org/resources/pdf/childwork_zambia.pdf

2.2.3.2 Household Surveys

CDC Household Survey Activities
http://www.who.int/healthmetrics/library/Calverton_CDC_HH_Survey_Activities_707.ppt

Increasing the Effectiveness of Household Surveys
http://www.who.int/healthmetrics/library/Swanson_HMN_Household_Surveys.ppt

Multiple Indicator Cluster Surveys
<http://www.childinfo.org/mics/mics3/>
<http://www.surveynetwork.org/home/?lvl1=tools&lvl2=questionnaire&lvl3=standard>
http://www.who.int/healthmetrics/library/Hancioglu_MICS_overview.ppt

Living Standards Measurement Study of the World Bank
<http://www.worldbank.org/lsmis/>

International Household Survey Network (IHSN)
<http://unstats.un.org/unsd/accsub/2005docs-6th/sa-2005-10-IHSN.pdf>

Priority survey in Zambia, 1991-98
<http://www1.worldbank.org/prem/poverty/learning/diagnos/priority.pdf>

2.2.3.3 Verbal Autopsy

Setting international standards for verbal autopsy
<http://www.who.int/bulletin/volumes/85/8/07-043745.pdf>

Verbal Autopsy Modules in Surveys
http://www.who.int/healthmetrics/library/Kalter_VA.ppt

2.2.3.4 Demographic and Health Surveys

International Household Survey Network

<http://www.surveynetwork.org/home/?lvl1=tools&lvl2=questionnaire&lvl3=standard>

Demographic and Health Surveys

<http://www.measuredhs.com/aboutsurveys/dhs/start.cfm>

Field Staff Training in the DHS

http://www.who.int/healthmetrics/library/Vaessen_DHS_Training_programme.ppt

MEASURE DHS New Directions

http://www.who.int/healthmetrics/library/Vaessen_Potential_new_directions.ppt

MEASURE DHS Questionnaires

http://www.who.int/healthmetrics/library/Vaessen_Questionnaire_issues.ppt

2.2.3.5 Health Facility Surveys

Service Provider Assessment

http://www.cpc.unc.edu/measure/publications/pdf/ms-02-09-tool06-facility_inventory.pdf

Health facility censuses and surveys – Tanzania

2.2.4 Service records

Routine health information system in Tanzania

<http://www.ub.uib.no/elpub/NORAD/2003/uio/thesis02.pdf>

Routine Health Information Systems Network (RHINO)

<http://www.rhinonet.org/>

Information for Action: Facility and Community Focus

<http://www.rhinonet.org/tiki-index.php?page=ThirdInternationalWorkshop>

2.2.4.1 Facility Based Information

Facility Censuses and Surveys

<http://www.who.int/healthmetrics/documents/noriegarubonaserviceprovision.ppt>

2.2.4.2 Facility based statistics

Routine Health Information System concepts and methods – MEASURE Evaluation

<http://ocw.jhsph.edu/courses/fundamentalsprogramevaluation/PDFs/Lecture8.pdf>

Medical Records Manual: A Guide for Developing Countries, 2006

<http://www.wpro.who.int/NR/rdonlyres/7FB74A3F-34F6-4C46-A9F0-1F0D52D04254/0/MedicalRecordsManual.pdf>

2.3 Health Indicators

Indicator Definitions and Metadata

<http://www.who.int/whosis/indicators/2007compendium/en/index.html>

Introduction to Indicators (MEASURE Evaluation and UNAIDS)

<http://www.emro.who.int/GFATM/guide/indicators.html>

Ten Statistical Highlights in Global Public Health, 2007

http://www.who.int/whosis/whostat2007_10highlights.pdf

UNAIDS guidelines on construction of core indicators

http://data.unaids.org/Publications/IRC-pub02/jc894-coreindicators_en.pdf

World Health Statistics 2007

<http://www.who.int/whosis/whostat2007.pdf>

OECD Selecting Indicators for Patient Safety

<http://www.oecd.org/dataoecd/53/26/33878001.pdf>

2.3.1 Examples of indicators

Millennium Development Goals Indicators

<http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm>

The millennium development goals for health: rising to the challenges

<http://www->

[wds.worldbank.org/servlet/WDSContentServer/WDSPIB/2004/07/15/000009486_20040715130626/Rendored/PDF/296730PAPER0Mi1ent0goals0for0health.pdf](http://wds.worldbank.org/servlet/WDSContentServer?WDSPIB/2004/07/15/000009486_20040715130626/Rendored/PDF/296730PAPER0Mi1ent0goals0for0health.pdf)

MDG Indicators - Details(definitions, calculation, sources)

http://www.cstbkk.org/Goals__Details.html#186

Maternal health indicators

http://www.cstbkk.org/By_Topic.html#Maternal

The Millennium Development Goals in Africa

http://www.uneca.org/mdgs/MDGs_in_Africa.pdf

Towards good practice for health statistics: lessons from the Millennium Development Goal health indicators

<http://www.thelancet.com/journals/lancet/article/PIIS0140673607604152/abstract>

Monitoring MDGs in developing countries, IUSSP/UNFPA conference, Rabat 2007

<http://www.iussp.org/Activities/infodata/programme.pdf>

PEPFAR indicators, reporting requirements and guidelines
<http://www.state.gov/s/gac/partners/guide/indicators/55291.htm>

3 Strengthening Health Information Systems

3.1 General principles

World Health Assembly 2007: Strengthening of health information systems
http://www.who.int/gb/ebwha/pdf_files/WHA60/A60_R27-en.pdf

A guide to designing a national strategy for the development of statistics (NSDS), PARIS21, 2004
<http://www.paris21.org/documents/1401.pdf>

Making the case: National strategy for the development of statistics, (NSDS), PARIS21
<http://www.paris21.org/documents/1406.pdf>

OECD guidelines on the protection of privacy and transborder flows of personal data
http://www.oecd.org/document/18/0,2340,en_2649_34255_1815186_1_1_1_1,00.html

Guidelines for the development of Health Management Information Systems, 1993
http://www.wpro.who.int/NR/rdonlyres/5469C623-B188-4647-ABEC-A10127A76E78/0/Guidelines_Dev_Health_Management_Info_Systems.pdf

Health statistics now: are we making the right investments?
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6T1B-4N5F7JV-18&_user=10&_coverDate=03%2F09%2F2007&_rdoc=1&_fmt=summary&_orig=browse&_cdi=4886&_sort=d&_docanchor=&view=c&_ct=1&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=3a9b5bebafa97ddb407b8ea01dfc4a9a

Health information system strategic planning
http://www.wpro.who.int/NR/rdonlyres/19A52576-E005-4476-91DA-36A28DAE28E3/0/Informal_Consultation_on_HIS_Strategic_Plan_for_the_WPR.pdf

Developing health management information systems: a practical guide for developing countries
http://www.wpro.who.int/NR/rdonlyres/3A34C50D-C035-425A-8155-65E8AD3CB906/0/Health_manage.pdf

Developing integrated national health information systems
<http://www.wpro.who.int/NR/rdonlyres/A3B3736F-778D-4E41-8579-9FB12CCFCC8C/0/MeetingReport.pdf>

Strengthening Health Information System for Maternal and Child Care Services, 2004

http://www.wpro.who.int/NR/rdonlyres/7F4A401F-3924-4B8D-911D-3398F77A477E/0/strengthening_mch_his_pic.pdf

Health Information, Research and Knowledge Management, 2006

http://www.wpro.who.int/NR/rdonlyres/1221E571-9701-4E10-BA9D-EEFFC2F52EDF/0/Newsletter1_rev.pdf

3.2 Coordination and leadership

Coordination and leadership, p. 55 in: Health Metrics Network Framework

http://www.who.int/healthmetrics/documents/hmn_framework200609.pdf

3.3 Planning and priority setting

Planning and priority setting, p. 56, in: Health Metrics Network Framework

http://www.who.int/healthmetrics/documents/hmn_framework200609.pdf

3.3.1 Strategic planning for HIS

Health management information system (Lesotho): Policy guidelines

Health information system strategic plan (Sudan)

Theory and practice in strategic planning for health information systems

http://cadair.aber.ac.uk/dspace/bitstream/2160/192/1/bradshaw_UKALS2005revised.doc

3.4 Implementation

3.4.1 Country examples of HIS strengthening

Health information system reform in South Africa: developing an essential data set

<http://www.who.int/bulletin/volumes/83/8/632.pdf>

Improving health management information systems in 7 districts in Tanzania, supported by GTZ, see: Strengthening management in low-income countries

<http://www.who.int/management/general/overall/Strengthening%20Management%20in%20Low-Income%20Countries.pdf>

3.5 Monitoring, evaluation and reprogramming

Monitoring and Evaluation Systems Strengthening Tool

<http://www.pepfar.gov/documents/organization/79624.pdf>

3.6 Capacity development

3.6.1 Human resources

Health Information Systems Training: University of Dar es Salaam
Implementation Experience

http://www.ist-africa.org/Conference2007/outbox/ISTAfrica_Paper_ref_49_doc_1672.pdf

3.7 Sustainability of HIS

The challenges of sustainability of HIS in developing countries (Mozambique
and Tanzania)

<http://is2.lse.ac.uk/asp/aspecis/20040084.pdf>

Open source software: Tanzania

<http://is2.lse.ac.uk/asp/aspecis/20060062.pdf>

4 Country Data

Health statistics in Southern Africa

<http://www.hst.org.za/healthstats/232/data/int>

Health indicators in Southern Africa

http://www.hst.org.za/healthstats/index.php?indtype_id=003008

4.1 General country data

Botswana

Botswana Logbook

<http://www.who.int/healthmetrics/tools/logbook/en/logbook.cfm?ISO3=BWA&tabselected=0>

Lesotho

Lesotho Logbook

<http://www.who.int/healthmetrics/tools/logbook/en/logbook.cfm?ISO3=LSO&tabselected=0>

Mauritius

Mauritius Logbook

<http://www.who.int/healthmetrics/tools/logbook/en/logbook.cfm?ISO3=MUS&tabselected=1>

Mauritius 2000 Housing and Population Census

<http://www.gov.mu/portal/sites/ncb/cso/report/hpcen00/census6/census.pdf>

Sudan

Sudan 5-YEAR National Health Information Strategic Plan

Sudan Logbook

<http://www.who.int/healthmetrics/tools/logbook/en/logbook.cfm?ISO3=SDN&tabselected=0>

Tanzania

Tanzania Poverty Monitoring Master Plan
http://www.ilo.org/public/english/employment/skills/hrdr/init/tan_2.htm

Tanzania Logbook
<http://www.who.int/healthmetrics/tools/logbook/en/logbook.cfm?ISO3=TZA&tabselected=0>

4.2 PARIS21 NSDS (National Strategy for the Development of Statistics) country papers

Botswana: Report on the Observance of Standards and Codes
<http://www.paris21.org/documents/2560.pdf>

Mauritius: Report on the Observance of Standards and Codes
<http://www.paris21.org/documents/1639.pdf>

Tanzania: Report on the Observance of Standards and Codes
<http://www.paris21.org/documents/1575.pdf>

4.3 Country health information systems

Botswana

Developing HIS in Botswana: the challenge of integrating different systems
http://www.ist-africa.org/Conference2007/outbox/ISTAfrica_Paper_ref_103_doc_1675.pdf

Evaluation of DHIS pilot project in Botswana
<http://www.sim.hcuge.ch/helina/21.pdf>

Botswana Country Page
<http://www.who.int/infobase/report.aspx?iso=BWA&rid=111&goButton=Go>

Botswana's AIDS Information System - providing data, empowering districts
http://www.unaids.org/en/Coordination/Initiatives/making_money_work_chn/20070615_BotswanaAIDSInformationSystem.asp

Lesotho

Lesotho Health Management Information System Guidelines Policy

Sudan

Sudan 5-YEAR National Health Information Strategic Plan

Tanzania

Designing and implementing hospital management information systems:
Experiences from Zanzibar
http://www.ist-africa.org/Conference2007/outbox/ISTAfrica_Paper_ref_119_doc_1674.pdf

4.4 Country Central Statistical Offices

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Botswana CSO – Health
<http://www.cso.gov.bw/>

Lesotho Bureau of Statistics
<http://www.bos.gov.ls/>

Mauritius Central Statistics Office
<http://www.gov.mu/portal/sites/ncb/cso/index.htm>

Sudan Central Bureau of Statistics
<http://www.cbs.gov.sd/>

Tanzania National Bureau of Statistics
<http://www.nbs.go.tz/>

4.5 Health programme information systems

Global Fund data quality assessment tool
http://www.theglobalfund.org/en/files/rfp/RFP-HQ-GVA-07-024/DRAFT_DQA_Guidelines_for_Implementation.doc

Information system for malaria control
http://whqlibdoc.who.int/hq/2001/WHO_CDS_RBM_2001.32.pdf

Information for EPI
http://www.afro.who.int/ddc/vpd/epi_mang_course/docs/english/mod%2004.rtf

National AIDS Programmes: A guide to monitoring and evaluation
<http://www.emro.who.int/GFATM/guide/completeguide.pdf>

UNAIDS HIV data
http://www.unaids.org/en/HIV_data/default.asp

Immunization data quality audit
<http://www.who.int/vaccines-documents/DocsPDF03/www759.pdf>

PEPFAR Data Quality Assurance Tool for Program-Level Indicators
http://media.shs.net/globalaids/HighlightedTools/MonitoringEvaluation/DataQuality/DataQualityToolkit/Data_Quality_Assurance_Tool_for_Program_Level_Indicators.pdf

4.6 Health Databases

WHO World Health Reports
<http://www.who.int/whr/en/>

Building foundations for eHealth: Report of the WHO Global Observatory for eHealth
http://www.who.int/ehealth/resources/bf_full.pdf

European health for all database
<http://www.euro.who.int/hfadb>

Atlas of health in Europe

<http://www.euro.who.int/Document/E79876.pdf>

4.7 Burden of Disease

Global Burden of Disease and Risk Factors

<http://files.dcp2.org/pdf/GBD/GBD.pdf>

Global Burden of Disease 2000: Version 2 methods and results

<https://www.who.int/healthinfo/paper50.pdf>

Burden of Disease statistics

<http://www.who.int/healthinfo/bod/en/index.html>

Updated projections of global mortality and burden of disease, 2002-2030:
data sources, methods and results

http://www.who.int/healthinfo/statistics/bod_projections2030_paper.pdf

National estimates for maternal mortality: an analysis based on the WHO
systematic review of maternal mortality and morbidity

<http://www.biomedcentral.com/content/pdf/1471-2458-5-131.pdf>

4.8 Health Classifications

International Classification of Diseases and Injuries

<http://www.who.int/classifications/apps/icd/icd10online/>

International Classification of Functioning, Health and Disabilities

<http://www.who.int/classifications/icf/en/index.html>

<http://www.who.int/classifications/icf/site/icftemplate.cfm?myurl=introduction.html%20&mytitle=Introduction>

<http://www.who.int/classifications/icf/site/icftemplate.cfm?myurl=homepage.html&mytitle=Home%20Page>

International Classification of Health Interventions

<http://www.who.int/classifications/ichi/en/>

<http://www3.fhs.usyd.edu.au/ncchwww/site/4.1.4.htm>

4.9 HIS Software

Health information systems and open source software development: need for
cross-country collaboration in Africa – experiences from the HISP/BEANISH
network

http://www.ist-africa.org/Conference2007/outbox/ISTAfrica_Paper_ref_81_doc_1671.pdf

Software based systems for ART program and patient monitoring

[https://www.who.int/3by5/publications/en/7Summary%20of%20Software%20Based%20Systems-%20Mark%20Spohr%20\(JSI-USAID\).ppt](https://www.who.int/3by5/publications/en/7Summary%20of%20Software%20Based%20Systems-%20Mark%20Spohr%20(JSI-USAID).ppt)

Minimum Dataset for Care of Patients (Abstract)

<http://www.jamia.org/cgi/content/abstract/M2005v1>

ART records and EMR systems in Africa
http://www.who.int/kms/initiatives/HL7_ART_meeting_report_FINAL.pdf

5 Useful sites

World Bank

International Monetary Fund

World Health Organization

Health Metrics Network
<http://www.who.int/healthmetrics/en/>

PARIS21 (**P**artnership in **s**tatistics for development in the **21**st century)
<http://www.paris21.org/>

WHO Global InfoBase Online Glossary
http://www.who.int/ncd_surveillance/infobase/web/InfoBaseCommon/Help/HelpList.aspx?Type_Code=hp.tc.001

MEASURE Evaluation
<http://www.cpc.unc.edu/measure/leadership/pepfar>

Routine Health Information Network (RHINO)
<http://www.rhinonet.org/>

6 Acronyms²

AHPSR	The Alliance for Health Policy and Systems Research
APHRC	Africa Population and Health Research Center
AIDS	Acquired immunodeficiency syndrome
AMMP	(Tanzania) Adult Mortality and Morbidity Project
ANC	Antenatal care
BOS	Bureau of Statistics (Lesotho)
CDC	Centers for Disease Control and Prevention
CHAL	Christian Health Association of Lesotho
DANIDA	Danish International Development Agency
DFID	Department for International Development
DHS	Demographic Health Survey
DHIS	District Health Information System
DOTS	Directly observed treatment – the internationally recommended strategy for tuberculosis control
DPT3	Diphtheria, pertussis (whooping cough) and tetanus vaccine
DSS	Demographic Surveillance System

² Source: [HMN Framework and Standards](#)

EC	European Commission
GAVI	Global Alliance for Vaccines and Immunization
GDDS	General Data Dissemination System
GHP	Global health partners
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GPS	Global Positioning Satellite
HIS	Health information system
HISP	Health Information Systems Programme
HMIS	Health management information system
HMN	The Health Metrics Network
HR	Human resources
HIV	Human immunodeficiency virus
ICD	International Statistical Classification of Diseases and Related Health Problems
IGH	Harvard Initiative for Global Health
IDSR	Integrated disease surveillance and response
ICT	Information and communications technology
IDR	Integrated data repository
IHME	The Institute for Health Metrics and Evaluation
IMMPA	Initiative for Maternal Mortality Programme Assessment
ISCO	International Standard Classification of Occupations
IHR	International Health Regulations
IMF	International Monetary Fund
IT	Information technology
LAN	Local area network
LDCs	Least-developed countries
LSMS	Living Standard Measurement Study
MDGs	Millennium Development Goals of the United Nations
MICS	Multiple Indicator Cluster Survey
MoH	Ministry of Health
MOFDP	Ministry of Finance and Development Planning (Lesotho)
MOHSW	Ministry of Health and Social Welfare (Lesotho)
MOLG	Ministry of Local Government (Lesotho)
MTUHA	<i>Mfumo wa Taarifa za Uendeshaji wa Huduma za Afya</i> (Health Management Information System, Tanzania)
NBS	(Tanzania) National Bureau of Statistics
NHA	National health accounts
NGO	Nongovernmental organization
NSDS	National strategies for the development of statistics
NSO	National Statistics Office
OECD	Organisation for Economic Co-operation and Development
PARIS21	Partnership in Statistics for Development in the 21st Century
PC	Personal computer
PDA	Personal digital assistant
PEPFAR	President's Emergency Plan for AIDS Relief
PRSP	Poverty-reduction strategy paper
SARS	Severe acute respiratory syndrome

SAVVY	Sample vital registration with verbal autopsy
SIDA	Swedish International Development Cooperation Agency
SPA	Service provision assessment
SRS	Sample registration system
SWAP	Sector-wide approach
TB	Tuberculosis
TEHIP	Tanzania Essential Health Interventions Project
TSED	Tanzania Socio-Economic Database
UNDESA	United Nations Department of Economic and Statistical Affairs
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
USAID	United States Agency for International Development
VA	Verbal autopsy
WB	World Bank
WHO	World Health Organization
WHS	World Health Survey
XML	Extended markup language

7 Definitions³

Causes of death – the causes of death to be entered on the medical certificate are defined as “all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries”.

Civil registration – defined by the United Nations as: “the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events (live births, deaths, foetal deaths, marriages and divorces) and other civil status events pertaining to the population as provided by decree or regulation, in accordance with the legal requirements in each country. Civil registration establishes and provides legal documentation of such events. These records are also the best source of **vital statistics**.”⁴

³ If not specified otherwise, these definitions are taken from the Health Metrics Network Framework and Standards, Second Edition, not yet published on the Web but available in this Reader at: HMN Framework and Standards, Second Edition

Marked as (3) if reprinted from: Informatics Technology for Use in HIV/AIDS, Treatment in Resource-Poor Settings, Michael Rodriguez, Mark Spohr, Theo Lippeveld, Michael Edwards, October 2005, WP-05-86, accessed at: <http://www.cpc.unc.edu/measure/publications/pdf/wp-05-86.pdf>

Marked as (4) if reprinted from: Developing health management information systems: a practical guide for developing countries,

⁴ United Nations Statistics Division. *Principles and Recommendations for a Vital Statistics System*.

Revision 2, Series: M, No.19/Rev.2. New York, United Nations, 2001. Sales No. 01.XVI.10.

http://unstats.un.org/unsd/publication/SeriesM/SeriesM_19rev2E.pdf

Data integrity Safeguarding the accuracy and completeness of information and processing methods; to the accuracy, logical consistency and security of records.⁵

Data management – a set of procedures to collect, store, analyse and distribute data. Once data are collected, a sound management approach is essential. Firstly, a metadata dictionary is necessary to accurately describe the data elements. Next, effective data-storage procedures require a well-designed logical structure to permit data retrieval and analysis. Data analysis and presentation include calculating indicators and preparing tables and graphs. Finally, the data should be made available to all those who can use and act upon them.

Data warehouse – an integrated information-storage area that consists of a data repository bringing together multiple databases from various data sources, and a report-generating facility.

Demographic and Health Surveys (DHS) - nationally representative household surveys with large sample sizes (usually between 5,000 and 30,000 households). DHS surveys provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition. Typically, DHS surveys are conducted every 5 years, to allow comparisons over time.

The basic approach of the DHS program is to collect and make available data that are comparable across countries. To achieve this, DHS works to ensure that proper guidance is in place, budgets and schedules are managed, and standard procedures are followed. DHS Surveys are normally conducted in four phases over a period of 18-20 months. To collect data that are comparable across countries, standard model questionnaires have been developed, along with a written description of why certain questions or sections have been included. The [DHS Surveys List](#) provides a listing of all previous and current DHS Surveys. For all surveys listed, a Survey Summary is available which provides an overview of the survey as well as a listing of the publications and datasets available for the survey.

Demographic surveillance system (DSS) – the continuous demographic monitoring of a geographically defined population with timely production of data on all births, deaths and migration. DSS sites cannot provide nationally representative indicators because of their circumscribed geographical representation. Efforts are being made to provide estimates that can be generalized using several existing DSS sites as resources for training, quality control and supervision.

Enumeration – distinct from registration; the means by which the presence of individuals in a household or other group is recorded; normally used in reference to a census or survey. Enumeration is anonymous and does not provide any direct benefit to the individual.

⁵ http://www.anao.gov.au/uploads/documents/2004-05_Audit_Report_24.pdf

General Data Dissemination System - The purposes of the International Monetary Fund [GDDS](#) are to:

- Encourage member countries to improve data quality;
- Provide a framework for evaluating needs for data improvement and setting priorities in this respect; and
- Guide member countries in the dissemination to the public of comprehensive, timely, accessible, and reliable economic, financial, and socio-demographic statistics.

Health Information System - A system that integrates data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services (4)

Health information systems (HIS) are the set of data collection instruments, actors, resources, and institutions whose primary purpose is to inform strategic decision-making, support programme management, monitor progress towards agreed targets, and provide the basis for the evaluation of what works and what does not in health systems. National health information systems need to give information on a wide range of topics including levels, causes and patterns of health, use and effectiveness of health interventions, client experience of health services, financial, physical and human resource inputs, and a range of other health system activities.⁶

Health Management Information System - An information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care (4)

Health Metrics Network (HMN) - is a global partnership working to improve health and lives by strengthening and aligning health information systems around the world. It is founded on the premise that better health information leads to better public health decision-making that will improve health for millions worldwide.

The partnership is comprised of countries, multilateral and bilateral development agencies, foundations, global health initiatives, and technical experts that aim to increase the availability and use of timely, reliable health information by catalysing the funding and development of core health information systems in developing countries.

Information and Communications Technology (ICT) – includes the computers, software, data-capture devices, wireless communication devices, and local and wide area networks that move information, and the people that are required to design, implement and support these systems.

⁶ <http://www.who.int/healthinfo/survey/hspa58.pdf>

Information System - A system that provides information support to the decision-making process at each level of an organization (4)

International Classification of Diseases (ICD)⁷ – a classification maintained by WHO for coding diseases, signs, symptoms and other factors causing morbidity and mortality; used worldwide for morbidity and mortality statistics, and designed to promote international comparability, collection, processing, classification, and presentation of statistics.

International Standard Classification of Occupations (ISCO)⁸ – one of the main international classifications, for which ILO is responsible. ISCO is a tool for organizing jobs into a clearly defined set of groups according to the tasks and duties undertaken.

Living Standard Measurement Study - The main objective of LSMS surveys is to collect household data that can be used to assess household welfare, to understand household behavior, and to evaluate the effect of various government policies on the living conditions of the population. Accordingly, LSMS surveys collect data on many dimensions of household well-being, including consumption, income, savings, employment, health, education, fertility, nutrition, housing and migration

Medical certification of cause of death – medical practitioners or other qualified certifiers use their clinical judgement to diagnose the cause(s) of death to be entered on the medical certificate.

Metadata (dictionary) – metadata is “data about data”. To relate data from multiple sources, it is essential to develop common definitions and understand the characteristics of each data element. The tool for achieving this is the metadata dictionary. It covers definitions of data elements/variables, their use in indicators, data-collection method, time period of data-collection, analysis techniques used, estimation methods and possible data biases.

Microdata – non-aggregated data about the units sampled. In the case of population and household censuses and surveys, microdata consists of records of the individuals and households interviewed.

Mortality rate – the ratio of the number of people dying in a year to the total mid-year population in which the deaths occurred. This rate is also called the crude death rate. The mortality rate may be standardized when comparing mortality rates over time (or between countries) to take account of differences in the population. This rate is then called the age-standardized death rate.

Multiple Indicator Cluster Survey - a household survey program developed by UNICEF to assist countries in filling data gaps for monitoring the situation of children

⁷ World Health Organization International Statistical Classification of Diseases, 10th Revision, Second Edition. Geneva, World Health Organization, 2005. <http://www.who.int/classifications/icd/en/>

⁸ <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>

and women. It is capable of producing statistically sound, internationally comparable estimates of these indicators.

The MICS was originally developed in response to the World Summit for Children to measure progress towards an internationally agreed set of mid-decade goals. The first round of MICS was conducted around 1995 in more than 60 countries. The current round (MICS3) is focused on providing a monitoring tool for the World Fit for Children, the Millennium Development Goals (MDGs), as well as for other major international commitments such as the UNGASS on HIV/AIDS and the Abuja targets for malaria. 21 of the 48 MDG indicators can be collected in the current round of MICS, offering the largest single source of data for MDG monitoring. The current plans call for surveys to be executed in more than 50 countries. The survey questionnaires are modular tools that can be customized to the needs of a country. They consist of 3 questionnaires: a household questionnaire, a questionnaire for women aged 15-49, and a questionnaire for children under the age of 5 (addressed to the mother or primary caretaker of the child)

National Health Account (NHA) – a tool for the systematic, comprehensive and consistent monitoring of resource flows in a national health system. It provides a framework with standard definitions, boundaries, classifications and a set of interrelated tables for standard reporting of expenditures on health and its financing. NHAs are designed to capture the resource flows for the main functions of health-care financing, namely: resource mobilization and allocation; pooling and insurance; purchasing and providing of care; and the distribution of expenditures by disease, socioeconomic characteristics and geopolitical areas.⁹

Sample registration system – longitudinal enumeration of demographic events, including cause of death via verbal autopsy, in a nationally representative sample of clusters such as exists in China and India.

Sample Vital Registration with Verbal Autopsy (SAVVY) – proposed by MEASURE Evaluation and the International Programs Center, United States Census Bureau to generate data needed to estimate mortality. Builds on experience from both sentinel demographic surveillance and sample vital registration systems. SAVVY uses a validated verbal autopsy tool to ascertain major causes of death, including those from HIV/AIDS.¹⁰

Sentinel demographic surveillance system – the longitudinal enumeration of all demographic events, including cause of death via verbal autopsy, in a geographically defined population.

Statistical Data and Metadata Exchange (SDMX)¹¹ – an organization of interest promoted by the IMF, WB, UNSD, EUROSTAT, FAO, OECD, BIS and ECB, and the Global Administrative Unit Layers (GAUL).

⁹ http://www.who.int/nha/docs/English_PG.pdf and <http://webitpreview.who.int/entity/nha/Glossary%20English.pdf>

¹⁰ MEASURE Evaluation, Carolina Population Center, University of North Carolina at Chapel Hill, USA. <http://www.cpc.unc.edu/measure/leadership/savvy.html> accessed 08 August 2007.

¹¹ <http://www.sdmx.org/>

Sustainability¹² - The term sustainability was emphasized within the environmental domain in the Rio conference in 1992, where the concept of ‘sustainable development’ was placed on the international agenda. The meaning of sustainability within the environmental perspective described in the Brundtland report (1987)² was defined as follows:

Meeting the needs of the present generation without compromising the ability of future generations to meet their needs.

Sustainability implies maintaining something that already exists over time and is often equated with being ‘self-sustaining’ or ‘self-sufficient’, implying that no outside support is needed to continue its existence (Reynolds and Stinson 1993). With regard to IT, ‘sustainability’ implies the ability to identify and manage risks threatening the long-term viability of IT (Korpela *et al.* 1998). Misund and Høiberg (2003) define sustainable IT as “technology that is capable of being maintained over a long span of time independent of shifts in both hardware and software”.

System - A collection of components that work together to achieve a common objective¹³

Underlying cause of death – (a) the disease or injury which initiated the train of morbid events leading directly to death; or (b) the circumstances of the accident or violence which produced the fatal injury.

Verbal autopsy – a structured interview with caregivers or family members of households after a death occurs; used to determine probable cause(s) of death where most deaths occur outside of health facilities, and where direct medical certification is rare.

Vital event – defined by the United Nations as: “the occurrence of a live birth, death, foetal death, marriage, divorce, adoption, legitimation, recognition of parenthood, annulment of marriage, or legal separation.”¹⁴

Vital registration – all sanctioned modes of registering individuals and reporting on vital events.

Vital statistics – data on vital events drawn from all of sources of vital events data. Particularly in developing country settings, where civil registration functions poorly or not at all, the United Nations acknowledges that a variety of data sources and systems are used to derive estimates of vital statistics.¹⁵

¹² <http://is2.lse.ac.uk/asp/aspecis/20040084.pdf>

¹³ Developing health management information systems: a practical guide for developing countries

¹⁴ United Nations Statistics Division. *Principles and Recommendations for a Vital Statistics System*. Revision 2, Series: M, No.19/Rev.2. New York, United Nations, 2001. Sales No. 01.XVI.10.
http://unstats.un.org/unsd/publication/SeriesM/SeriesM_19rev2E.pdf

¹⁵ http://unstats.un.org/unsd/publication/SeriesM/SeriesM_19rev2E.pdf

Vital statistics system – as defined by the United Nations: “the total process of (1) collecting information by civil registration or enumeration on the frequency of occurrence of specified and defined vital events as well as relevant characteristics of the events themselves... and (2) of compiling, processing, analysing, evaluating, presenting and disseminating these data in statistical form.”¹⁶

World Health Surveys (WHS) - are an initiative launched by the World Health Organization to strengthen national capacity to monitor critical health outputs and outcomes through the fielding of a valid, reliable, and comparable household survey instrument.¹⁷

XML - Extended markup language is a specification that allows designers to create their own customized tags, enabling the definition, transmission, validation, and interpretation of data among applications and organizations (3)

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¹⁶ http://unstats.un.org/unsd/publication/SeriesM/SeriesM_19rev2E.pdf

¹⁷ <http://www.who.int/healthinfo/survey/hspa58.pdf>

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