

INDEPTH NETWORK

WORK PLAN 2004

**INDEPTH NETWORK SECRETARIAT
Accra, Ghana**

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1. Overview

INDEPTH currently consists of **34 demographic surveillance system (DSS) field sites in 18 developing countries** that collectively monitor over 1,500,000 people at a household-level. (See Annex for a list of current INDEPTH member sites). The Network utilises the resources from its development partners to foster, fund and coordinate cross-site studies, multi-site research and other network-level activities.

INDEPTH has a **Strategic Plan** that was launched in February 2002 at the Network's 2nd Annual General and Scientific Meeting (AGM) in Addis Ababa, Ethiopia. The Strategic Plan describes the global research agenda and focus of INDEPTH and facilitates internal operations of the Network. It is used by the Secretariat to evaluate key issues and opportunities.

Among the key strategic goals stated in the INDEPTH Strategic Plan are:

- INDEPTH monograph series – *Population and Health in Developing Countries*. This is a compilation of comparative data provided by member sites focused on a specific topic. The first monograph – *Population, Health and Survival at INDEPTH Sites* – was published by IDRC, Canada in 2002. Work is in progress to produce other volumes including health equity, cause-specific mortality, model life tables for Africa and Asia.
- Health equity study to determine the relationship between specific socio-economic factors and inequity of health outcomes.
- Assessment of various malaria interventions being used in multiple countries and assistance in scaling up the most effective interventions.
- HIV/AIDS study to establish prevalence rates, support related behaviour studies, transmission assessments and test interventions.

To successfully realize the vision and goals of the network and execute network studies, INDEPTH pursues five major capacity building strategies:

- Implement INDEPTH Leadership Fellowship Program to support cross-site collaboration and transfer of knowledge and expertise.
- Maximize connectivity among member sites to enable timely and reliable transfer of data, best practice sharing, expertise sharing and overall collaboration.
- Standardize best-practice methodologies to ensure the consistency and quality of network data.
- Enhance the skill sets of INDEPTH and network member staff through on-site training courses, fellowships and collaboration with INDEPTH partners.
- Provide assistance to sites in interpreting and packaging data to maximize policy and programmatic influence.

Based on the Strategic Plan, every year a **Work Plan** on scientific and capacity building initiatives for the Network is developed annually. This document presents the **Secretariat's Work Plan 2004**.

Since most or all of the activities will be carried over from 2003, this Work Plan provides details of the processes involved in each of the strategic thrusts, it informs on the current status of events, and charts a path to follow in 2004.

The following sections introduce briefly the various initiatives. More details are provided in the annexes in the form of proposals.

2. The Scientific Agenda

2.1 INDEPTH Monograph Series – *Population and Health in Developing Countries*

Writing and publishing an INDEPTH monograph usually involve the following long and difficult process. This is because the work requires the involvement of, if possible, all INDEPTH member sites contributing data for cross-site analysis.

1. Identifying potential titles by Secretariat / Working Groups.
2. Identifying Editors/Authors.
3. Meetings of Editors/Authors to prepare templates both for reporting data and descriptive aspects from sites.
4. The Writing itself.
5. Secretariat collates data from sites.
6. Meetings to review first drafts submitted by sites, including data submitted; Comments are then sent to site authors.
7. Editors meet to analyze data; comments are sent to sites.
8. Secretariat assists in getting final chapters from sites.
9. Secretariat organizes the review process for it to remain anonymous, since some editors are themselves contributing authors.
10. Development of book proposals and search for suitable publishers.
11. Secretariat assists authors to contact people to write Foreword or any necessary contribution to the monograph.
12. Secretariat submits final typescript to publishers.
13. Copyeditor's comments sent to site authors/ editors.
14. Secretariat submits final proofs to publishers; negotiates book price and design.
15. Secretariat arranges for buybacks.

2.1.1 *INDEPTH Model Life Tables for Sub-Saharan Africa*

This publication presents model life tables for sub-Saharan Africa using accurate empirical data from 19 DSS sites of the INDEPTH network. A Brass logit system is used to produce unique mortality models since they incorporate for the first time empirical and accurate data representing prevailing mortality patterns in developing countries. The models take into account the effect of the HIV/AIDS epidemic.

2.1.1.1 The Process

- a) It was agreed at the Addis Ababa AGM in February 2002 that it was necessary to further analyze the all-cause mortality data submitted by sites and published in the INDEPTH monograph volume 1. A *Model Life Tables* working group was then established and led by Dr. Sam Clark (Agincourt DSS). The group was to develop a new monograph: *INDEPTH model life tables for sub-Saharan Africa*.
- b) The Secretariat then asked **Dr. Sam Clark** and **Dr. Pierre Ngom** (formerly of Nairobi DSS) to lead the work. Unfortunately, Dr. Clark declined to do the work and hence Dr. Ngom took sole responsibility of it.
- c) However, in order to get additional expert contribution to the work, the Secretariat recruited **Dr. Omar Ahmad** (University of Ghana, formerly of WHO) who is a leading author of the WHO publications on model life tables.
- d) After considerable progress with the work, Dr. Ngom and Dr. Ahmad facilitated an INDEPTH workshop on *Building Model Life Tables* in Elmina, Ghana in late October 2002. The Secretariat felt the need to bring site representatives together to

build/strengthen their capacities in model life tables. Workshop review reports showed that this was a prudent decision by the Secretariat.

- e) With the completion of a first complete draft of the monograph in mid 2003, the Secretariat arranged for peer review from **four** reputable international experts in the area. The process took about **four months** before all reviews were received. All the reviewers were agreed on the significance of the work and that it was worthy of publication. However, they made a series of recommendations for improvement.
- f) A book proposal was written and the Secretariat used this to look for potential publishers in Africa, UK and US. **Ashgate Publishers** in the UK accepted to publish the monograph after the proposal received a good review from their experts. (This report is available from the Secretariat on request).

2.1.1.2 Current Status

- a) A revised complete draft of the monograph is available. A further review arranged by the Secretariat raised some other issues which must be addressed by the authors.
- b) **Dr. Ayaga Bawah** (Navrongo DSS) was asked by the Secretariat to assist Dr. Ngom in addressing the comments of the reviewers.
- c) Ashgate publishers, UK have been contracted by the Secretariat. 1000 buybacks were paid for upfront.

2.1.1.3 Work Plan in 2004

- a) The lead authors have indicated that they would complete addressing the comments and will submit a final manuscript to the Secretariat in January 2004.
- b) The Secretariat will contact an internationally reputable demographer to write a foreword to the book.
- c) The Secretariat will then submit a final text to Ashgate Publishers, hopefully in February 2004.
- d) The publishers will do copyediting and return the manuscript to the Secretariat within 3 months.
- e) Publication is expected in the second half of 2004.
- f) The Secretariat will arrange with the publishers so that a pre-print or at least a bookblurb of the publication will be displayed at the Hanoi AGM in May 2004.

2.1.1.4 Budget

\$1000 (For any further work)

2.1.2 Causes of death at INDEPTH Sites

The comparative analysis of all-cause mortality in the INDEPTH monograph volume 1 was well received internationally. The Secretariat is however convinced that a product on INDEPTH's ability to report cause of death will be much sought after by diverse constituencies. Efforts have therefore been ongoing to collate and analyze cause of death data generated by verbal post-mortem as well as hospital recording from INDEPTH sites. In this regard, the Secretariat has collaborated with the MTIMBA project which focuses on malaria-specific mortality. The chapters from the respective sites will be used for comparative analysis. It is envisaged that this monograph with reliable cause-specific mortality data for the participating sites will be extremely valuable in determining control activities and implications for research agenda in our sites. This activity has gone side by side with the

development of an INDEPTH standardized verbal autopsy (VA) tool for use by all sites so that comparable VA data will be generated.

2.1.2.1 The Process

- a) First template development INDEPTH/MTIMBA workshop to determine minimum characteristics for reporting cause of death data was held in October 2001 in Bagamoyo, Tanzania. This workshop also reviewed an earlier version of the **INDEPTH verbal autopsy questionnaire**. Representatives from WHO participated.
- b) An editorial committee was set up in October 2001. Very little progress was made. *It should be noted that some people opt to such committees probably only to be named. They display very little commitment. Hence the Secretariat has had to come in several times to ensure that work is continued, either by disbanding the initial groups or instituting other measures.*
- c) Several face-to-face meetings of editors/MTIMBA PIs had to be held in Accra in 2003 in which the first 15 site chapters were edited and other issues considered.
- d) An INDEPTH/MTIMBA was held in Maputo, Mozambique in August 2003.
- e) Given the importance of this monograph, the Secretariat further undertook desperate efforts to involve as many INDEPTH sites as possible. A new data template was sent out to all sites and a meeting was held in late October 2003 in Ho, Ghana on the topic.
- f) The Secretariat has recruited **Mr. Martin Adjuik** (Navrongo DSS) and involved **Prof. Tom Smith** (Swiss Tropical Institute, Basel) for the comparative analysis of the data.
- g) It is noteworthy that data access from INDEPTH sites has been poor.

2.1.2.2 Current Status

- a) An INDEPTH standardized VA tool was distributed out to all INDEPTH sites on CD at the Accra AGM in February 2003. This is also available for download on the INDEPTH website.
- b) Prof. Fred Binka has assumed responsibility of the INDEPTH Cause-Specific Mortality working group.
- c) The Secretariat has received cause of death data from most of the sites that conduct VAs on recorded deaths.
- d) Sites are addressing the editors' comments on their site-specific chapters.
- e) Mr. Adjuik, Prof. Binka and Prof. Smith have been working on the comparative data analysis.
- f) A draft book proposal has been written by the editors.

2.1.2.3 Work Plan in 2004

- a) The Secretariat will contact sites to submit revised chapters.
- b) An editors' meeting is necessary to finalize chapters and comparative analysis.
- c) Finalize book proposal and search for a suitable publisher.
- d) The Secretariat to identify and contact reviewers
- e) Editors and site authors to address reviewers' comments
- f) The Secretariat to identify and contact a reputable person to write the foreword
- g) After identifying a publisher, the Secretariat to negotiate publication and buybacks.
- h) Send copyeditor's comments to editors or site authors and arrange to return a final text back to publisher.
- i) Book expected to be published in the 3rd quarter of 2004.
- j) Perhaps it could be possible to arrange for a bookblurb for display at the Hanoi AGM

2.1.2.4 Budget

\$30,000 (meeting to finalise work; 1000 buybacks from publisher)

2.1.3 Measuring Health Inequalities and Inequity through DSS

The objective of the INDEPTH health equity Phase I study was to determine the relationship between specific, individual-level and household-level socio-economic factors and inequity of health outcomes, in order to assist program and policy makers to overcome health status disparities and improve overall health status. Specifically, the study intended to examine how gender, education, occupation, social connectivity and other socio-economic status proxies (e.g. housing and water source) relate to mortality in various population subgroups.

2.1.3.1 The Process

- a) The Secretariat funded 13 sites to carry out small-scale projects.
- b) The 13 participating sites were asked to write reports and submit to the Secretariat.
- c) It was agreed that these reports should form the basis of an INDEPTH monograph. Consequently, an editorial committee was constituted at the Addis Ababa AGM in January 2002 and led by **Dr. Abdur Razzaque** (Matlab DSS). This committee was to review the reports from the sites and restructure them into publishable chapters for a book.
- d) After a long wait, the Secretariat was able to receive the following contributions from the sites:
 1. Agincourt, **South Africa**: *Socio-economic status and child mortality in a rural sub-district of South Africa.*
 2. Dikgale, **South Africa**: *Socio-economic status and the diagnosis, treatment and control of hypertension in Dikgale.*
 3. Bandim, **Guinea-Bissau**: *Maternal vulnerability and child survival in West Africa.*
 4. Butajira, **Ethiopia**: *Assessment of inequalities in morbidity and mortality in rural Ethiopia.*
 5. Navrongo, **Ghana**: *Health inequalities in the Kassena-Nankana district.*
 6. Nouna, **Burkina Faso**: *Health inequalities in the rural district of Nouna.*
 7. AMMP, **Tanzania**: *Trends in inequalities in under-five mortality.*
 8. Ifakara, **Tanzania**: *Child health indicators – equity perspective.*
 9. Rufiji, **Tanzania**: *Initial studies on health inequalities in the Rufiji river basin, coastal Tanzania.*
 10. Farafenni, **The Gambia**: *Parent’s socio-economic status and social support as risks for child mortality: consideration for health equity.*
 11. Filabavi, **Vietnam**: *Inequity in health and health care utilisation.*
 12. Matlab, **Bangladesh**: *Health equity and inequality: evidence from Bangladesh.*
 13. Watch, **Bangladesh**: *Reaching the disadvantaged: identification of gaps and needed interventions to promote health equity in rural Bangladesh.*
- e) The Secretariat has had to provide support and leadership to the editorial committee since things were not moving forward. International experts were identified to review the reports. These were sent to the sites to address. Due to lack of progress, the Secretariat organised in **January 2003** a meeting of authors and brought in resource persons to help the authors – Prof. Saul Morris (London School of Hygiene and Tropical Medicine) and Dr. Dave Gwatkin (World Bank Health Equity Consultant).

- f) After another 6 months without much progress, the Secretariat again led the editorial committee in its work. Sites were constantly appealed to, to submit their revised chapters indicating how they addressed the reviewers' comments.
- g) The revised chapters were sent by the Secretariat to the reviewers. A further review indicated that considerable work still must be done by many of the sites. The reports were again sent back to the sites in the 3rd quarter of 2003 and the Secretariat constantly followed up for revised chapters.
- h) Meanwhile a book proposal was written and used to search for publishers.

2.1.3.2 Current Status

- a) 12 sites have now completed and submitted to the Secretariat a second revision of their chapters. The remaining site is expected to submit its revised chapter in January 2004.
- b) **Dr. Tim Evans** has agreed to write a Foreword to this publication.
- c) **Dr. Dave Gwatkin** has agreed to write a synthesis chapter.
- d) **Dr. Saul Morris** has agreed to write a chapter summarising the methods used.
- e) **Ashgate Publishers** in the UK has accepted to publish this book, after a good review of the proposal (Copy of report available from the Secretariat on request)

2.1.3.3 Work Plan in 2004

- a) The Secretariat will assist the editorial group to obtain the chapters from Dr. Gwatkin, Dr. Morris and the foreword from Dr. Evans
- b) A meeting of editors will be necessary to finalize the work
- c) Final text will be submitted to the Publishers by March 2004
- d) Publishers to return copyedited manuscript to the Secretariat within 3 months.
- e) The Secretariat will get editors/site authors to respond to Publishers' comments quickly.
- f) Publication is expected later in the year.

2.1.3.4 Budget

\$14,000

2.2 Health Equity II

The INDEPTH Health Equity I study described in 2.1.3 above demonstrated that large disparities exist in terms of health outcomes among different socio-economic subgroups among populations in INDEPTH sites that cover small geographically defined populations. With this evidence, the Network has decided to move to the next stage to try to develop intervention studies that will have a pro-poor focus. The idea is to manipulate existing interventions to have a pro-poor focus in order to inform policy.

2.2.1 The Process

- a) Workshop in Accra, Ghana in January 2003 to agree on possible interventions and draft a call for letters of intent.
- b) Call for letters of intent circulated to sites and published on the INDEPTH website. Interested sites submitted LOIs.
- c) Secretariat requested expert review of the LOIs and the following intervention groups were identified:

- Prevention and home management of malaria
 - Voluntary counselling and testing (STI and HIV/AIDS)
 - Community health insurance interventions
- d) The following sites were asked to develop their proposals:
- Navrongo, Ghana
 - Ifakara, Tanzania
 - Dikgale, South Africa
- e) International experts were identified to review the proposals. Their comments were sent to the sites.
- f) In order to move the process, the Secretariat invited Dr. Nathasha Palmer (London School), Dr. Irene Agypong (Ministry of Health, Ghana) and Dr. Kabir Cham (WHO, Geneva) to facilitate a proposal development workshop in October in Ho, Ghana.

2.2.2 Current Status

- a) The following intervention groups identified:
- Prevention and Home Management of Malaria
 - Voluntary Counselling and Testing (STI & HIV/AIDS)
 - Community Health Insurance interventions
- b) The following proposals approved for network funding, and sites are being contracted.
- Evaluation of an outreach program to increase participation of poor women in PMTCT program in the Dikgale DSS, Limpopo Province, South Africa.
 - Reaching the poor with VCT and TOIs: An incidence research. Ifakara Research Centre.
 - Will community lay counsellors improve access to voluntary counselling and HIV testing services for the poor in Ghana? - A quasi-experimental study in the Kassena-Nankana district.
- c) An INDEPTH tool for measuring socio-economic status has been developed.

2.2.3 Work Plan in 2004

- a) The Secretariat will monitor the implementation of the proposals
- b) The Secretariat will seek and fund additional proposals as well as the development of the Health Equity Tool.

2.2.4 Budget

\$250,000

(Further details on HE – Annex (9.1.2))

2.3 ACAP-INDEPTH Collaboration

Recognizing that both African censuses archived by ACAP and the Demographic Surveillance Systems (DSS) coordinated by the INDEPTH Network produce vast and complementary kinds of demographic data for Africa that offers an exciting potential to examine African population and health, a collaboration between the two institutions was consolidated. The main objective of this collaboration is to pool the resources and expertise of ACAP and INDEPTH to undertake high-quality joint research projects in order to inform demographic and health policy in Africa. In particular, the collaboration seeks to achieve its objectives through research and training involving:

- Exchanging experiences and expertise of research fellows working on specific topics that use both types of data.

- Facilitating access to defined data banks by project researchers.
- Joint research projects on patterns, characteristics, and trends in African population and health using census, survey, and demographic surveillance system data. This research will result in jointly published research.
- Co-organize workshops, seminars, and conferences to disseminate findings to policymakers and to enhance the research capacity of African researchers.

2.3.1 *The Process*

- a) The first step of the collaboration started with a few INDEPTH sites that had the capacity to contribute the basic data needed for investigating common research topics. Based on mutual understanding between INDEPTH and ACAP, **Burkina Faso, Ghana, Mozambique, Senegal, South Africa, and Tanzania** were selected for the initial phase and served as demonstrative examples of the usefulness of the collaboration.
- b) **Dr. Ayaga Bawah** was recruited as coordinator for the program. Office space in the INDEPTH Secretariat was provided for him.
- c) A workshop on *Demography and Health in Africa* was held in December 2002 in Bellagio, Italy where the strategy for the collaboration was outlined and a joint research agenda was adopted.
- d) Efforts were made to create the required datasets for the program.
- e) Dr. Bawah made two trips to ACAP in the US to work on a proposal.

2.3.2 *Current Status*

- f) Joint research agenda developed.
- g) Datasets for the research program successfully created and preliminary analysis completed.
- h) A proposal is being developed for submission to NIH.

2.3.3 *Work Plan in 2004*

- i) Complete NIH proposal.
- j) Expand programme to involve more INDEPTH sites and ACAP collaborators in Africa.
- k) Data analysis and possible publications.

2.3.4 *Budget*

\$204,800

2.4 Grand Challenge 13

GC 13: Develop technologies that permit quantitative assessment of population health status

Together with the London School of Hygiene and Tropical Medicine, UK, the Swiss Tropical Institute in Basel, Switzerland and Sattellife, USA and ACAP, INDEPTH has recently submitted an LOI to the NIH for the Gates Grand Challenge 13.

Title:

Establishing a Sentinel Model of Population Health Surveillance for Measuring Health and Disease, Evaluating Interventions, and Guiding Equitable Health Policies in Developing Countries

Building on the firm foundation of this network of surveillance sites, the goal of the proposed program of research is **to establish a fundamentally new sentinel health and disease surveillance model to inform optimal delivery and evaluation of interventions, strengthen health systems, and contribute to a global database for equitable health development.**

2.4.1 Plan 2004

It is hoped that INDEPTH will be invited to submit a full proposal. Consequently, we will need **at least one, if not more workshops** to work up a full proposal. Possible groupings that might lead to separate workshops:

- 1) The computing side: PDAs, algorithmic coding, and smart cards.
- 2) The statistical and demographic side: Extrapolation, GIS and modeling.
- 3) The social science side: Morbidity surveillance, risk factors, and policy influence.

2.4.2 Budget

\$50,000

(see LOI – annex (9.1.5))

2.5 Interest Groups

2.5.1 Assessment of Interventions – INDEPTH Health Intervention Trials Platform

The goal of this initiative is to enable participating INDEPTH sites compete effectively on the international arena for health intervention trials, thereby validate and confirm the intrinsic value of INDEPTH as a solid intervention trials platform in developing countries. A first phase of the platform will concentrate on sites in Africa and will involve writing a proposal that will focus on activities related but not limited to: Cohort identification; Epidemiology for current and other diseases; GCP/GLP; Ethics and Ethical certification from NIH and other established bodies elsewhere; and Data analysis for clinical trials.

2.5.1.1 Current Status

- a) The following 12 INDEPTH sites have accepted to take part in the first phase of the proposed platform. The Secretariat has received the names of site PIs. **Navrongo** (Ghana); **Nouna** (Burkina Faso); **Ifakara** (Tanzania); **Manhica** (Mozambique); **Africa Centre** (South Africa); **Magu** (Tanzania); **Butajira** (Ethiopia); **Rufiji** (Tanzania); **Bandim** (Guinea Bissau); **Farafenni** (The Gambia); **Agincourt** (South Africa); and **Rakai** (Uganda).
- b) The Secretariat developed a template for detailed site profiles and is now urging sites to submit their profiles.
- c) A draft proposal for the platform has been prepared by the Secretariat.

2.5.1.2 Work Plan in 2004

- a) All sites are expected to submit their detailed profiles.

- b) A meeting of the PIs is planned for March 2004 to develop the Secretariat's draft proposal and agree on the way forward.
- c) Potential funders including the EDCTP will be contacted.
- d) Further plans will be agreed on at the meeting of PIs.

2.5.1.3 Budget

\$70,000

(Further details – Annex (9.1.1))

2.5.2 Adult Health and Aging

The increasing emergence of incidence of non-communicable diseases being witnessed in many developing countries, especially in Africa and Asia calls for an active program to monitor adult health. The Network would support sites that may be interested in collecting prospective data on the major risk factors, which predict chronic diseases in adults.

An Adult Health and Aging workshop was held in Johannesburg, South Africa in November 2003 which has charted the way forward. A proposal for funding is expected from the group.

2.5.2.1 Budget

(See Workshops (3.2) and Annex (9.1.4) for further details)

2.5.3 Migration and Urbanisation

The migration & urbanisation study plans to conduct a comprehensive analysis of population migration and urbanisation trends across multiple countries and continents. INDEPTH will co-ordinate and standardise existing site-level data to enable the comparison of data and finding across multiple sites and countries. A workshop was held in South Africa to agree on data structure and other issues for a proposed monograph on mobility and mortality at INDEPTH sites.

The group has submitted a proposal to the Secretariat for a Workshop in February in Kisumu, Kenya.

2.5.3.1 Budget

(See Workshops (3.2) and annex (9.1.3) for further details)

2.5.4 Environment and Health

INDEPTH member sites have the capabilities to monitor the health consequences of environmental change. DSS data can be linked to geographic and meteorological data using remote sensing (RS) and geographical information system (GIS).

A draft concept paper has been developed. The group will submit a proposal for funding a workshop to develop a fundable proposal.

2.4.1 Budget

(See INDEPTH Workshops (3.2))

2.6 Other Products

2.6.1 INDEPTH Technical Notes Series

The INDEPTH Technical Notes Series is a series of guidelines on various practical methods and techniques of possible use or interest to demographic surveillance site operations. They are published by INDEPTH online as a service to INDEPTH Network site members. They are neither peer-reviewed nor represent recommended methods of INDEPTH, but rather provided as is. Member sites are encouraged to share practical methodological guidelines with each other through the series, and to improve upon such methods in subsequent numbers of the series. The first note published is:

Rose Lusinde, Honorati Masanja, Eleuther Mwangeni, Marlies Craig and, Don de Savigny (2003). **Obtaining rainfall estimates from satellite remote sensing – A step-by-step technical guide for INDEPTH DSS sites.**

2.6.2 INDEPTH Working Paper Series

This online series of working papers is to disseminate the research findings from demographic surveillance system (DSS) sites and related work to a wider audience of demography, epidemiology, biostatistics and social science researchers, both inside and outside academics, and to those interested in policy research. The INDEPTH Working papers represent an opportunity for DSS site members and their collaborators to publish results of research projects in process. By circulating the full text to colleagues and practitioners, valuable feedback and suggestions for improvements and directions can be made.

Site chapters or INDEPTH articles being developed for international journals could be published in this series as prepublication articles.

2.6.3 INDEPTH Papers in International Journals / Publications

The INDEPTH Secretariat has received two invitations to contribute papers. Authors are commissioned by the Executive Director and listed with the suffix: on behalf of the INDEPTH Network.

- f) Sankoh, OA, Ngom, P, Clark, S, de Savigny, D and Binka F, on behalf of the INDEPTH Network (in press). **Levels and Patterns of Mortality at INDEPTH sites in Sub-Saharan Africa.** In Bos, E et al. (editors) *Disease and Mortality in Sub-Saharan Africa – Volume 2*, Oxford University Press.

This is a World Bank initiative. A prepublication will appear as a World Bank Working Paper.

- g) Sankoh, OA and Binka, F, on behalf of the INDEPTH Network (currently being written). **Generating empirical demographic and health data in resource-constrained communities in developing countries.** Invited by the Journal of American Medical Association for its Theme Issue Global Health to be published in June 2004.
- h) Sankoh, OA and Binka, F, on behalf of the INDEPTH Network (currently being written). **INDEPTH Network – A viable platform for malaria risk assessment in developing countries.** In Martens, P et al. (eds), *Proceedings of the Frontis Workshop on Environmental Change and Malaria risk*, Wageningen University, The Netherlands.

3. Capacity Building

3.1 The INDEPTH Scientific Development and Leadership Program

Approved by the Board and endorsed by the General Assembly, the INDEPTH Scientific Development and Leadership Program aims to develop – in a first phase – a genre of African scientists from INDEPTH sites and elsewhere through practical on-the-job training in a unique Masters program that combines epidemiology, biostatistics, demography and other social sciences with a focus on demographic and health surveillance in developing countries. Such scientists would have the capacity to have negotiating power to engage external collaborators, compete effectively for international resources, and take leadership roles at their workplaces.

3.1.1 The Process

- a) Secretariat drafted a concept paper late 2002. First discussed in November 2002 at a retreat and then in an expert meeting in January 2003 in which concept was refined and possible strategies outlined.
- b) Concept presented to the General Assembly at the Accra AGM in February 2003.
- c) WHO/TDR involved in the development process.
- d) Call for an African university published in international media and applications reviewed by a team of experts leading to the selection of the University of Witwatersrand in Johannesburg, South Africa.
- e) INDEPTH and Wits University had a first meeting in December in Johannesburg.
- f) Call for INDEPTH sites that will host the field work drafted.

3.1.2 Current Status

- a) Call for INDEPTH sites undergoing review by site leaders.
- b) Program set to start in early 2005. Both INDEPTH and Wits University are agreed on the next steps.
- c) INDEPTH support (seed money) to Wits University transferred.
- d) Call for a coordinator has been published on the WHO/TDR and INDEPTH websites.

3.1.3 Work Plan in 2004

- a) INDEPTH expects an M.Sc. curriculum to be drawn up by Wits University.
- b) Applications from INDEPTH sites to be reviewed, and three to be selected.
- c) Selecting a Northern Partner.
- d) Development of INDEPTH-Wits-Northern Partner joint proposal.
- e) **Major activity will be fundraising** in the second half of the year. Potential funders:
 - i. Rockefeller Foundation
 - ii. Gates Foundation
 - iii. European Union
 - iv. USAID
 - v. Sida/SAREC
 - vi. WHO/TDR (especially for distance learning materials)
- f) Call for students to be written by Wits University.
- g) INDEPTH to sponsor 5 students; TDR to be contacted to sponsor students.
- h) The Secretariat will continue to monitor developments.

3.1.4 Budget

\$415,00 (see annex (9.2.1) for further details)

3.2 INDEPTH Workshops

INDEPTH utilizes Working Groups (WG) and Interest Groups (IG) dedicated to key issues of interest to the Network. These groups submit proposals to the Secretariat for workshops. The Secretariat may also consider organizing workshops in areas that are not covered by working groups.

In 2003, a good number of workshops were organized both by the Secretariat and by conveners of WGs and IGs. Most of these have been mentioned above in the appropriate sections. Additional workshops held were the **Multilevel Analysis workshop** organized by the Analysis WG in October 2003 in Nairobi, Kenya and the **SQL workshop** organized by the Data Systems WG in November 2003 in South Africa.

In 2004, in addition to workshops expected to be organized by Working Groups presented above, it is expected that the Secretariat will fund proposals for workshops from the following Interest Groups: **Adult Health and Aging, Migration and Urbanisation, and Environment and Health.**

Furthermore, the Secretariat is planning to organize a series of **capacity-building/strengthening workshops**. These will include workshops for **site leaders on research leadership**, for **data managers**, and for **financial managers** in INDEPTH sites.

3.2.1 Budget

- **Capacity building:** **\$70,000**
- **Interest Groups:** **\$175,000**

3.3 Health Informatics

The objectives of this activity are:

- Technical support to the University of Ghana to develop a new programme in **HEALTH INFORMATICS** to strengthen the capacity in research and use of computer-based tools and information management in health care delivery: data storage, information retrieval, data analysis, and data communication
- Develop capacity of INDEPTH member-sites by supporting 2-3 students from INDEPTH sites to participate in this programme. The purpose is to develop people who can take over from Prof. Bruce Macleod (University of South Maim, USA) who has so far been responsible for the development and support of the HRS software that is used by quite a number of INDEPTH Sites

3.3.1 Budget

\$95,000 (see annex (9.2.2) for further details)

4. Support Services by the Secretariat

The principal overall responsibilities of the Secretariat are to:

- Identify key health and social issues and questions that need to be investigated
- Maintain donor relations and generate funding for network-level studies and evaluations
- Efficiently coordinate and support the conduct of network studies and evaluations
- Publish and disseminate results to impact health and social policy and practice
- Promote DSS and its capabilities
- Position INDEPTH among regional and international institutions

In addition to the above responsibilities, the Secretariat provides diverse support services to INDEPTH sites.

4.1 Web sites – improving internet access for member sites

To help enhance visibility of member-sites, the INDEPTH Secretariat has been assisting **desiring** member-sites in the registration, development, hosting and maintenance of their own websites. A few sites utilised this assistance. In 2004 this offer by the Secretariat will remain open. Sites with communications problems are expected to contact the Secretariat and ask for assistance.

Other work will include the following: maintenance of the websites developed for sites; maintenance of the INDEPTH website and intranet; provision of reliable internet connectivity in the Secretariat; and provision of in-house support services.

4.1.1 Budget

\$10,000

(see annex (9.3.3) for further details)

4.2 Secretariat

INDEPTH is led by the Secretariat, headed by a full-time Executive Director. Additional network support capabilities are to be provided through a Communications and External Relations Manager, an IT Manager, an Administrative Officer, an Accountant and an Administrative Secretary.

In identifying key issues and raising funds for network studies, the Secretariat maintains ongoing dialogues with sites and with key donors and other stakeholders. In developing specific proposals the Secretariat will work closely with interested sites to build a Working Group and nominate the Principal Investigator.

4.2.1 Budget

\$330,020 (salaries)

\$47,500 (running cost)

(see budget (8) for further details)

4.3 Board of Trustees

The Board of Trustees provides oversight for the activities of the Secretariat. An elected Chair leads the Board of Trustees. The Board's primary role is to provide oversight and accountability for the activities of the Secretariat and network as a whole. The Board was able to appoint three members to complete its membership. These are **Dr. Don de Savigny**,

Dr. Regina Rabinovich, and **Dr. Anita Sandstrom**. At the Accra AGM in February 2003, **Dr. Bocar Kouyate** and **Prof. N.T.K. Chuc** were reelected and **Dr. Hassan Mshinda** was elected to the Board.

In 2003, the Secretariat organised one face-to-face meeting of the Board and 2 telephonic conferences.

In 2004, the first Board meeting will be held in Akosombo, Ghana on 5-6 February. The second meeting is expected to be held in Hanoi about 30 April – 1 May 2004 just before the AGM. Further meetings will be determined.

At the Hanoi AGM in May 2004, the terms of office of **Prof. Steve Tollman**, **Dr. Alex Ezeh** and **Dr. Kim Streatfield** will come to an end. They qualify for reelection.

4.3.1 Budget

\$40,000

4.4 Scientific Advisory Committee

In establishing a Scientific Advisory Committee, the INDEPTH Network and its Board of Trustees are seeking guidance, scientific review and leadership from a group of international experts who are capable and willing to assist the Network through advice to the Secretariat and the Board of Trustees, in maintaining its focus on critical health, population and social issues and areas of greatest potential impact. The SAC will encourage linkages between INDEPTH and related agencies, research bodies and networks and it will help the Network maintain the highest scientific standard for INDEPTH studies. The SAC, through its Chairperson, will provide advice and recommendations to the Network Secretariat and to the Board, on the research and development portfolio of the Network.

In 2003, the Secretariat organised one face-to-face meeting of the SAC and one telephonic conference. **Prof. Jane Menken** was appointed Chair and **Prof. Stig Wall** deputy Chair.

In 2004, it is expected that the SAC will hold face-to-face meetings (the first in Hanoi at the AGM) and telephonic conferences. These will be organised by the Secretariat.

4.4.1 Budget

\$50, 000

4.5 Annual General and Scientific Meeting

The Annual General and Scientific Meeting (AGM) is the General Assembly of the Network that takes final decisions on issues tabled by the Board and/or the Executive Director. The AGM generates the scientific agenda through its working groups and reviews progress of joint work undertaken. In addition, INDEPTH utilizes its AGM as a Scientific Forum for members to share their experiences in Demographic Surveillance in the form of presentations of scientific papers. Posters are also presented at the AGM especially by young scientists who are sponsored by the Network.

The 3rd AGM was held in Accra, Ghana on 3-7 February 2003. It was organised in Accra by the Secretariat on short notice when unforeseen circumstances made it impossible for the

selected hosts – Matlab, HSID and Watch in Bangladesh – made it impossible for the AGM to be held in Dhaka.

The next AGM – the 4th – will be held in Hanoi, Vietnam on 3-7 May 2004. This will be organized on behalf of the Secretariat by Filabavi DSS and Hanoi Medical School, Vietnam. The Secretariat is currently providing the necessary support to the organizers.

About **70 participants** are expected to be funded by the Secretariat. The majority of the participants will come from Africa. This will increase the total AGM cost. Consequently, the Secretariat will **fund only one participant** from INDEPTH sites.

4.5.1 Budget

\$120,000

4.6 Funded New Proposals

4.6.1 INDEPTH Starter Kit

The distribution of countries with INDEPTH member sites shows that there is a heavy clustering of countries with DSS sites in some regions whereas there is an apparent lack of DSS sites in certain parts of the world that most need them.

It is noteworthy that the INDEPTH Secretariat has had overtures from potential new sites in Chad, Uganda, and Nicaragua.

Since there has been no practical guidelines on how to set up a DSS site, many new sites have suffered from making avoidable mistakes and have had long gestation periods. The INDEPTH Secretariat is aware of the problems some of these people find even when they have secured funding to establish a DSS site. Sites that did start well benefited from site visits of technical people from other sites.

The Secretariat wishes to produce in the first instance a generic INDEPTH Site Starter Kit that demonstrates how to start a DSS site from scratch in a typical rural area. Modules for more specialised sites such as urban sites will be developed later. The comprehensive kit will be used by researchers to start a new DSS site with little difficulties. It will be a prudent collection of previous experiences made by sites that are now fully operational.

The proposal was submitted to the Rockefeller Foundation Africa Office in Nairobi, Kenya. The Secretariat has received news that the proposal was successful and the Rockefeller Foundation has provided funding for the proposed activities. The activities should be completed within six months.

4.6.1.1 Work Plan in 2004

A meeting of participants from 5 selected established DSS sites and 1 potential DSS site (as user of the starter kit) will be organized. The sites will be selected by the Secretariat with a focus on recently started or very typical scale sites.

Activity	Duration
Meeting of 5 established sites, 1 user and the	1 week

Secretariat	
Desk work to put the information together	1 week
Prototype Field Test	2 weeks
Finalise Document	1 week
IT work to create web document	1 week
Translate document into French	1 week
Disseminate document	

4.6.1.2 Budget

\$45,100 (Amount funded by the Rockefeller Foundation Africa Office)

4.6.2 Collexis Project

The main goal of the proposed Sida project is to offer all technology and content available to I2A (**FingerPrinting technologies**) from the practical work of all INDEPTH members, initially via an ASP at the headquarters, possibly followed by local installations where desired. Connecting the content of INDEPTH interactively to major health information resources like the Cochrane Library, MedLine and Free Medical Journals will be the scope of the first common project. Connecting INDEPTH to the global initiatives that are set up to connect all available genetic, proteomic and epidemiological data, like E-BioSci is an ambition.

4.6.2.1 Budget

Funded by Sida/SAREC

(See annex (9.2.3) for further details)

5. Fundraising

The Secretariat is delighted about the grants from the Rockefeller Foundation (\$1.5 million – 2002-2005) and the Wellcome Trust (\$300,000 – 2002-2205) toward core institutional support for the Network. However, we are concerned that the Network has still not been able to raise funds through its research and capacity building/strengthening activities. This is especially for the fact that the Secretariat has defined its work plan and some of the activities such as the INDEPTH Scientific Development and Leadership Program that require large funds are already underway.

Sida/SAREC grant to the Secretariat ended in 2003. However, the Secretariat has successfully negotiated with Sida/SAREC for continued funding for the four-year period 2004 – 2007.

The World Bank has approved its third year of funding at current level to the Secretariat. A substantial part of this amount will go into intervention studies.

The Secretariat is currently developing a new generic proposal for core funding to approach new potential funders including USAID, Ford Foundation and Hewlett Packard Foundation.

Project-based funding is another strategy the Secretariat will pursue in 2004. Plans are underway to develop proposals for establishing the health intervention trials platform and the Grand Challenges.

Following Bill and Melinda Gates' visit to Manhica DSS in Mozambique, the Secretariat is convinced that these philanthropists are now aware of the significant role played by DSS activities in measuring the health status of populations in resource-constrained communities. Consequently, the Secretariat has decided to write to Dr. Klausner, Director of the Gates Foundation requesting a meeting in Seattle, USA where INDEPTH can present itself.

The Secretariat will have to negotiate with funders so that unspent amounts may be put into the Network's trust fund.

5.1 Budget

\$73,000 (see annex for further details)

6. Site Visits

The Secretariat is very often received questions about from Donor agencies and other organisations about the activities of INDEPTH sites for example; Projects carried out by INDEPTH sites, facilities available in sites, Human Resource Capacities, readiness to participate in clinical trials, etc. The Secretariat has designed various questionnaires that are sent out to sites, but so far responses from the sites have been slow and low. This year the Secretariat is embarking on a mission to know the sites better, and collect work with Site leaders and staff to provide the sort of information that the secretariat needs.

6.1 Budget

\$27,000 (Executive Director, IT and CER managers) See annex for more details

7. Information from the Secretariat

7.1 INDEPTH Bank Account in New York

The Secretariat is happy to inform that it has successfully opened up a business service account at the UBS International Bank in New York, USA. The Secretariat would like to thank Dr. Alex Ezeh who introduced the Executive Director to Mr. Peter Osemobor, Senior Vice President – Investments, New York International Group, UBS PaineWebber Inc. in New York. Mr. Osemobor provided invaluable guidance and support to the Secretariat throughout the process.

7.2 INDEPTH Charity Status in the US

The Secretariat is happy to inform that INDEPTH's application to the IRS in the US for charity status (501c) has finally being approved in January 2004. A "determination letter" which should be provided to all potential US funders is expected soon. The determination letter provides evidence that INDEPTH is considered a public charity and exempt from Federal income tax in the US.

7.3 INDEPTH Offices in New York

The Secretariat is happy to inform it secured a New York Virtual Office service which commenced in July 2003. This enables INDEPTH to have the following address in the US:

INDEPTH Network
Landmark Buildings
230 Park Avenue, Suite 864
New York, NY 10169
USA
Tel.: +1 212 295 2137
Fax: +1 212 295 2121
Email: indepth@landmark-offices.com

8. Budget

(See attached excel file)

9. Annexes

9.1 Proposals (Scientific Activities)

9.1.1 Health Intervention Trials Platform: Work Plan 2004

Mission

To enable participating INDEPTH sites compete effectively on the international arena for health intervention trials, thereby validate and confirm the intrinsic value of INDEPTH as a solid intervention trials platform in developing countries.

Aim

The main aim of the proposed activity is to establish an INDEPTH platform for the development of infrastructure, and human resource capacities at INDEPTH sites to conduct clinical trials on the following four poverty-related diseases: malaria, HIV/AIDS, TB and rotavirus.

Objectives

1. To collect epidemiological data and other information for current and other diseases researched on at the sites;
2. To identify suitable cohorts for the conduct of clinical trials;
3. To enable participating sites to have GCP and GLP accreditation;
4. To strengthen infrastructure and human capacity at those sites that have the basic infrastructure to conduct intervention trials;
5. To build infrastructure and human capacity at member sites that are willing to conduct such trials but do not have any such capacity;
6. To create a generic capability at INDEPTH sites to be able to negotiate with various international stakeholders with respect to intervention trails in developing countries, thereby creating a cadre of leaders at the site level who can effectively represent their sites;
7. To establish quality-control, regulatory and ethical procedures;
8. To build an INDEPTH health intervention trials monitoring unit including a site assessment manual; and
9. To establish INDEPTH data management, biostatistical and epidemiological procedures for intervention trials.

The Process

A. Secretariat Recruits INDEPTH Sites

The Secretariat prepared a concept and circulated this to INDEPTH sites, requesting sites who would like to participate to indicate their interest. The following 12 INDEPTH sites have accepted to take part in the first phase of the proposed platform.

Navrongo; Nouna; Ifakara; Manhica; Africa Centre; Magu; Butajira; Rufiji; Bandim; Farafenni; Agincourt; and Rakai.

All but one site have provided **names of PIs**. These were nominated by the site leaders. In most of the cases, they are not site leaders themselves. These PIs will be called to a meeting to work on a cross-site INDEPTH proposal which will be submitted for funding.

PIs and co-PIs:

- 1) **Agincourt:** Eftyhia Vardas
- 2) **Bandim:** Peter Aaby and Amabelia Rodrigues
- 3) **Navrongo:** Abraham Hodgson, Frank Baiden, Martin Adjuik
- 4) **Nouna:** Florent Some and Aly Sie
- 5) **Ifakara:** Rose Lema and Salim Abdulla
- 6) **Rakai:** Tom Lutalo and Fred Nalugoda.
- 7) **Farafenni:** Paul Milligan and Sam Dunyo
- 8) **Magu:** Mark Urassa, Raphael Isingo
- 9) **Butajira:** Mesganaw Fantahun
- 10) **Rufiji:** Eleuther Mwageni
- 11) **Manhica:** Eusebio Macete and Jahit Sacarlal
- 12) **Africa Centre:** NN

B. Proposal Writing

This phase involves writing a proposal that focuses on activities related but not limited to:

- Identify the corporate strengths and weaknesses of the platform
- Cohort identification;
- Epidemiology for current and other diseases;
- GCP/GLP;
- Ethics and Ethical certification from NIH and other established bodies elsewhere;
- Data analysis for clinical trials; and
- Develop a proposal to strengthen the capabilities as an INDEPTH-platform

The Secretariat has prepared a draft 'guide' proposal that has a Network-level and a site-specific section. This will be handed over to the site PIs to further develop.

C. Initial work

- The Secretariat recruited Ms Paulina Tindana (Navrongo DSS) who has a longstanding practical experience in ethical review board issues to support Ifakara DSS in the establishment of their ethical review board. This experience will be shared with other members.
- The Secretariat funded a workshop on HIV surveillance held at the Africa Centre in South Africa in September 2003. Most of the sites who will take part in the initial phase of the platform were encouraged to attend. The workshop focused on sharing experiences and charting a way forward.

Work Plan 2004

A. Two meetings are envisaged for 2004.

- 1 – bringing site PIs to develop the proposal
- 2 – relevant issue to be identified
- 3 – Communications (telephone, teleconference)

B. Capacity-building/strengthening activities

- 1 – Ethical review boards
- 2 – Training workshop on data collection and analysis

9.1.2 Health Equity Phase II

Introduction

The Health Equity meeting was held in Accra in January 2003. Subsequently a call for letters of intent for the second phase was published. The Secretariat received submissions from INDEPTH sites and arranged a review of them. Three out of the five initial areas of interest were considered for the next stage of the project. The three areas are HIV/AIDS, Malaria and Health Insurance. A call for proposals was then sent out to sites. The Secretariat was able to identify and bring experts in the three interest areas to facilitate in a second workshop which was organized in Ho, Ghana, from October 22-25, 2003 to help sites which have signed on to these three areas develop their concepts into full proposals.

The aim of the Health Equity project is to encourage INDEPTH sites to identify existing interventions in the districts and to develop pro-poor strategies and implement those strategies.

It was agreed at the Accra workshop in January, that all sites signing on to equity studies should also think of ways to develop the INDEPTH tool for measuring Socio-Economic Status of populations. Therefore participants were asked to indicate whether they were already collecting the necessary data (Assets, Household characteristics, Community level variables, Education, Nutrition and Anthropometric data) for the development of the tool.

Activities

Proposal Development Workshop

From October 21-24, 2003 the Health Equity Proposal development Workshop was held at the Chances Hotel in Ho, Ghana. There were seventeen participants from Asian and African Sites, together with three facilitators from the WHO- Geneva, London School and Ministry of Health, Ghana.

Being a proposal development workshop, the facilitators had a one on one meeting with all the PIs and their proposals were examined in detail. One unique feature of the workshop was that the PI's were encouraged to attend with their District Health Directors under whose jurisdiction the interventions were to take place.

The Executive Director made presentations on the INDEPTH Tool and it was agreed that all proposals should have sections aimed at the deploying the particular tool in the planned interventions.

The workshop was very interactive with proposals changing scope, focus and themes due to the presence of the various District Health Directors and guidance from the facilitators. By the close of the workshop all PI's were tasked to submit final proposals by end of November 2003 for evaluation and funding.

It is important to note that the November 2003 deadlines was met by all PIs. There were fourteen proposals in all received by the Secretariat. These were sent to four reviewers under the topics; Health Insurance, Malaria, and VCT/HIV-AIDS.

Current Status

Based on comments from the reviewers, three proposals were accepted with modifications for funding. The three proposals were all on VCT/HIV-AIDS. Funds have been provided for these interventions.

The portfolio of studies funded were very highly commended by The World Bank, urging INDEPTH to do more work in this field where very little is going on in the world.

Finally the World Bank agreed to provide funds for the third year of funding to enable INDEPTH undertake studies planned for 2004.

Plans for 2004

Three funded studies will benefit from support by facilitators to ensure well-designed and well implemented studies.

There will be cross-site analysis of results from the studies.

A fresh call is being made for more small scale pro-poor interventions along the lines of EPI, Diarrhoea/ORS, TB and Malaria drug packaging at INDEPTH sites.

It is also proposed that INDEPTH sites that are not well placed to do interventions, would plan to deploy the INDEPTH SES tool. Deploying the tool will not only allow for evaluation of existing interventions, but would also provide opportunity to analyse data across INDEPTH sites related to Health Equity.

Funding of six additional studies would be made available in 2004.

9.1.3 Migration and Urbanisation

Proposal to hold a technical workshop in Kisumu, Kenya on 23-27 February 2004

Preamble:

Work in 2003 laid the foundation for a proposal to write an INDEPTH scientific monograph in Migration, Mobility and Health. The time-line involved the following steps:

An INDEPTH workshop was held in January 2003 at the Zebra Lodge near Johannesburg, funded by the Andrew W. Mellon Foundation. This got the scientific ball rolling for multi-site migration and urbanisation research in DSS sites. The meeting aimed to establish the state of research on migration and urbanisation in INDEPTH sites, to compare methodological approaches, to explore the actual processes of migration at respective sites, and to establish a multi-site research agenda. A committee was formed to give direction to the initiative.

At the INDEPTH Annual General and Scientific Meeting in February 2003 in Accra, the Migration and Urbanisation Working Group met to formalise the working group committee, establish representation from INDEPTH sites and outline a plan for a technical workshop.

In June 2003, the working group committee met to detail the steps needed to undertake the multi-site initiative. This included establishing the workshop plan, data specifications for sites and a monograph outline. These formed the basis of the first proposal written in September 2003. It became clear, however, that more information was needed, in particular to specify which sites were to be involved and who the resource people would be. The data specifications were then also reviewed by international experts and found to be lacking in some areas (notably, explanatory variables like household economic index, and a link to

health through mortality). To strive for the best possible monograph it was decided to ask site leaders what data they would be prepared to contribute.

In November 2003 a questionnaire was sent to site leaders asking them to commit to the monograph and nominate site representatives. To date, thirteen sites have given their commitment and endorsed the project. It is strongly felt that, with encouragement, another four or five sites will join. Thus, a date and venue have been set, two strong scholars on migration and health in developing world settings, namely Michael White and Sally Findley, agreed to support the project and confirmed commitment to the set dates.

This proposal describes the technical workshop aimed to be held in Kisumu, Kenya, in February 2004, funded by INDEPTH.

A second workshop is proposed as a follow up meeting of the editorial committee later in 2004. Funding for this will be sought from the Wits Mellon Migration Node, who have been the primary supporters of the initiative to date, and have asked to keep closely in touch.

The overall goal is, through an international collaboration of INDEPTH DSS sites, to study the patterns of migration and mobility, and how these impact on mortality in DSS sites. The product will be a scientific monograph presenting a unique empirical analysis and insight into movement patterns and their impacts in developing countries.

Workshop Title:

Data Preparation and Analysis for an INDEPTH Monograph on Migration, Mobility and Mortality.

Venue: Sunset Hotel, Kisumu, Kenya

Date: 23-27 February 2004-01-09

Hosts: Kisumu and Agincourt DSS sites

Funders: INDEPTH

Workshop aims:

The workshop aims to develop the technical component of the monograph, together with the site representatives from the multiple participating sites. Each participant will bring their DSS data and participate in training in various aspects of migration studies and technical aspects of the monograph.

AIMS:

(a) Delivery of datasets and site chapters from participating sites.

(b) Teaching in migration studies.

The teaching aspect of the workshop is meant to equip participating sites with the basic concepts used in migration studies, the range of available migration literature and disciplines as well as the analytical tools employed in such studies.

(c) Site presentations (to be critiqued for monograph)

Participating sites will make presentations on the context of migration in their sites, highlighting site-specific differentials in opportunities and risks associated with migration. The sites are also expected to describe the DSS methods they use to capture migration.

(d) Checking the data from each site

The MUWG committee will check the data from each site and offer a critique on how to improve the data.

(e) Data analysis

When datasets have passed the necessary quality checks data analysis will commence. These will also serve as teaching opportunities for the others to follow.

Proposed workshop programme:

- Day 1: (i) Introduction
(ii) Teaching
(iii) Site presentations
- Day 2: (i) Site presentations
(ii) Monograph data preparation
- Day 3: (i) Monograph data preparation and analysis
(ii) Monograph data analysis
- Day 4: (i) Monograph data analysis
(ii) Functioning of the working group
(ii) Wrap up

Workshop requirements:

Workshop participants will be expected to bring the following:

- (i) Laptop computer.
- (ii) The specified dataset
- (iii) Site presentations

A formal document giving site presentation guidelines and data specifications is available to be sent to participating sites. This document is attached to the proposal as an appendix.

Background of participants.

All the participants will be scientists competent to produce site chapters for the monograph. These tend to be demographers and public health scientists, who want to develop in the area of migration studies. All have been nominated by their site leaders.

Outcomes:

The outcomes of the workshop will have two dimensions, firstly, an expansion of the technical capacity within INDEPTH to conduct migration studies; and secondly to produce the material for the multi-site migration monograph. The presentations will be critiqued as precursors to the site chapters. The data will be prepared and preliminary analyses conducted. A re-phrasing of these outcomes is that the workshop will substantially progress the INDEPTH monograph on migration, mobility and mortality.

External Resource Persons:

- 1) Professor Michael White, Chair of Sociology at Brown University, Providence, USA. Respected scholar of migration and health in Ghana and China.
- 2) Professor Sally Findley, Center for Population and Family Health, Columbia University, USA. Professor of Clinical Population and Family Health, with extensive experience in migration and family studies in West Africa, particularly, Mali.

Participants

- a. Participants confirmed by site leaders in December 2003

DSS Site	Site Representative
Agincourt	Mark Collinson
APHRC	Eliya Zulu
Bandim	name pending
Filabavi	Nguyen Xuan Tanh
ICDDRБ	Alec Mercer
Kanchenaburi	Sureeporn Punpuing
Kisumu	Kubaje Adazu
Navrongo	George Wak
Oubritenga	Diadier Diallo
Rakai	Fred Nalugoda
Rufiji	Eleuther Mwageni
Oubritenga	Diadier Diallo
Vadu	Sanjay Juvekar
Wosera	Ivo Mueller

b. Potential participants who showed an interest in the AGSM in February 2003, but whose site leaders have not yet responded to the recent call for interest.

DSS Site	Site Representative
Purworejo	Nawi Ng
Magu	Mark Urrassa
Manhica	Ariel Nhacolo
Nouna	Gbangou Adjima
Butajira	Alemayehu Worku
Kintampo	Viyor Doku
Dikgale	Sandra Burger
Africa Centre	Kobus Herbst

Travel and accommodation plans:

Arrival for the workshop is planned for the evening before Day 1 or in the morning of the first day, while departure should be on Day 4 after the serious business of the workshop has drawn to a close. This means that the participants will require at least four nights of hotel accommodation while in Kenya. Given the distance involved between Nairobi and Kisumu, participants from outside the country will be expected to take another flight to Kisumu upon arrival in Nairobi. Those who arrive after the last flight to Kisumu has left will be expected to spend the night in Nairobi to await the following day's flight.

A total of 24 participants are expected at the workshop with 16 from African countries, 2 from the United States, and 6 from Asia.

Budget

The following is the proposed budget (in US\$) required for the workshop:

1) TRAVEL COSTS (INCLUDE NAIROBI-KISUMU ROUND TRIP)			
Country/Region	No. of participants	Cost per participant	Total cost
Africa	16	800	12800
United States	2	1600	3200
Asia	6	2000	12000
Total	24		28000
2) ACCOMMODATION COSTS (SUNSET HOTEL)			
Item	No. of days/nights	Cost per participant	Total cost
Bed and breakfast	4	40	3840
Meals	4	40	3840
Total			7680
3) PER DIEM			
\$20 per participant per day for 4 days			1920
4) ADMINISTRATION SUPPORT			
			300
Sub-total			37900
10% contingency			3790
GRAND TOTAL			41690

NOTE: It is hoped that savings made from the proposed travel expenses for participants from the African region would go toward the accommodation of those who would require accommodation in Nairobi the night before or after the workshop.

9.1.4 Adult Health

Key activities of the Adult Health & Aging initiative for 2004 and likely costs against them

1. Introduction of core + focal modules in INDEPTH sites.

17 participating sites have undertaken to introduce the core module and at least one of the proposed three focal modules (addressing cardiovascular risk, impact of death on a HH, and physical & cognitive functioning). It is this that will establish the INDEPTH Adult Health Platform. Clearly some work is still needed to finalise variables and standardise methods of measurement - however much was achieved in Oct/Nov. For the focal modules we are likely to have two levels: standard & extended.

Activities and costs:

a) Finalising core + 3 modules (variables + standardising measures): Jane Doherty with Steve, and working with Bawah (core module), Kathy (cardiovascular risk), Zamaan (HH death), Jaypee Sevilla (functioning).

Time/costs - 10 days of Jane Doherty @ \$500/day = **\$5,000**

b) Introduction of core to all (or majority) of involved sites

Clearly this is the fundamental step. It is hoped/expected that some sites will have sufficient in-house resources to introduce the core without needing top-up monies; others will clearly need support (see c) below).

c) Introduction of at least one focal module to all (or most) sites.

* In-house resources for some, though top-ups may be required since physical/BP/blood measurements involved in the 'extended' CVD Risk & Functioning modules

* ~ \$200,000 from NIA / R Suzman as part-contribution (to be confirmed)

* INDEPTH contribution \$50 - 100,000

2. Grant proposal development.

This is at the level of an NIH - RO1, will involve two to three RO1's as a package (Suzman recommendation), and will be seeking some \$300 - \$450,000 / year x 5years for each of the RO1's.

Costs/Personnel etc. Jane Doherty and Steve working with the Adult Health core team (Bawah, Kathy, Peter Byass, Stig Wall and potentially Jane Menken and Josh Salomon). Jane Doherty would work as primary proposal drafter, and would be contracted to undertake this. Cost for 2 months dedicated time, Jane Doherty: **\$20,000** (one month = \$10,000; rate of \$500 / day or \$60 / hour)

3. Analysis of existing work.

On review of the site level audit, it is clear that work underway greatly exceeds expectations. Peter Byass has offered to lead an analysis effort that will strengthen and extend adult health analyses of existing data, and provide a major input to grant proposal development. Peter suggests a 2-step process involving a research planning phase (one day attached to AGM), followed by competitive review of analysis proposals (no cost), and then an extended analysis workshop with output geared towards peer-review publication.

a) one day and one night (Fri eve & Saturday) immediately following the INDEPTH AGM in Hanoi - say 20 participants in AGM meeting hotel.

b) major analysis & write-up workshop - cost unlikely to be less than **\$40,000**

9.1.5 Grand Challenge 13 - Letter of Intent

Grand Challenges in Global Health: Challenge 13 – Letter of Intent INDEPTH Network Final Version as Submitted January 8, 2004

Grand Challenge 13

Measure disease and health status accurately and economically in developing countries specifically through development of technologies that permit quantitative assessment of population health status.

Title:

Establishing a Sentinel Model of Population Health Surveillance for Measuring Health and Disease, Evaluating Interventions, and Guiding Equitable Health Policies in Developing Countries

Principal Investigator:

Binka, Prof. Fred, Newton. Executive Director, INDEPTH-Network, Accra, Ghana

For a consortium of collaborators from INDEPTH DSS network sites in Africa, Asia and Oceania, plus the London School of Hygiene and Tropical Medicine, London, the Swiss Tropical Institute, Basel, the African Census Analysis Project, University of Pennsylvania, Philadelphia, PA, and SatelLife, Watertown, MA.

Summary:

In the poorest countries, many births, lives and deaths can pass without trace in the official record. Historically, no country has made substantial advances in health and social security until it started to monitor mortality and its causes. Of the 57 countries of the Africa and South-East Asia WHO Regions, only 8 have useable vital event data, and only one has complete coverage of death registration data. It will be decades before such countries will be able to register and track trends in births, deaths and disease burdens. Hence, they cannot monitor and guide the performance of their health systems in timely response to population health needs. Recent deliberations of the Health Metrics Network at WHO concluded that vital event registration must be an integral and coherent component of national health information systems. **The lack of longitudinal, population-based health information is currently an impassable roadblock to evidence-based policies and effective action** in the most resource-constrained countries. To pave the way forward, sample or sentinel registration systems are a necessary intermediate step towards providing this vital information and feedback on health system performance in such countries at a fraction of the cost of instituting valid national vital event reporting systems. A growing number (39 to-date) of observatories of population health in Africa, Asia and Oceania have joined to form the INDEPTH Network. These demographic surveillance sites (DSS) currently monitor over 1.5 million people collecting an array of health, demographic, environmental, socioeconomic and contextual variables. This new INDEPTH DSS platform is the largest continuous household survey apparatus in the developing world, but it is currently under-utilized for guiding interventions, local health systems and global policy towards greater equity and effectiveness.

Building on the firm foundation of this network of surveillance sites, the goal of the proposed program of research is **to establish a fundamentally new sentinel health and disease surveillance model to inform optimal delivery and evaluation of interventions, strengthen health systems, and contribute to a global database for equitable health development.** The proposed innovations will harness, expand and enhance a set of outputs that would provide more accurate and timely evidence on specific trends in population health and equity to government and health service planners, managers, researchers and policy makers. The project will update and extend the existing INDEPTH foundation by developing new methods that incorporate cutting-edge expertise from diverse institutional partners, each adding value and complementary vantage points to the Network. The methodological approach will follow two lines: one input oriented (**innovations in measurement systems and data linkage**) and the other output oriented (**influencing intervention design and optimizing equitable health systems and policies**). Proposed innovations will produce a new model for continuous cost-effective capture and feedback of household-level empirical sentinel data. This will surmount a previously impassable gap in health information systems in resource-constrained settings. Data from urban and rural sentinels will be critical in setting priorities for scarce resources, and will enable monitoring of the impact, coverage and reach (equity) of new investments, especially for AIDS, TB and malaria.

Meeting the Grand Challenge:

The proposed innovations require re-tooled and retailored DSS methods to reduce costs and enhance the capability of data to influence policy and practice. We will achieve this through development of 1) electronic primary data collection using handheld computers and two-way wireless data services; 2) rapid survey methods to assess risk factors, mental health problems, chronic disease morbidity and injury at the household level; 3) smart cards and machine readable personal identification for monitoring health service utilization and tracking internal migration; 4) computational paradigms based on neural networks, fuzzy systems, and hybrid intelligent systems to supercede physician coding of verbal autopsy cause of death data; as

well as computerized classification of ICD10 disease coding by adapting a systematized nomenclature model to DSS; 5) new methods to extrapolate from small area sentinels to estimates for large area populations, and strengthen the fit with periodic national surveys and censuses, through geographic information systems (GIS) and demographic modeling; and 6) new approaches for packaging DSS outputs as socio-economically disaggregated evidence for decision makers from district (for local planning) to international levels (for global health policy), thereby making available previously unobtainable longitudinal empirical information. As well as increasing the efficiency and usefulness of existing DSS sites, these innovations will enable more countries in future to establish sentinel DSS systems to provide a cost-effective, accurate “barometer” to guide their health systems, reduce disease burdens and increase equity. The development of integrated methods proposed here will further consolidate the INDEPTH Network into a unique longitudinal sentinel platform extending across many of the most underserved areas of the world by providing a generalizable methodological model to complement national health information systems. This will make available a deeply contextual evidence base for population health and welfare, without which rapid and meaningful health development and poverty alleviation simply cannot occur.

Innovations:

The fast-paced development of user-friendly information, communication and survey technologies, accompanied by sharp reductions in cost, can greatly reduce the financial and technical obstacles to high-performance DSS. The following set of DSS innovations enables a new sentinel model of population health surveillance for evaluating interventions and guiding equitable health policies.

PDA's and wireless data services. Handheld computers (PDAs) are proving to be reliable devices for primary data collection, but their application in developing countries has been slow. The large-scale survey operations of DSS sites in developing countries provide a valuable testing ground for this approach. PDAs have potential to bring substantial operational and cost savings by allowing point-of-collection validation, automatic multiple branching for complex forms, immediate trapping of logical errors, on-screen cues, ranges and look-ups for consistent data entry, elimination of transcription errors, greater control of confidentiality, and more efficient archiving and backup. Data turnaround time can be decreased, particularly when the handheld is combined with two-way wireless communications. This component will be developed in 5 to 6 existing sites running under different languages and database formats to yield robust procedures for transition from paper-based to PDA-based survey methods.

Improved assessment and linkage of morbidity data and risk factors. An innovative feature of the proposed enhancements to the INDEPTH DSS model will be more attention to a broader range of health problems, specifically morbidity associated with endemic disease, mental illnesses, chronic diseases and injuries. Intervention-oriented surveillance will make use of recent advances in cultural and social epidemiology, biomarkers, and software development to integrate qualitative and quantitative data. Routine DSS information will be supplemented by inclusion of morbidity surveys, and of biomarkers already used in cross-sectional surveys at the national level. Findings relating local illness-related experience to pertinent risk-related and health-seeking behaviours will be used to guide development of intervention strategies.

Smart cards and biometrics for monitoring health service utilization. Longitudinal follow-up of individuals in the context of demographic surveillance or field trials requires positive re-identification of individuals at every point of interaction. This is also required when monitoring health service utilization by surveillance populations. Conventional approaches

based on names, date of birth, and sex, have severe limitations owing to common and variable spellings of names, name changes associated with ageing, and lack of standard address systems. Photo Identification Cards may be lost or subject to transcription errors. Integrated Circuit Cards (Smart Cards) address many of these problems and are ready for developmental application in DSS sites. Computer biometrics also offers opportunities for addressing some of the limitations of card-based systems. Affordable and practical means of fingerprinting using a simple reader connected to a handheld computer could be used to re-identify and retrieve their associated information by matching the scanned fingerprint information with that previously registered. This technique can also be applied to track migration of individuals within surveillance sites. Work is needed to verify the benefits offered by these technologies in terms of their acceptance in communities and reliability under field conditions.

Computer algorithmic coding of Verbal Autopsy. DSS verbal autopsy data are conventionally coded to cause of death by physician panels based on the symptoms, signs and contextual factors leading to death. This time consuming and costly step could be replaced by computer algorithmic coding. To develop this, selected DSS VA data will be divided into training and testing datasets. Different approaches to training neural network and fuzzy logic models will be explored. The applicability of the trained models will be tested by comparing results with the cause of death assessments of physician panels. A prospective multi-center verbal autopsy validation study will be conducted to assess the operational characteristics of the algorithmic models for attributing causes of death. We will then adapt a systematized nomenclature model to DSS using SNOMED, developed jointly by the College of American Pathologists and the United Kingdom National Health Service, designed to map directly to ICD10 coding, as used by DSS sites. This will enable sites to code a range of data, including symptoms, signs, test results, therapies, social factors, diagnoses and causes of death using a range of hierarchical coding structures. The validity, completeness and usefulness of the DSS verbal autopsy and health facility data will then be assessed in an iterative process to optimize data collection and analysis (see Smart Cards). The result will be an invaluable source of data on disease and health status of unprecedented scope and detail.

Modeling for Large Area Extrapolation via GIS and Spatial Statistics. Many DSS sites now use global positioning systems (GPS) for household geo-referencing, forming a unique spatial database of patterns of risk factors, mortality, morbidity and health service use. Working with geographical information systems (GIS), these data will be integrated with environmental data from satellite sensors and demographic and socio-economic information in order to derive risk factors. Time series data could be used to predict need and demand for health services given the strong seasonal/climatic drivers of disease incidence. Bayesian geostatistical models will identify significant determinants and patterns of risk factors, health outcomes and health services use. Because these factors typically conform to distinct spatial patterns, more rational techniques for extrapolation to areas outside DSS sites will facilitate estimation of disease burden across large areas. With African census data now available through the African Census Analysis Project (ACAP) we propose to link continuous DSS data with periodic DHS and census data to extrapolate cause-specific mortality across large areas, providing an empirical basis for modeling cost-effectiveness of health interventions and contributing to Global Burden of Disease studies.

Influencing Policy and Practice. Some DSS sites have already demonstrated the effectiveness of properly packaged DSS evidence in determining local health intervention priorities and resource allocation. This has increased the health sector demand for such data, especially those required to understand and promote equity. Existing tools for categorizing households by socio-economic status will be further developed, so that all events (mortality,

morbidity, risk markers, health service use and expenditure) can be assigned a meaningful socio-economic classification. Smart cards will track health services use, including user costs, thus facilitating the estimation of cost-effectiveness in actual delivery settings for particular interventions. The costs of the surveillance itself will be studied to explain its cost structure, minimize costs, and inform expansion to other sites. New presentation formats will be developed and evaluated through interventions at the DSS host district level to learn how best to package and communicate the evidence drawn from the equity-effectiveness-efficiency data in a form that decision makers and planners can readily use.

Collaboration

A consortium of collaborators from the INDEPTH network, London School of Hygiene and Tropical Medicine, Swiss Tropical Institute, University of Pennsylvania, and SatelLife, USA. Lead investigator: Fred Binka (INDEPTH Ghana) for overall scientific and administrative direction with Nelson Sewankambo (Uganda), Abraham Hodgson (Ghana), Haile-Mariam (Ethiopia), Eleuther Mwageni (Tanzania), Steve Tollman (South Africa) Kim Streatfield (Bangladesh), Sureporn Punpuing (Thailand), Ivo Mueller (Papua New Guinea) and others for piloting DSS innovations; Holly Ladd (SatelLife) for PDAs and Wireless Data Services Development; Mitchell Weiss (STI) for Risk Factors and Morbidity Monitoring Methods Development; Kobus Herbst (Africa Centre) for Biometrics Development; Daniel Chandramohan, Liam Smeeth (LSHTM) for Computer Algorithmic Coding Development; Simon Brooker, Jon Cox, Basia Zaba (LSHTM) Penelope Vounatsou (STI) Tukufu Zuberi (UPenn) for Modeling & GIS for Extrapolation; and Anne Mills (LSHTM) Lucy Gilson (LSHTM/Witwatersrand) Don de Savigny (STI/LSHTM) for Influencing Policy and Practice.

Part 2. Investigator Information

CVs uploaded with application

From INDEPTH

Binka (Ghana)
Sankoh (Ghana)
Tollman (South Africa)
Haile-Mariam (Ethiopia)
Herbst (South Africa)
Hodgson (Ghana)
Mueller (Papua New Guinea)
Mwageni (Tanzania)
Punpuing (Thailand)
Sewankambo (Uganda)
Streatfield (Bangladesh)

Plus INDEPTH Network “CV” listing all site leaders from 19 developing countries

From Collaborators

Brooker (LSHTM)
Chandramohan (LSHTM)
Cox (LSHTM)
De Savigny (STI/LSHTM)
Gilson (LSHTM/Wits)
Ladd (SatelLife)
Mills (LSHTM)
Smeeth (LSHTM)

Vounatsou (STI)
Weiss (STI)
Zaba (LSHTM)
Zuberi (Upenn)

Part 3. Estimated Budget Information

Estimated total cost for first year	2.5 million \$US
Number of years requested	4 years
Estimated total cost over all years	12 million \$US

9.2 Proposals (Capacity Building Activities)

9.2.1 INDEPTH Scientific Development and Leadership Programme

Objectives

The key objectives of the Scientific Development and Leadership Programme are:

To develop a genre of African scientists from INDEPTH sites and elsewhere through practical on-the-job training in a unique Masters programme that combines epidemiology, biostatistics, demography and other social sciences with a focus on demographic and health surveillance in developing countries, who

can identify key biomedical and public health problems that may be addressed by epidemiological or demographic studies and design solutions to those problems;
have the appropriate analytical skills and can understand, plan and execute field-based scientific research; and
have good communication skills to make research results understandable to diverse audiences.

To develop the capacity of scientists in the INDEPTH Network to

have negotiating power to engage external collaborators;
To compete effectively for international resources; and
To take leadership roles at their workplaces.

Expected Outcomes

A 1½-year Master's Degree programme in field-based epidemiology

First group of students admitted by January 2005

Development of new Distance Learning modules on leadership training to be taken either as standalone modules or as parts of the Masters Course.

Process

A concept paper was developed by the Secretariat. This paper went through a number of revisions with inputs from various professionals.

A brain-storming session was organised at the La-Palm Beach Hotel Accra (January 9-10 2003) to further refine the concept paper and solicit inputs from an international team of experts. The outcome was a final concept paper that was presented at the 3rd INDEPTH AGM held in Accra (February 2003).

A call was developed for African Universities to apply to partner INDEPTH in the development of the programme. The call was advertised in 3 African magazines, the INDEPTH website, and the AFRONETS website. 10 responses were received from:

University of Nairobi, Kenya
Jomo Kenyatta University, Kenya
Makerere University, Uganda
University of Khartoum, Sudan
University of Cape Town, South Africa
University of Natal, South Africa
University of Western Cape, South Africa
University of Witwatersrand, South Africa
University of Science and Technology, Ghana
Obafemi Awolowo University, Nigeria

An 8-member international independent review panel chaired by Dr. Regina Rabinovich (Gates Foundation, INDEPTH SAC Member) was tasked to review the applications received. The University of Witwatersrand was selected as the best application. This decision was ratified by the INDEPTH board of Trustees during the 25 August 2003 board meeting (conference call).

The first Consultative meeting between INDEPTH and WITS took place at University of Witwatersrand – Johannesburg from the December 17 – 19 2003. The purpose of the meeting was to negotiate and establish broad agreements with the hosting University, and also to agree on timelines for project development to proceed. A letter of agreement has been signed between INDEPTH and WITS, and the first year support grant (\$100,000) has been transferred to WITS.

Current Status

Call for INDEPTH sites has been sent out.

Program set to start in early 2005. Both INDEPTH and Wits University have agreed on the next steps.

INDEPTH support (seed money) to Wits University has been transferred.

Call for a coordinator has been published on the WHO/TDR and INDEPTH websites.

WORKPLAN 2004

The next steps in 2004 are as ff:

Call for sites to partner the host University (WITS) has been sent out. Awaiting applications
Develop a proposal for funding. The draft proposal should to be completed by March 1, 2004.
Choose Northern Partner(s) to join University of Witwatersrand and INDEPTH in the development of Distance Learning Component and source for funding.

Develop Curriculum and Course content
Consultative / Review meeting
Visits to participating DSS sites
First batch of admissions – January 2005

9.2.2 Health Informatics – Development and Support

Objectives

1. Technical support to the University of Ghana to develop a new programme in **HEALTH INFORMATICS** to strengthen the capacity in research and use of computer-based tools and information management in health care delivery: data storage, information retrieval, data analysis, and data communication
2. Develop capacity of INDEPTH member-sites by supporting 2-3 students from INDEPTH sites to participate in this programme. The purpose is to develop people who can take over from Prof. Bruce Macleod (University of South Maim, USA) who has so far been responsible for the development and support of the HRS software that is used by quite a number of INDEPTH Sites.

Programme

The new programme is a multi-disciplinary arrangement between the School of Public Health and the Computer Science Department, which will award an MPH in Health Informatics.

All trainees should be formal degree candidates. Program will encourage application from nurses, physicians, researchers, medical librarians, and other health research professionals.

This programme will focus on capacity building that combines knowledge of current application of computers in the field with a broad appreciation of the issues involved in the management and use of Health Information Systems. The emphasis of this programme will be on the scientific methods required to build systems that process health information systems in a useful way.

INDEPTH's Strategy

INDEPTH will support Professor Bruce Macleod's time in the development of the new programme. Bruce Macleod has worked extensively with INDEPTH sites in supporting the Household Registration System (HRS), and will be working with the University of Ghana to develop this new programme which will have a focus on longitudinal systems.

Expected Outcomes

- i. New 1yr MPH programme in Health Informatics.
- ii. 2-3 students from INDEPTH sites supported to undertake this course.
- iii. Train personnel in the health sector on this programme.

WORKPLAN 2004

- Consultative meeting in Accra – February 16-19
- Development of curriculum

9.2.3 Collexis – Shared Knowledge Sida/INDEPTH Project

Background

The Collexis® technology suite this was originally developed in a prototype version to match across jargon, languages and large, distributed data systems. The motivation for that objective came from an EC funded, collaborative project (Concerted Action, SHARED 1996-2002) in which The Netherlands Organization for Scientific Research (NWO, The Netherlands) and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ, Germany) took the technical lead in software development, in close reciprocal consultation with the operational partners from Developing Countries.

Through the University of Rotterdam, NWO financed the development of the prototype of what is now known as **the FingerPrinting technology**, and retained the Intellectual Property Rights of that technology.

Later, when the SHARED and the FingerPrinting technology appeared to have commercial value, a spin-off company was created (Collexis B.V). Collexis acquired the Intellectual Property Rights of the technology from the technical developers (NWO and GTZ). Part of the arrangement was the availability of the software free of license for qualifying organizations working in or for Developing Countries. At a later stage, the SHARED initiative included additional partners from Southern regions. Several of these partners have created “in house” development and support capacity for the **Collexis® technology** and these partners also have complementary technology to offer to the network.

I2A is a not-for-profit initiative, originating from the SHARED project and enabled by the structural partnership with prominent public partners in the various regions. I2A has negotiated with Collexis that Collexis® Fingerprints representing valuable Collexions in the private sector, such as Elsevier science, all free medical and agricultural journals, E-BioSci, all HINARI publishers, GeneBio/SwissProt etc., will be made available under conditions restricted to non-commercial use. In addition, all Fingerprints of valuable content made and published by any I2A customer under the free license of I2A will be public domain.

Objectives

- i. The main goal of the proposed Sida project is to offer all technology and content available to I2A (**FingerPrinting technologies**) from the practical work of all INDEPTH members, initially via an ASP at the headquarters, possibly followed by local installations where desired. Connecting the content of INDEPTH interactively to major health information resources like the Cochrane Library, MedLine and Free Medical Journals will be the scope of the first common project.
- ii. Connecting INDEPTH to the global initiatives that are set up to connect all available genetic, proteomic and epidemiological data, like E-BioSci is an ambition.

Approach

The approach would be to leave the static part of the INDEPTH site exactly as it is, but equip it with a link to an interactive application where each text record that INDEPTH holds in its databases is fingerprinted and interactively linked to a large number of resources.

A link of all experts of INDEPTH via I-Research is another ambition. INDEPTH could play an important role in stimulating the participation of health and population research institutions and councils in its 18 member countries. The expert profiles of all relevant

people for INDEPTH can be drawn from I-Research, and additional specific profiles can be created for INDEPTH were appropriate.

This will strongly support the networking objectives of INDEPTH and also increase the visibility of its expert around the world in the field of clinical and social epidemiological research areas.

Finally, this project will prepare INDEPTH to be one of the first networks to implement the meta-analysis software currently developed at the University of Rotterdam as soon as it becomes a Collexis product and consequently becomes freely available under the I2A license

Expected Outcome

Collexis technologies installed and accessible from INDEPTH

WORKPLAN 2004

- i. Development of databases of INDEPTH at the Secretariat and from INDEPTH sites
- ii. Preparation and Deployment of finger-printing software (ASP-based) on INDEPTH's server

9.2.4 Workshops

a) For DSS Site Leaders – Leadership and Management

Objective

This workshop has a capacity-building/strengthening objective. The INDEPTH Secretariat, realizing the need to train/develop current and future leaders of DSS sites and give them the opportunity to interact professionally with themselves and share their experiences in leading high-quality and complex research institutions in mostly rural areas in Africa and Asia, plans to support and organize a one-week workshop on leadership and management.

Participants

All current INDEPTH site leaders and potential future research administrators nominated by site leaders will be invited to attend.

The Secretariat would consider additional opportunities for further training on a case-by-case basis, including exchange visits.

Expected Outcomes

Each participant would have had the opportunity to go through the following proposed content of the workshop, shared his or her experiences with and learnt from the others. Site leaders are expected to go back with a better understanding of the need to network to realise the goals of INDEPTH and through that their own individual site goals.

Proposed Workshop Content:

A. General Leadership/Management

- Leadership

- Who is a leader?

Effective leadership

- Leadership styles

- Management

Institutional management

Personnel management

Financial management
Time management
- Setting a research agenda
Defining the research agenda
Funding the research agenda
Ethical considerations in research
- Collaboration
- Working with research partners
- Working with other partners
- Dissemination of results
Publications and other communications
Authorship

B. Membership in the INDEPTH Network

- Importance
- Roles of site leaders
- Roles of the Secretariat

Teaching:

Facilitators from other networks will be invited to participate.

Financing:

Participants will be funded by the Secretariat to cover their travel, visa fees, tuition, room and board.

Trainees:

Site leaders or one senior research manager from INDEPTH sites.

Duration: One week

b) For DSS Site Financial Managers

Goals

Develop a standardised INDEPTH financial management and financial reporting procedures.

In order to meet this goal it is vital to bring together these group of managers to understand INDEPTH scientific agenda and the reporting requirements of INDEPTH Donors.

Objectives

The Workshop on financial management and financial reporting will:

Deal with internal controls at DSS Sites; Budgeting and Budgeting controls; Financial management; and Financial reporting.

Expected Outcomes

We expect a standardised financial reporting and financial management procedures for all INDEPTH Sites. Timely and accurate financial reports to management, Donors and other stakeholders.

Participants

The sponsors will cover all costs of *ONE* participant from an INDEPTH site, including all meals, accommodation, local ground transportation, airfare, visa fees, and exit taxes.

Transportation to and from the airport in the participant's home country will not be reimbursed.

If a site wishes to send more than one participant, special arrangements can be made to accommodate the extra participant(s) *at the site's expense*. In order to facilitate workshop planning, self-sponsoring participants will be required to make international travel arrangements, Indepth shall make local accommodation arrangement, payment for both must be made by the self-sponsoring participant directly to the Hotel.

Depending on availability of funds, sponsored participants will receive a small per diem to cover minor incidental costs.

Resource Persons

We will need 3 resource persons, one from a DSS Site who will handle how to manage Health research institutions, 2 others will talk on financial management and financial reporting.

c) For Data Managers

Background

The INDEPTH Secretariat encounters a lot of difficulties getting data from DSS sites for network level activities. Even though DSS sites generate and store large volumes of data, it is so difficult to get anything out of them. Data Managers have to grapple with difficulties caused by a multiplicity of factors:

- Technological Constraints
- Human Resource Constraints
- Absence of effective support network for database systems used in DSS sites

These sentiments have been raised in various INDEPTH for a including AGM2003 and the recent SQL meeting held in South Africa. Meanwhile, skills and expertise exist within the network that can be harnessed to the benefit of more member sites.

This meeting will provide a forum that will facilitate sharing of experiences, solutions, and other related issues to ensure that the data is readily provided for network-level activities.

Objectives

The objectives of this meeting are to:

- i. Bring together Data Managers from all sites to discuss difficulties they encounter in data management within the sites, and how to these problems can be overcome with the support of the network.
- ii. To enable the INDEPTH Secretariat share/discuss various issues with Data Managers that will enhance smooth communication between the Secretariat and the INDEPTH sites, with regards to the information.
- iii. To discuss the promotion of site visibility and information dissemination through websites.

Expected Outcomes

- i. Identify common problems encountered by Data Managers in INDEPTH DSS sites.
- ii. Identify common required capacity development initiatives for INDEPTH sites.
- iii. Outline a strategy that will enable the INDEPTH Secretariat provide effective

assistance to such problems through the INDEPTH Data Systems Group and other sources of expertise. This would include the formation of “Expert Groups” within the Network to address problems in specific areas.

- iv. Outline a common architecture for Longitudinal Database Systems used in INDEPTH sites.

9.3 Secretariat

9.3.1 Site Visits

Background

The Secretariat is very often received questions about from Donor agencies and other organisations about the activities of INDEPTH sites for example; Projects carried out by INDEPTH sites, facilities available in sites, Human Resource Capacities, readiness to participate in clinical trials, etc. The Secretariat has designed various questionnaires that are sent out to sites, but so far responses from the sites have been slow and low. This year the Secretariat is embarking on a mission to know the sites better, and collect work with Site leaders and staff to provide the sort of information that the secretariat needs

Objectives

- Work with staff at INDEPTH sites to put together information that is required by the INDEPTH Secretariat.
- To participate in relevant INDEPTH meetings hosted by INDEPTH sites.
- Interact with Site Leaders and staff

Expected Outcomes

- Familiarisation and better knowledge of sites
- Collection of information for the Secretariat
- Meeting Participation

Work Plan 2004

- Collect relevant information from INDEPTH sites for the Secretariat
- Interact with Site Leaders and staff
- Participate in relevant meetings held at INDEPTH sites

9.3.2 ICT Support to Secretariat

Background

The Secretariat currently uses a VSAT-based Internet access for most of its communication. Communication is mainly via email and when necessary by telephone/fax. The Secretariat also uses this link for maintaining websites, managing its remote Mail Server, Web Server, and for information dissemination. There is a backup dialup service that is used in the event that the satellite link is down.

Objectives

- i. Ensure uninterrupted internet connectivity between the secretariat and member sites.
- ii. Provide an intranet for the Secretariat, and to enhance electronic file management.
- iii. Provide in-house technical support.
- iv. Recommend to management any technological advances in this field that could be beneficial to the operations of the network.

Expected Outcomes

- i. Reliable internet access at the Secretariat
- ii. Fully functional intranet uploaded with content
- iii. Enhanced efficiency and productivity in the Secretariat

WORKPLAN 2004

- Renewal of Bandwidth subscription
- Renewal of dialup subscription
- Provide in-house technical support
- Purchase of relevant Software utilities and ICT literature

9.3.2 INDEPTH Websites

Background

A number of INDEPTH sites either do not have their own websites or where they do, are buried in a “small corner” of the parent organisation’s website. This situation does not give DSS sites the prominence and visibility that they need. The INDEPTH Secretariat therefore undertook the initiative to help interested sites develop their own websites. So far INDEPTH has registered domains and created websites for 4 DSS sites. The Secretariat also has a website

The experience so far has been that after the sites have been created, the content is not updated regularly. The Secretariat is therefore instituting the INDEPTH Prize for the best website i.e. the site has most content and is updated frequently.

Objectives

- Provide more visibility for INDEPTH member-sites
- Facilitate information dissemination
- Encourage INDEPTH sites (with own websites) to update their websites regularly with content
- Encourage DSS sites that do not have websites to develop websites
- Renew domain registrations and maintain existing sites.

Expected Outcomes

- Websites Created
- More visibility created for DSS sites
- Declare winner of website that is most regularly updated with content
- Renewed domain names
- Websites maintained / Updated

Process

The Secretariat made an offer to INDEPTH sites who wanted websites developed for them. The responses were very slow, but a few sites took advantage of the offer. The Secretariat registered domains and developed the websites using material provided by the sites.

Current Status

The under-listed sites have been developed so far:

- Navrongo (www.navrongo.org)
- Butajira (www.butajira.org)
- Brac (www.bracdss.net)

- Dikgale (www.dikgale.org)

INDEPTH: www.indepth-network.net, www.indepth-network.org

WORKPLAN 2004

The next steps in 2004 are as ff:

- Secretariat's offer still open
- Maintenance of current websites
- Development of new sites
- Awarding a prize for best website.

9.4 Fundraising Strategy

Objective

The INDEPTH Secretariat has indeed been able to secure funding from the Rockefeller Foundation, the World Bank, Sida/SAREC and the Wellcome Trust. However, the total amount raised for core institutional funding is far below the \$3M target for the three-year period (2002-2005). Hence, there is a growing need for the Secretariat to develop an aggressive strategy to raise funds, both for core institutional and project-specific activities.

A. Core Funding

Two strategies are envisaged for 2004 and beyond.

1. Email / Telephone Contacts

This method will be continued by which an email introducing the Network and its activities is sent to a potential funder, followed by a telephone call. This strategy has a smaller chance of success.

2. Meetings with funders

a) Bill and Melinda Gates Foundation

Given the recent visit by Bill and Melinda Gates to Manhica DSS in Mozambique, the Secretariat has deemed it fit to contact the leadership of the foundation and introduce the Network, taking advantage of Bill and Melinda Gates' possible understanding and conviction of the potential of DSS sites in the fight against poverty-related diseases. Consequently, the Executive Director has initiated steps for the Secretariat to visit the Foundation in Seattle, USA in early 2004. Several presentations will be made and it is hoped that the leadership of the Gates Foundation will be convinced of the need to fund INDEPTH's core activities.

b) Other donors: USAID, EU

The Secretariat will develop a generic proposal so that several new donors could be contacted.

c) Presentation at the World Bank

Apparently, the World Bank is one of the key funders of the Network. The Secretariat would consider arranging a meeting at the World Bank to present INDEPTH achievements there.

d) Meeting of Donors (London-type)

The INDEPTH-donor meeting hosted by the Wellcome Trust in February 2002 in London made it possible for INDEPTH to introduce itself to more than 15 funders simultaneously. However, INDEPTH was just building a base so presentations were mainly “what we plan to do” to. The secretariat now thinks there is the need to hold another London-type meeting of donors/development partners in which INDEPTH presents its achievements since 2002, its ongoing projects and its planned collaborative initiatives. Current donors and potential ones will be invited to attend this meeting.

It is hoped that the Secretariat would be able to find a funder for such a meeting, and that donors interested in participating will fund themselves. However, since this would be an important meeting, the Secretariat should consider funding part of this meeting.

B. Project-Specific Funding

The Secretariat will continue to support Working Groups and Interest Groups to develop fundable proposal for collaborative research within the Network.

C. Seeking Research Partnerships

Some funding will be raised through research collaborations/partnerships with other institutions such as ACAP and INCLIN.

9.5 Book Proposals

9.5.1 Model Life Tables

Title: INDEPTH Model Life Tables for Sub-Saharan Africa

Model life tables provide ways of deriving accurate mortality schedules or predicting future trends from scanty data. In settings where accurate data are lacking, public health and population scientists cannot assess the burden of death without relying on model life tables.

Modeling age-specific mortality is an old quest for understanding and predicting human survival experience over the life course. Initially, mortality modeling was confined to attempts to predict, via a mathematical function, the risk of dying by age, and was mainly used in the actuarial science. The first and simplest of such models was proposed in the 18th century by De Moivre who suggested an arithmetic progression law for the survivorship function of the life table. This idea was fine-tuned in 1825 by Gompertz, in 1860 by Perks, and recently in 1980 by Heligman and Pollard. Arriving at a mathematical model of mortality by age is, however, a difficult exercise simply because mortality patterns vary from one population to another due to differences in socio-economic and cultural conditions and, therefore, in causes of death. Because of this, the most used models today of mortality are either relational (Brass), or in the form of reference tables (Coale and Demeny, United Nations, Ledermann), also known as model life tables, covering a number of clusters (or regions or families) of mortality patterns.

Constructing model life tables requires the availability of accurate empirical life tables that depicts the different patterns of age-specific risks of dying in the populations covered. Sub-Saharan African countries, and large parts of developing countries in general, are not represented in any of the currently most used model life tables by population and public health scientists. Yet, the most common use of such model life tables is to infer mortality patterns in such areas with unreliable data.

Starting in the early 1960s, a number field-based research stations have been collecting longitudinal data on births, deaths and migrations covering some geographic areas in sub-Saharan Africa and Asia. A DSS involves an initial population census, followed by regular rounds, usually at 3-4 month intervals, of registration of births, deaths and migrations. In such rounds, several other demographic and health data are also collected (marriages, verbal autopsies, economic activities, pregnancies, morbidity episodes, household splitting, etc). Such unique data sets for the developing world make it possible to know the mortality levels and patterns of major regions that have often been characterized as data-poor settings.

The present publication presents model life tables for Africa using accurate empirical data from nineteen demographic surveillance system (DSS) sites of the INDEPTH¹ network. A Brass logit system is used to produce mortality models that are unique in that they incorporate for the first time empirical and accurate data representing prevailing mortality patterns in developing countries, while taking into account the effect of the HIV/AIDS epidemic.

Outline

Introduction

This chapter presents the overall contour of the publication while putting it in the context of the INDEPTH Network's previous book² entitled "Population, Health and survival at INDEPTH Sites" in the monograph series "Population and Health in Developing Countries". That first publication generated the data used for the present work.

Historical overview of model life tables

The pioneers of model life tables are actuarial scientists of 18th Britain. Since then the field of mortality modeling has expanded to embrace Public Health and Population sciences, with special reference to the developing world. This chapter is structured as follows:

- 2.1. Modeling mortality
- 2.2. The United Nations model life tables
- 2.3. The Coale and Demeny model life tables
- 2.4. The Brass Logit system
- 2.5. The Ledermann model life tables

INDEPTH empirical life tables

This chapter describes the method for constructing the empirical INDEPTH life tables, the basis for building the INDEPTH model life tables. The main two sub-sections describe the life tables and the quality of the underlying data:

- 3.1. Methodology
- 3.2. Data quality

INDEPTH Model life tables

The first step in producing the INDEPTH model life tables is to identify the key mortality patterns (or families) underlying the observed data. Two families (mortality with and without HIV/AIDS) are identified. A standard mortality schedule summarizing the pattern for each

¹ International Network of for the continuous Demographic Evaluation of Populations and Their Health in developing countries

² INDEPTH Network (2002). Population and Health in Developing Countries. Volume 1: Population, Health and Survival at INDEPTH Sites. Ottawa, Canada: IDRC.

group is presented, as well as the user guide for the resulting model life tables (see outline below).

- 4.1. Identifying mortality families
- 4.2. Mortality standards with and without HIV/AIDS
- 4.3. The INDEPTH model life tables
- 4.4. Using the INDEPTH model life tables

Some applications of the INDEPTH model life tables

One important use of the INDEPTH model life tables is the generation of national mortality life tables for African and Asian countries. Censuses and cross-sectional surveys in developing countries provide at best information on under-five mortality. The INDEPTH model life tables can be used along with such limited data to generate accurate mortality schedule for the majority of countries in the region. This is an immense achievement in the public health and population sciences and has several applications in district level planning especially in the context of on-going decentralization policies in the developing world. The results of the INDEPTH models are compared for recent life tables generated by the World Health Organization for world countries. As shown in the outline of this chapter (see below), the INDEPTH model life tables may also be used to smooth erratic mortality data or project future mortality trends. The projection of mortality trends is an important aspect of the use of the INDEPTH models as it illustrates the possible impact of the HIV/AIDS epidemic on life expectancy.

- 5.1. Generation national mortality tables for Africa
- 5.2. Smoothing erratic mortality information
- 5.3. Projecting mortality trends

Conclusion

This chapter discusses the added value of the INDEPTH model life tables.

Appendix

- 7.1. INDEPTH Model Life Tables for countries with low HIV/AIDS Prevalence
- 7.2. INDEPTH Model Life Tables for countries with high HIV/AIDS Prevalence

9.5.2 Health Equity

Title: *Measuring Health Inequalities and Inequities through Demographic Surveillance Systems: Methods and Case Studies from INDEPTH Sites*

Background

Over the past decade several initiatives have been launched to address the major health problems affecting the world's poorest countries. These have included major global efforts to combat HIV/AIDS, TB and malaria. In some cases, such as the Safe Motherhood Initiative, ambitious international targets have been set to tackle these problems. More recently, a millennial challenge has been laid down to root out and confront the links between poverty and health. Identifying and reducing inequities and inequalities in health among the world's poorest citizens is a challenge that many governments, donors, international NGOs and scholars are now rising to meet.

The spate of major reports, books, and special journal issues devoted to inequalities and health³ as well as the growth and establishment of international networks whose central focus is global health equity attest both to renewed commitments and a need for empirical research in these areas.

It has been noted for some time that policies meant to address the needs of the global poor are based on indirect estimates and data from urban centres and health facilities that do not accurately reflect their experience. As the founding documents of the INDEPTH Network state, many of the world's poorest residents are born, live, and die leaving little trace of their experience in official records or data sources used for planning and evaluation. It is now becoming clear as well that programmes meant to reach the poorest of the poor may primarily benefit the comparatively well off while still appearing to accomplish their objectives. Such situations can only be remedied if they are brought to light. This can only happen through better, more accurate, and more nuanced research and monitoring of the poverty and population health nexus understood in its social and demographic context.

Much of this work is still exploratory, and many basic questions have yet to be asked and answered. The platform of demographic surveillance systems (DSS) is well suited to contribute to these explorations as well as to engage in the long-term assessment of health equity.⁴ These systems, which employ a wide range of situationally appropriate methods, are engines not only of knowledge generation, but also of capacity strengthening in many of the countries experiencing the heaviest burdens of poverty and disease.

Aims and Themes of the Book

The aims of this volume are to contribute both to the empirical knowledge about health equity in developing countries in Africa and Asia and to report on the application of and innovation in tools and methods used in this inquiry. Because the book is intended to reach both scientists and non-scientists, the authors have used non-technical language in the production of their chapters, and have included frequent graphical representations of data, including maps, to present their findings.

The area of poverty measurement is, itself, an area of intense theoretical and methodological debate and development. The development and application of new tools and methods for measuring poverty and equity is an important theme in the book; tools and concepts for measuring health status are far more developed than are those for measuring deprivation and disadvantage. In addition to a review of methods, and a chapter discussing methodological innovations, contributors to this volume discuss the poverty concepts most relevant to their analyses. DSS researchers have grappled with these issues in different ways. Some have focused on measures of material wealth and poverty through the creation of composite indices based on ownership of household assets or individual attributes such as educational attainment and occupation, while others have explored well being in terms of social support and networks.

The case studies that the DSS sites offer extend our knowledge about diversity in small places. Although the historical and anthropological record speaks to the contrary, the rural African community or south- or southeast-Asian village hamlet has often been viewed by

³ See, e.g., Bulletin of the World Health Organization special theme issue 2000 Vol 78(2); Kim, J. Y., J. V. Millen, et al., Eds. (2000). Dying for Growth. Global Inequality and the Health of the Poor. Munroe, Maine, Common Courage Press; Evans, T., M. Whitehead, et al., Eds. (2001). Challenging Inequities in Health. From Ethics to Action. New York, Oxford University Press.

⁴ See, e.g., Ngom, P., F. N. Binka, et al. (2001). "Demographic surveillance and health equity in sub-Saharan Africa." Health Policy and Planning 16(4): 337-344.

international health experts as a homogenous landscape where all are subject to more or less the same vicissitudes. The research studies presented here contradict this view, and show that real differentials exist in social and material wealth, health status, and in the use of health services in small areas. The cases present new findings on inequalities and inequities in morbidity, mortality and survival, health service use, and risk factors in several African and Asian settings.

Other themes addressed in the book include:

- *Capacity strengthening*: The DSS sites contributing to this volume all share a commitment to strengthening capacity in research, monitoring and evaluation in the countries and communities in which they operate. The dissemination of lessons learned and experiences gained in this arena are as important as the empirical findings that come from the research and monitoring efforts themselves.
- *Implications for policy and practice*: The translation of findings into policy and practice is another area of common purpose among the INDEPTH sites. Chapters in this volume also discuss how findings presented can influence the equitable provision of health and social services or guide the targeting of programs.

Structure of the Book

The Foreword and Introduction have been written by internationally renowned experts in the field of health equity, and the Preface has been contributed by the Editorial Committee. The chapters are organised into two thematic sections, Part I: Methods and Part II: Case Studies in Health Equity. The book will also contain a bibliography and topic index.

9.5.3 Causes of Death at INDEPTH Sites

Structure of Monograph

1. Foreword
2. Preface – by Editors
3. Acknowledgements – by the Executive Director / Board of Trustees
4. Acronyms
5. Introduction – by Editors
6. Part I – Cross-Site Analysis – by Editors
7. Part II – INDEPTH DSS Site Chapters on Cause-Specific Mortality – by site authors
8. References
9. Appendix – INDEPTH standardised VA Questionnaire

Note: Manuscript will contain about 60 tables and 60 graphs. There will be only few mathematical equations

Introduction

Information on causes of death derived from death certificates is problematic in countries where most deaths are neither attended by doctors nor medically certified through post-mortem. This problem is much more pronounced in developing countries where data on causes of death are poor because death registration is frequently incomplete, and even when death certificates are available, the certifiers often report non-specific diagnoses. Consequently, published statistics on both cause-specific and overall rates of mortality in such countries would mostly consist of extrapolations.

Measurement of cause-specific mortality is needed for several purposes: (i) to establish the relative public health importance of the different causes of death; (ii) to evaluate trends over time, especially as a method of evaluating the probable impact of intervention programmes; (iii) to investigate circumstances surrounding the deaths from specific causes and to devise effective actions to decrease mortality; (iv) to investigate the reasons for differing mortality rates between geographical areas; and (v) to evaluate the effectiveness of specific interventions in controlled settings (WHO, 1994).

The method that is commonly used to measure cause-specific mortality where data on causes of death are lacking or inadequate is the verbal autopsy (VA) method. This approach has been used in research studies, usually in situations where deaths have been identified by a demographic surveillance system (DSS). Specially trained investigators interview bereaved relatives about signs and symptoms related to the terminal event using a structured questionnaire. The information from completed questionnaires is then summarized and interpreted to give a likely cause for each death.

The most common method for ascribing causes of death from VA questionnaires is when the completed questionnaires are reviewed by one or more physicians who ascribe probable causes of death (Bang et al., 1990; Alonso et al., 1991; Snow et al., 1992; INDEPTH, 2002). All parts of the questionnaire, particularly any open-ended sections, are thus incorporated into the diagnosis. In order for VAs to be comparable, they need to be based on similar interviews, and the cause of death needs to be arrived at in the same way in all cases. Thus standardization of VA tool is very important since sensitivity and specificity can be affected when there is a bias in the information being collected. Hence the efforts of INDEPTH to standardize the VA questionnaire for use in all INDEPTH sites.

The fact that data from vital registration systems are not always available in developing countries, we must depend on studies at INDEPTH DSS sites which are of a large scale enough to provide information on adult, maternal, as well as childhood causes of death.

The **main objective** of this monograph is therefore to provide for the first time reliable empirical data on cause-specific mortality in mostly rural areas in the developing countries where the INDEPTH sites are located. These sites could act as pilot areas for the establishment of sites in developing countries in which the INDEPTH standardized VA tool can be implemented to provide reliable empirical data for cross-site comparison of cause-specific mortality rates.

Cross-Site Analysis

Part I starts with a concise comparison of procedures / methodologies for VA data collection and processing at participating sites shows striking similarities but also differences in the VA methodology employed at the sites.

An extensive descriptive statistical analysis compares all-cause mortality and cause-specific mortality across sites, within countries (where there are more than one site in a country), and within regions – East Africa, Southern Africa, West Africa and then Asia. The causes of death analysis is based on the sites' own ranking of top ten killer diseases of public health importance by age group.

Further cross-site analysis involves the calculation of Years of Life Lost (YLLs) and production of Burden of Disease (BOD) profiles using the INDEPTH BOD tool.

INDEPTH DSS Site Chapters on Cause-Specific Mortality

Part II of this monograph contains detailed site descriptions of all INDEPTH DSS sites contributing cause-specific mortality data to the comparative analyses presented in Part I. This is intended as a reference for those who wish to know more about any particular site.

The first section of each site description introduces the site and includes information on the following:

- Description of the site
- Description of health delivery system
- Selected indicators

The second section of each site description provides brief details on the procedures / methodologies used at the site for VA. This section shows:

- Data collection & processing
- Nature of VA tool
- Assigning cause of death
- Data Management (Computerisation) & Analysis
- *Ethical issues*

In the third and final sections, the sites present their results in a series of tables and discuss the results and their significance. The tables cover selected indicators, mortality by age and sex, mortality by broad cause and sex, and numbers of death by cause and age group.

The site descriptions are sequenced, first according to geographic area, then by country alphabetically, and finally by site alphabetically. **This list might expand.**

East Africa

- Ethiopia – Butajira DSS
- Tanzania – Ifakara DSS, Magu DSS, Rufiji DSS
- Kenya – Kisumu DSS

Southern Africa

- Mozambique – Manhica DSS
- South Africa – Africa Centre DSS, Agincourt DSS

West Africa

- Burkina Faso – Nouna DSS
- Ghana – Navrongo DSS
- Senegal – Niakhar DSS

Asia

- Bangladesh – HSID DSS, Matlab DSS
- Vietnam – Filabavi DSS
- Indonesia - Purworejo

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