

Inter-Agency Coordination Group on Child Mortality Estimation

6-7 March 2008

World Health Organization

Geneva, Switzerland

Action points by the Inter-Agency Group on Child Mortality Estimation (IGME)

1) Launch of joint child mortality database on 1 June 2008

The proposed database was adopted by four agencies as the official database, with a plan for joint launching (granting open/public access) on 1 June 2008, which will include whatever is available now but it is necessary to assess the comprehensiveness of datasets before the launch. UNPD needs to confirm if the UN logo will be posted on the database website. WHO needs to check the possibility to host the site. UNICEF will train a database administrator. Exchange of new datasets, data entry and update of database should be done quarterly by responsible agencies. Database should include both methods (spline and Loess) with uncertainty ranges. Inclusion of other variables such as HIV/AIDS deaths and coverage of interventions will be considered.

2) Finalizing estimates for 2007 in June 2008

IGME will meet in June or July, including IGME, TAG and consultants. The primary objective is to produce and agree on 2007 estimates. The preliminary estimates should be shared before the meeting. Both approaches should be considered. Gareth Jones will draft the first draft of guidelines for data quality assessment criteria and circulate to the relevant experts (e.g. Ken Hill, Trevor Croft, Jerry Sullivan, Julie Rajaratnam, Richard Silverwood and Simon Cousens).

3) Preparing for the first TAG meeting in July 2008

Four agencies should finalize the dates and venue as soon as possible, and start inviting the potential TAG members. UNICEF will coordinate the first TAG meeting.

4) Planning for a regional workshop

World Bank will take the lead in the planning and coordination of workshops together with UNICEF and WHO (MHI and RHR). UNICEF will coordinate the production of training materials for the database. The Bank will be responsible for the production of training materials for maternal mortality estimates.

5) Decomposing child mortality

This is an important area of work of IGME. The database should include CM values by sex and age where available. IGME will continue to work with Simon Cousens and Joy Lawn on the neonatal mortality estimates. UNPD will continue the work on sex ratios of child mortality estimates and will report a preliminary set of values by the first TAG meeting around July 2008.

Minutes of the meeting

Day 1: Child mortality database and estimation methods revisited

Session 1: Welcome and objectives of the meeting

Tessa Wardlaw (UNICEF) welcomed the participants and summarized the recent developments in MDG4 tracking at UNICEF, including the new estimates on child mortality followed by the publication of substantial progress in intervention coverage from MICS 3. She mentioned that the publication of the new method in The Lancet has stimulated the further critical examination of existing methods.

Specifically, the group has commissioned Simon Cousens (LSHTM) and colleagues to assess the advantages and disadvantages of both the spline and Loess regression methods, as well as estimating uncertainty ranges around the data. This work was presented and discussed during the morning. She welcomed the inputs from the group and hoped that the group could arrive at a consensus on which methods would be the most appropriate to use under particular circumstances. UNICEF is also investing substantial new financial resources for child mortality estimation work with additional posts.

She also briefed on the recent work at UNICEF including the DevInfo child mortality database and assessment of the quality of the child mortality estimates from DHS surveys for those countries with significant mortality declines in recent years. She emphasized that UNICEF considers the work of this group and work on child mortality estimation of the highest importance. As a part of UN's responsibility in monitoring MDG4, it is highly important for the UN to agree on a common set of child mortality estimates and UNICEF considers all of the agencies and institutions represented in this group as important partners. She stressed that the group should move forward in identifying the best methodologies and tools and producing the best set of estimates.

Ties Boerma (WHO) summarized the major objectives of the meeting. In addition to the technical discussions such as child mortality estimation methods and neonatal mortality estimation, he indicated that it would be important to discuss the functioning of the Inter-agency Coordination Group on Child Mortality Estimates. In particular, the meeting should discuss what the most efficient and transparent working method would be.

Session 2: A brief update on the action points from July 2007 meeting

Edilberto Loaiza (UNICEF) summarized the progress attained to date on the agreed action points from the July 2007 meeting, including:

1) Work on the DevInfo adaptation; 2) Populate the child mortality database; 3) 2006 child mortality estimates ; 4) Child mortality estimation procedures and approaches for uncertainty bounds; 5) Neonatal and sex estimation; 6) Time since first birth estimation; 7) Funding for regional training workshops; and 8) Joint publication.

These topics were covered during the following sessions.

Session 3: Child mortality database

Kenji Shibuya (WHO) presented the current status of the child mortality database currently available at WHO, UNICEF and IHME websites. WHO does not have a dedicated database for child mortality and instead it has a comprehensive WHOSIS database. There is neither metadata nor description of the quality of datasets. UNICEF's currently available database focuses on 61 priority countries. There is a summary description of a method (spline regression) but the choice of post-hoc weighting is not fully described. No uncertainty ranges are available. IHME's website includes country PDF files for 189 countries and all data can be downloadable as in the other two websites. A detailed country-by-country description with the choice of parameters is not available. Uncertainty ranges are provided together with the method paper published in the Lancet. The last update of WHO, UNICEF and IHME was September, November and December 2007. Only UNICEF's country profiles contain some description of metadata. Overall the current available database is neither comprehensive nor user-friendly at this stage.

There are quite a few data missing from each database and the efforts to systematically collect all available datasets is crucial, together with the description of data points and methods for curve fitting and forecasting. Uncertainty ranges should be presented. Trevor Croft emphasized that anybody can contribute to the database and François Pelletier reminded the group on several occasions of the importance of acknowledging such contributions.

Edilberto Loaiza briefly presented the linkage between the child mortality database as a part of the broader DevInfo application at UNICEF. He also mentioned about the contents, resources and commitments needed to make the database publicly available. There was a general agreement that the child mortality database needs to be made publicly available urgently.

Julie Rajaratnam (IHME) summarized the database activities at IHME. IHME intends to update its child mortality database every 3-6 months, as new data become available (for example, new DHS or MICS data is released into the public domain) or are located through other sources. The Loess-based methods are re-run for all countries with new data and these results are posted and freely available on our website. The raw data for all countries and per country can be downloaded via a .csv file for transport to other databases such as the Child Mortality Database at www.childmortalityestimates.info. Estimates and projections using the Loess method may also be captured in this way.

Comments for the development of the combined Child Mortality Database: IHME would like to see an effort made to incorporate data sources outside the traditional survey programs or WHO collected vital registration data. There ought to be a system to incorporate data series from individual countries and it should incorporate an active solicitation of information as opposed to simply a passive mechanism for the information to come to the database. Additionally, there should be an effort to decrease the turnaround time between data collection and making such data available in the public domain.

As part of the presentation of the DevInfo application for the Child Mortality Database, Nicolas Pron (UNICEF) presented an overview of the DevInfo and its

history. The DevInfo initiative is being coordinated by UNICEF under the endorsement of the UNDG in collaboration with more than 20 UN agencies. In particular, the system has been endorsed by the UN Development Group to assist countries in monitoring achievement of the Millennium Development Goals (MDGs).

DevInfo is distributed royalty-free to all Member States and UN agencies for deployment on both desktops and the web. A major innovation of DevInfo is the introduction of data and metadata standards to encourage open access and use of data across multiple organizations, platforms, and systems. DevInfo has adopted such international standards in the areas of indicators (SDMX ISO/TS 17369), data sources (DDI/Dublin Core) and digital maps (ISO 19115). In 2007, the DevInfo technology was used to develop a prototype for the Child Mortality Estimates Database (CME Info).

Kris Oswalt (CSF) presented the latest features of the child mortality database, which is more flexible and user-friendly than the previous version. The proposed database includes metadata, methods (can present multiple methods), comparative graphs and disaggregated information. As a platform, the current database structure was well accepted as a standard by the group.

However, there are several major technical issues including uncertainties, data quality assessment with documentations, and frequency of updates, all of which depends on the amount of contributions and commitment from each agency. Some members also raised a concern with respect to the DevInfo application and its lack of flexibility. UNICEF responded that the current version of DevInfo (5.0) has already eliminated the majority of these issues.

The group agreed that after three years of working on a common database, this database should be launched as soon as possible even if the data are not yet complete. The draft document of standard data quality assessment will be drafted before the launch.

There was also a suggestion that an FTE is required to update and maintain this database, for which UNICEF will secure the resources. The group will review proposed additional features for the CME dashboard and select features to be implemented in 2008 as well as provide technical documentation and guidelines on all models to be used on the dashboard. The group also agreed to develop an implementation plan and help identify resources required to maintain and roll-out the CME database with national partners

Session 4: Neonatal mortality estimation

Simon Cousens (LSHTM) started his presentation by emphasizing the high demand for annual update of neonatal mortality rates as neonatal mortality accounts for 40% of under-5 mortality and the recent estimate is still based on WHO's 2000 exercise. There is an ongoing work at CHERG on the estimates of neonatal causes of death and morbidity. With the support from the Saving Newborn Lives, one post-doc is investigating quantitative approaches for assessing the quality of neonatal mortality data and the feasibility of estimating the likely level of underreporting of neonatal deaths in retrospective survey data and correcting for this.

He summarized the data availability and quality issues in household surveys including missing some deaths, misclassification between day 0 and day 1, and age heaping. There is indeed a systematic underestimation of neonatal mortality in retrospective household surveys when compared with a gold standard (i.e., prospective pregnancy surveillance). This should be more carefully assessed. Age heaping (day 7, 14, 28, 30) and misclassification day 0/day 1 could be tackled.

There is still a great amount of work to be done in the short- and medium-term and the group needs to decide whether the neonatal estimation should be included as part of the agenda for 2008 but also on the division of work and on needed resources.

Session 5: Sex differentials in child mortality

François Pelletier (UN Population Division) summarized the current work plan on sex differentials in child mortality and the future challenges in this area. He emphasized the challenge of producing coherent time-series of sex ratios that reflect changes in mortality patterns, as compared to producing a single point estimate. While WHO publishes under-five mortality estimates by sex on the basis of the most recent DHS sex ratios for several countries, he warned that several of these single point estimates, in the process of being incorporated in a time-series, will need to be adjusted.

Similarly to the elements presented by Simon Cousens for the NN mortality estimation, he went through the main data sources available for gender disaggregated mortality estimation while touching on data sources, advantages and limitations.

He commented that the Population Division is currently compiling mortality data by sex from a wide range of sources. As an initial step, he presented results and limitations of the obtained sex ratios for countries where household surveys constitute an important source of data on child mortality estimates by sex. In the end, even with the DHS direct estimates (10-year average), a substantial amount of fluctuations or “noise” is depicted overtime. With a wide range of estimates from different sources and methods (direct and indirect) the “cloud of points” will certainly be greater, adding to the challenge.

Due to the complexity of the exercise, he stressed the need to develop a more systematic approach. In that respect, he made suggestions and recommendations on the different steps to follow in order to produce time-series of 5q0, 4q1 and 1q0 sex ratios, and raised some concern as to whether estimates of sex ratios at birth be used to derive the mortality estimates. Obviously, more work needs to be done and the Population Division is committed to continue its work in that area and shall provide preliminary results by the next meeting.

A basic question on the importance of this disaggregation was raised and UNICEF emphasized the MDG concern for gender issues as a crosscutting issue along with WHO's gender focus on health indicators. It is up to the group, again, to decide about the inclusion of the issue in the agenda for 2008 as well as the division of work and identification of needed resources.

Session 6: Child mortality estimation methods

Gareth Jones (Consultant) presented an overview of the inter-agency approach to child mortality estimation based on the multi-spline regression model. He provided a brief history of the early under-5 mortality estimation, from 1988 to 1998. He then covered the original model used in the 1998/9 multi-spline regression estimation approach, as well as subsequent developments.

Numerous examples were provided on the application of the spline regression model, together with the types of issues encountered across developing countries. He emphasized, with developing country examples, the critical role of the quality of source data in deriving realistic estimates of child mortality.

Chris Murray (IHME) summarized the Loess regression approach published in the Lancet. He raised several issues with respect to the current estimates done by the inter-agency group, including the missing data from the existing database, the lack of distinction between statistics based on actual measurements corrected for a range of known biases, and predictions based on a model; lack of uncertainty ranges; limitations of interval regression where intervals are chosen based on the density of the data and ad hoc adjustment; and potential overestimation of the impact of HIV on child mortality by adding in HIV mortality based on a model, not on data. He then explained the process to estimate the trends and forecasting based on Loess regression and the way q5 was decomposed into neonatal mortality, post-neonatal mortality and 4q1.

IHME is planning to do a regular revision of child mortality estimates as new mortality data emerge and is currently developing improved indirect methods using micro-data rather than tabular data on CEB and CS. He emphasized the importance of adjusting bias before putting them into the regressions rather than post-hoc down-weighting of inputs data. He also shared the idea of improved dataset and alternative specifications for estimating the distribution of NN, PNN and Childhood mortality and alternative weighting functions for local regression.

Richard Silverwood and Simon Cousens (LSHTM) carried out a comparative analysis of two methods by using datasets from 60 countries. The spline-based approach has fixed set of weights, but the down-weighting of aberrant datasets in the spline-based approach ('ad-hoc weight adjustment') is conducted on a largely subjective basis. It is perhaps likely that for countries with a great deal of ad-hoc weight adjustment the final estimates/predictions of under-5 mortality will be less comparable with the Loess-based equivalents, for which no additional weighting has been applied. Loess-based approach routinely explores a variety of weighting options. The selection of the key parameter - alpha - is also a little subjective and the set of alpha values used can greatly affect the results.

Richard Silverwood showed that estimated/predicted childhood mortality levels using the two approaches often are similar in countries with little or no ad-hoc weight adjustment in the spline-based approach. On the other hand, predicted childhood mortality is most likely to differ between the two approaches when there is a more recent deviation from a long-term trend in the data. VR data only affect the shape of the fitted curve in the Loess-based approach, but both the shape and the level in the spline-based approach. He also proposed two approaches to generate uncertainty

ranges for the spline model. Incorporating uncertainty into the spline-based approach provides uncertainty intervals which are often relatively similar to those obtained under the Loess-based approach, though in some countries there are sizeable differences. Under both the spline- and Loess-based approaches sampling error is not taken into account. Incorporating sampling error should, on average, reduce uncertainty, as more weights will be given to data points with lower sampling variability.

Jon Pederson stressed that there is no way to fully automate the estimation process, but that it is necessary to minimize the subjective judgments to ensure transparency and reproducibility. It became obvious, as articulated by Gareth Jones, that data quality assessment is a key issue – preferably the adjustment for bias in advance rather than ad hoc adjustment through arbitrary down-weighting.

François Pelletier emphasized the importance to also rely on country expertise and knowledge, warning that a mechanistic approach may not capture well specific or unusual mortality trends. In that respect, he commented that in the current state of affairs, mortality crisis related to civil strife, wars or the HIV/AIDS epidemic are not always being well reflected in the estimated time-series of child mortality levels. The group has agreed that both the Loess and spline regressions need to be presented with uncertainty ranges. For forecasting and long-term trends, more explicit choice of parameters is needed.

Day 2: Technical issues and future directions

Session 1: Data quality issues in DHS

Jerry Sullivan (Consultant) showed the effect of birth transference (i.e., misreporting the date of birth of deceased children) on direct estimates of q5 for the standard five-year reference periods for which the DHS Program publishes estimates, particularly focusing on the recent accelerated declines in child mortality in 11 countries. There is clear evidence in many DHS surveys that births to deceased children are misreported as occurring prior to the cutoff date for asking questions about maternal care and the delivery circumstances of the birth. Since the cutoff date for the health questions is typically January of the 6th calendar year prior to the survey, birth transference creates the potential for negatively biasing q5 estimates for the 5-year period immediately preceding the survey, positively biasing the estimates for the preceding 5-year period and creating a trend line which exaggerates recent mortality declines.

To circumvent the problem the presentation used the strategy of expanding the reference period immediately preceding the survey to include the period one year prior to the health cutoff, re-estimating mortality rates for this expanded reference period and for earlier 5-year periods and projecting the re-estimated rates to the date of the initially published DHS estimates.

He did a comparison between the initial DHS q5 estimates and the re-estimates and presented for 8 surveys analysed to date. In all cases, the re-estimates showed a less pronounced trend of declining mortality between the last two mortality estimates than the initial DHS estimates. In 2 of the 8 surveys, Malawi DHS 2004 and Cambodia

DHS 2005, the pace of mortality decline indicated by the two most recent mortality estimates was reduced by approximately 50% by the re-estimation procedure.

Several participants raised the concern about the quality of recent DHS. Trevor Croft (Consultants) and Ties Boerma (WHO) commented that DHS focus has shifted from the classic elements of DHS (e.g. birth history) that have been done for 20 years to the newer elements such as HIV testing, other biomarkers and other health issues, which might have affected the results of recent DHS.

Session 2: Time since first birth

Kenneth Hill (Harvard) discussed the use of the indirect method for estimating child mortality using time since first birth rather than age of the mother as the control for average exposure to risk of the mother's children. He first discussed the rationale for developing this method, namely the expectation that the estimate with the most recent time reference, that based on women in the period 0 to 4 years since their first birth, would be less affected by selection biases and small numbers of cases than the most recent estimates based on age of mother, women aged 15 to 19 and 20 to 24.

He then presented results comparing the estimates derived from the time since first birth (TSFB) approach with those derived from the age (A) approach, using data from the 2005 Multiple Indicator Cluster Survey program. Surprisingly, across 21 MICS, it turned out that the 0 to 4 TSFB estimates did not differ systematically from the 20 to 24 A estimates in either level of U5MR or time reference. Looking more broadly at time trends in the context of all available estimates for three countries, again the TSFB estimates of level and trend in U5MR looked no more plausible than the A estimates. Hill's tentative conclusion was that the results of the TSFB method did not justify the inclusion of an additional question on years ago or year of first birth in population-based surveys.

Trevor Croft (Consultant) presented estimates for the sampling errors of indirect estimates of under five mortality for 4 MICS 3 surveys using both the age and time since first birth approaches. The sampling errors are produced using a Jackknife approach, dropping one cluster from each iteration. The approach does not take into account stratification of the sample, but it is felt that the added complication of adjusting for the stratification will not have much effect on the sampling errors.

The sampling errors were comparable for both approaches, but are quite large in samples with relatively low mortality and low sample size. Relative errors were around 4% for most ages (ignoring 15-19 and 20-24) and time since first birth (TSFB) groups for Sierra Leone (U5MR above 250), 6-9% (15% for TSFB 0-4) for most ages and TSFB groups for Tajikistan (U5MR ~ 90), 7-11% (14% for TSFB 0-4) for Kazakhstan (U5MR around 40, but with a 14500 sample), and 12-23% (38% for TSFB 0-4) for Jamaica (U5MR in the 20s). Age group 15-19 has by far the highest sampling error (61% relative error in Kazakhstan, 64% in Jamaica), and the 20-24 age group is also high in most cases (21% in Kazakhstan, 40% in Jamaica). Interestingly the time since first birth group 0-4 also had relatively high sampling errors in each of the surveys. The approach also produced sampling errors for the reference dates, however, the relative error in the reference dates is smaller than for the mortality estimates.

Session 3: Brass method revisited - Improving the indirect methods for U5MR estimation

Julie Rajaratnam (IHME) presented her recent work on improving the indirect methods for estimation of under-five mortality using questions on children dead (CD) and children ever born (CEB). The main objective of this methodological research has been to improve the performance of the indirect methods in the years most immediately prior to the survey, where the current methods (Brass/Trussell) are known to greatly overestimate the true rate. Using DHS surveys which contain both complete birth history data and information on CD and CEB, we have developed two new indirect methods. Both methods relate estimates of 5q0 from birth histories to the CD/CEB ratio, and therefore predict 5q0 directly.

In one case, the CD/CEB ratio calculated based on maternal age groups is used (i.e. cohort method). In the second case, a period-based measure of CD/CEB is calculated, which is used to estimate regression coefficients which then allow us to map the relationship between observed CD/CEB and 5q0. Both methods include regional fixed effects to capture regional variation in age patterns of mortality and fertility. The new indirect methods developed by IHME perform much better than the Brass/Trussell indirect method in the 0-3 years prior to the survey, as measured by average relative error, mean of the residuals, and standard deviation of the residuals. It is planned to add uncertainty to these methods as well as apply them using time since first birth groupings of mothers and also to perform external validation of the methods by comparing our indirect estimates of 5q0 to the estimates of 5q0 obtained from pooling all sources of data available in a given country (those that were published in the Lancet paper last fall).

In developing these new indirect methods, the assumption of direct estimates of 5q0 as the gold standard for comparison became questionable and the performance of the direct methods was explored in countries which had multiple DHS surveys. The smoothed direct estimates of 5q0 from a single survey was compared to the smoothed direct estimates from all surveys using Loess regression and the pattern of these residuals was examined. In the 7 years prior to the survey, the direct method tends to overestimate the rate of decline in 5q0. The estimates of 5q0 are lower, on average, for the 0-3 years prior to the survey and higher, on average, for the 4-7 years prior to the survey. There is a plan to explore this error further to see if it is a function of type of DHS survey, time, or some other variable. When comparing the new indirect methods to the smoothed direct estimates from all surveys in a given country, they performed even better than the direct method using birth histories.

Session 4: Activities for the year 2008 by the Inter-Agency Coordination Group (see the summary action points in Appendix 1)

Colin Mathers (WHO) presented a historical description of the GBD work up to the current work. Regarding the mortality envelope part, he indicated that there is a process in place for estimation, based on the Loess regression approach, and that this not necessarily has to agree with the values/estimates that the inter-agency coordination group produces. However, it would be better to have a single set of child mortality estimates for the users. Cynthia Boschi-Pinto (CAH/WHO) clarified the role of CHERG with respect to the GBD 2005 and mortality envelope work. CHERG is only focusing on cause-specific mortality fractions.

Kris Oswalt listed a set of activities and tasks that are still needed before officially launching to the public. One activity of importance is the double verification of the data they uploaded until now. UNICEF is hiring a consultant for 5 months to complete this task as well as the additional programming part to include the Loess estimation option and the production of uncertainty levels around the estimates. This person will also train the data base administrator (a UNICEF employee).

The process for generating the new estimates for 2007 was discussed. Given the timing of the publication of each agency's report (including UNPD's biennial World Population Prospects), it was agreed that the inter-agency group will meet in June (venue TBA) and review and agree the preliminary estimates. It was also agreed that the data quality assessment guidelines should be drafted by then.

Edilberto Loaiza presented a UNICEF working paper which includes the description of the methods used to produce the 2006 child mortality estimates done by the inter-agency group (i.e., spline regression). There was a general agreement that joint publication should be done if there is a major change in methods, etc.

Neff Walker (Johns Hopkins) reported the current status of the regional workshop by using the funds from the World Bank and the MacArthur Foundation with approximate total of US\$ 400,000 (US\$ 200,000 by the end of 2008). He raised several key issues, including which method to present to countries; use and application of child mortality database; development of training materials; and how many countries and whom to invite (e.g. NSO or MOH or both). The issues surrounding data quality assessment at country level is considered to be important for the purpose of the workshop. Given the timeline and resources, it was proposed that the priority is for SSA.

Ed Bos (World Bank) shared his experiences in the maternal mortality workshop in Dakar where the majority of activities was the explanation of the estimation process rather than a practical workshop. As this is a joint workshop by three agencies (the Bank, UNICEF and WHO (MHI and RHR)), it was agreed that careful planning and coordination is essential. The Bank has agreed to take a lead in the preparation. Training material needs to be developed by consultants.

Session 5: The way forward

Ties Boerma (WHO) proposed a new structure for the work of the inter-agency coordination group. The Inter-Agency Group for Child Mortality Estimation (IGME) was proposed to consist of the four agencies, with UNICEF and WHO as the chairs, and World Bank and UNDP as members. The IGME is responsible for the production of the estimates and is advised by a Technical Advisory Group (TAG). The core members of the TAG are experts in the field of child mortality estimation, supported by ad hoc members to address specific topics in task forces proposed by the TAG. There was general agreement that this would be a useful structure.

The proposal that Ken Hill be a chair of the TAG was approved unanimously and he has accepted the offer and will act as a chair from June 2008. There was a discussion about the TAG members and Cynthia Boschi-Pinto shared her experiences in the first stage of the CHERG. It was agreed that for the first meeting, each agency will propose a list of candidates and select the expertise who are willing to and support the IGME activities. Kenji Shibuya (WHO) stressed that it is important to have diverse and critical views, not just a group of friends. The terms of reference and workplans will be discussed in the next meeting. The topics for the first TAG meeting will be developed in due course, however, there are several key outstanding issues, including adjustment for biases in data, agreement on the estimation method, and uncertainty ranges.

Appendix 1

Inter-Agency Coordination Group on Child Mortality Estimation

6-7 March 2008
Salle A
World Health Organization
Geneva, Switzerland

Agenda

DAY 1: Thursday 6 March 2008

Child mortality database and estimation methods revisited

9:00 – 9:30	Session 1: Welcome and objectives of the meeting	WHO and UNICEF
9:30 – 10:00	Session 2: A brief update on the action points from July 2007 meeting <ol style="list-style-type: none">1. Work on the DevInfo adaptation2. Populate the child mortality database3. 2006 child mortality estimates4. Child mortality estimation procedures and approaches for uncertainty bounds5. Neonatal and sex estimation6. Time since first birth estimation7. Funding for regional training workshops8. Joint publication	Edilberto Loaiza (UNICEF)
10:00 – 10:30	Session 3: Child mortality database <ol style="list-style-type: none">1. Completeness of the current child mortality database2. Comments	Kenji Shibuya (WHO) Edilberto Loaiza (UNICEF) Julie Rajaratnam (IHME)
10:30 – 11:00	COFFEE BREAK	
11:00 – 12:30	Session 3: Child mortality database (continued) <ol style="list-style-type: none">3. DevInfo application	Kris Oswalt (CSF) Nicolas Pron (UNICEF) Trevor Croft (Consultant)
	<i>Discussion on the strategies for regular updating and future collaboration</i>	
12:30 – 14:00	LUNCH	

14:00 – 15:30 **Session 4: Neonatal mortality estimation** Simon Cousens (LSHTM)

Session 5: Sex differentials François Pelletier
(UN Population Division)

15:30 – 16:00 COFFEE BREAK

16:00 – 18:00 **Session 6: Child mortality estimation
Methods (video conference)**

1. Inter-agency group approach
(spline regression) Gareth Jones (Consultant)
2. Loess regression approach Chris Murray (IHME)
3. Comparison of the two approaches
and uncertainty levels:
looking for the right approach Simon Cousens (LSHTM)
Richard Silverwood
(LSHTM)

*Discussion on the common method
to estimate and forecast child mortality*

Day 2: Friday, 7 March 2008

Technical issues and future directions

9:00 – 9:15 **Summary of Day 1** Kenji Shibuya (WHO)

9:15 – 10:30 **Session 1: Data quality issues in DHS
and MICS** Jerry Sullivan (Consultant)

Session 2: Time since first birth Ken Hill (Harvard)

Session 3: Brass method revisited Julie Rajaratnam
(IHME)

10:30 – 11:00 COFFEE BREAK

11:00 – 12:30 **Session 4: Activities for the year 2008**

1. Coordination with CHERG
and GBD 2005 Ken Hill (Harvard)
Colin Mathers (WHO)
2. Management and administration
of child mortality database Kris Oswalt (CSF)
Nicolas Pron (UNICEF)
3. Coordination for the production
of 2007 estimates Kenji Shibuya (WHO)
Edilberto Loaiza (UNICEF)
Ed Bos (World Bank)
François Pelletier (UNPD)
4. Publication plan of estimates
and country profiles Edilberto Loaiza (UNICEF)

Discussion

12:30 – 14:00	LUNCH	
14:00 – 15:00	Session 4: Activities for the year 2008 (continued)	
	5. Regional workshops: plans, resources and commitments	Neff Walker (Johns Hopkins)
	Session 5: The way forward	Ties Boerma (WHO)
15:30 – 16:00	COFFEE BREAK	
16:00 – 17:00	Session 5: The way forward (continued)	Ties Boerma (WHO)
	<i>Discussion</i>	
17:00 – 17:30	Summary and closing	WHO and UNICEF



WORLD HEALTH ORGANIZATION

**INTER-AGENCY GROUP ON CHILD MORTALITY
ESTIMATION 6-7 MARCH 2008**

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02 April 2008

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