Recommendations from Spring Meeting

UNAIDS Reference Group on Estimates, Modelling and Projections

Geneva, May 2016

I. Ongoing development of EPP and Spectrum

Recommendations for Spectrum:

✓ Child estimates: Develop manuscript which describes the updates to the child model in detail and explains the changes in child estimates for the UNAIDS Supplement in AIDS. *Follow-up: Mary Mahy and John Stover to lead, submission end June 2016*

✓ Fit to programme data tool: Avenir Health to extract starting conditions from *fit to programme data tool* files and assemble these in a database so that this information can inform future estimates. *Follow-up: Avenir Health*

✓ Fit to programme data tool: Develop manuscript which describes the *fit to programme data tool* (defining the likelihood functions) and describes changes to the estimates. *Follow-up: Guy Mahiane, Kim Marsh, Kelsey Grantham, submission to UNAIDS Supplement end June 2016*

✓ PMTCT coverage: Review results of review of factors contributing to >100% PMTCT coverage estimates, *Follow-up: Avenir Health, review end August 2016*

✓ IeDEA estimation of mortality and disengagement from care: (i) Review potential for direct estimation of outcomes of those re-entering care, or propose best assumptions for use in absence of these data, (ii) produce estimates for East Africa and identify impact in Spectrum, (iii) identify if optimal to slightly alter the structure of the Spectrum estimation model for better alignment with Markov models; (iv) generate recommendations for regions without double-sampling. *Follow-up: Giorgos and Constantin (with input from John Stover). Present results at Fall meeting, Sept 2016*

Recommendations for EPP:

✓ GLMM in EPP: The Reference Group encourages open-source software, but a further technical and legal discussion is needed regarding GPL. UNAIDS to work with Avenir Health and East-West Center to draft a brief summary of the issue to present to WHO lawyers. *Follow-up: UNAIDS, John Stover, Tim Brown, May 2016*

✓ GLMM in EPP: UNAIDS to seek legal advice regarding GPL, the impact for the commercial libraries that Spectrum uses and the potential issues in different countries with regards to copyright. *Follow-up: UNAIDS, June 2016*

✓ AEM in Spectrum: Investigate methods to better match background mortality between AEM and Spectrum. *Follow-up: Tim Brown and John Stover, review by Aug 2016*

✓ Variance inflation: Review results from implementation of the variance inflation across many countries, *Follow-up: Tim Brown, review results in next Reference Group teleconference, July 2016*

✓ Incidence assays: Investigate reformulation of likelihood to account for sampling frame and survey design to incorporate incidence from cohort studies, PHIAS, and incidence measures in routine surveillance, with the aim to better understand what incorporation of these different types of data sources will entail. *Follow-up: Le Bao, Jeff Eaton, Tim Brown*

✓ Incidence assays: Working group to conduct these further investigations and generate recommendations for how to use incidence data. *Working Group: Tim Hallett, Tim Brown, Jeff Eaton, Le Bao, Mary Mahy, Secretariat to coordinate, review progress at Fall meeting, Sept 2016*

Recommendations for collaborative partners:

- ✓ <u>ECDC estimates:</u> ECDC and UNAIDS to continue to hold workshops together and work together for the production of robust HIV estimates in the European region.

- ✓ <u>PHIAs/DHS:</u> Recommendation to OGAC for ICAP to coordinate with Till Barninghausen/Mark McGovern to investigate selection biases and the use of Heckman methods for adjustment due to selective non-response in new DHS and PHIA surveys. *Follow-up: Jacob Dee to bring this to the attention of OGAC, Joy Fishel to raise with DHS*

- ✓ <u>PHIAs/DHS:</u> Comparison of methods used in DHS and PHIA surveys, *Follow-up: DHS and CDC to lead on this endeavour*

- ✓ <u>DHS:</u> Bayesian analysis of results of previous tests from DHS; seek optical densities of the tests. *Follow-up: DHS and CDC to lead on this endeavour with additional support from Secretariat*

- ✓ <u>DHS:</u> DHS to provide data for this group with regards to testing algorithms (past vs future), *Follow-up: DHS*

- ✓ <u>Uncertainty in DHS:</u> Revision to handling of uncertainty in DHS (and overall projection). *Follow-up: Secretariat to coordinate this work*

- ✓ <u>GBD vs UNAIDS:</u> Working group on HIV estimates in GBD compared to UNAIDS to form, *Follow-up: UNAIDS & Secretariat to coordinate*

- ✓ <u>GBD vs UNAIDS:</u> Further comparison of methods used and differences in estimates. Manuscript describing differences in approaches, flagging key difference in estimates for the UNAIDS Supplement. *Follow-up: Kim Marsh & Haidong Wang to lead, submission end June 2016*

- ✓ <u>GBD vs UNAIDS:</u> Comparison of GBD model assumptions (including induced parameters for natural history, effect of ART) with available country data (east Africa, ALPHA) *Follow-up: Haidong Wang*

II. Spatially-specific estimates of HIV

Recommendations for subnational estimates:

- ✓ Longer-term aim is for a single set of robust subnational estimates. It is anticipated that the Bayesian geospatial approach will be the preferred method for generating these estimates and will be available in the future

- ✓ In the interim, make countries aware this approach is forthcoming and provide coherent guidelines advising the methods available, with emphasis on continuity and simplicity

- ✓ For countries where use of the geospatial model is not possible, a limited selection of alternative methods should be provided with careful guidance. *Follow-up: UNAIDS & CDC to produce simplify guidance*

- ✓ Subnational estimation working group to advise on the technical issues and to speak to this topic on a regular basis. *Follow-up: Le Bao, Samir Bhatt, Pete Gething, Jeff Eaton, UNAIDS, US Government, Secretariat*

Recommendations for geospatial modelling:

- ✓ Establish timeline for incorporating ART, migration, estimating incidence and schedule for country visits.

- ✓ Data for catchment patterns – rural (ALPHA), urban (TBD, IeDEA have information on where people have come for services).

- ✓ Migration is a priority consideration.
  Follow-up: Samir Bhatt, Pete Gething, review progress with Subnational Working Group

Recommendations for Le Bao:

✓ Repeat analysis on multiple countries; confirm guidance on appropriate weight of pseudo-sites and general guidance for use. *Follow-up: Le Bao, review August 2016*

✓ Conduct analyses on the same countries as geospatial model development.

✓ Continue development of this work in parallel to geospatial model but with increased integration over the longer term.

✓ Application of the method will depend on the outcome of the GPL discussion – ideally integrated in EPP but potential for manual pre-processing. *Follow-up: Review outcome of GPL discussion, Tim Brown, UNAIDS, Avenir Health, Le Bao, Secretariat*

Recommendations for organisations:

✓ WHO/UNAIDS to focus on SNU-1, PEPFAR will focus on SNU-2.

✓ PEPFAR to support spreadsheet disaggregation in the same spirit of continuity where appropriate.

✓ UNAIDS to incorporate spreadsheet disaggregation at regional workshops *Follow-up: UNAIDS, guidance document end Dec 2016*

Recommendation for research:

✓ Identify how to best utilise the results from subnational estimates to inform programming – for countries, PEPFAR, Global Fund. *Follow-up: To be addressed at HIV Modelling Consortium meeting on HIV Models to Inform Programme Planning, July 2016*

Recommendations for the data repository:

✓ Establish funding available *Follow-up: UNAIDS, US Government*

✓ Identify value proposition to countries

✓ Learn from malaria database design and aim to replicate in similar fashion for HIV

✓ Store data at lowest level possible; implement user access and permissions

✓ Coordinate with US Census Bureau with regards to archived electronic data

  Follow-up: Secretariat to steer this forward, summer 2016

III. Development of an age-structured model

Recommendations for age-structured model development:

✓ Pilot estimation of sub-fertility by age and stage of infection model in Spectrum, review results and compare with data in PMTCT. *Follow-up: Jeff Eaton, Tim Brown, John Stover*

✓ Jeff Eaton to produce code in appropriate format for Tim Brown

✓ Maintain all fitting models in EPP in order to have flexibility to move between different models depending on data availability

✓ Peter Johnson and Tim Fowler to continue to develop demographic models to support the development of an age-structured model – Lesotho and Tanzania in the first instance. *Follow-up: Peter Johnson/Tim Fowler, Jeff Eaton, test age-structured model with use of these demographic projections for presentation at Fall Reference Group meeting*

✓ Prototype coded, tested in countries where demographic data have been provided (Lesotho, Tanzania). Assess performance of model with the view that countries could try to use this at the workshops in early 2017. *Follow-up: Jeff Eaton, Tim Brown, John Stover, review progress end July 2016 and end August 2016. Presentation at Fall Meeting, Sept 2016*

IV. Use of routine surveillance data

Recommendations for use of PMTCT data in EPP fitting:

- ✓ Generate recommendations for both scenarios – countries with site-level PMTCT and those with census-level PMTCT data
- ✓ For countries with site-level PMTCT: Generate recommendations regarding how the data should compare to ANC in order to be implemented, and how to implement in EPP (same site, different site, modification of sample size)
- ✓ Consider incorporating a pilot workshop to test the use of both approaches just before the Fall Reference Group Meeting, Sept 2016

  Follow-up: Ben Sheng, Le Bao with support from Working Group. Review progress in mid-July