Creating National HIV Estimates and Projections

Consensus on Mother to Child Transmission Rates Used in Models

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Mary Mahy, Sc.D., M.H.Sc.
Senior Epidemiological Advisor
UNAIDS

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Creating national HIV estimates

- Support countries to model the impact of HIV on their population
- Using HIV surveillance data and programme data countries create national HIV epidemic trends and estimate and project the implications of the epidemic
- Regional trainings on the models conducted every 2 years by UNAIDS and partners
- After the trainings country estimates are compiled and used at country, regional and global level

Estimates process

Surveillance data from
- Pregnant women at ANC
- HIV prevalence from population based surveys
- Surveys among high risk groups

Number of adults on ART

Estimation and Projection Package (EPP)

Adult HIV incidence

UN Population Division's population estimates

- Programme data on PMTCT and ART
- Epidemiological assumptions:
  - MTCT transmission rates
  - Progression parameters

Spectrum

- PLWHA
- New infections
- AIDS deaths
- Orphans
- Treatment needs
- ARV prophylaxis needs

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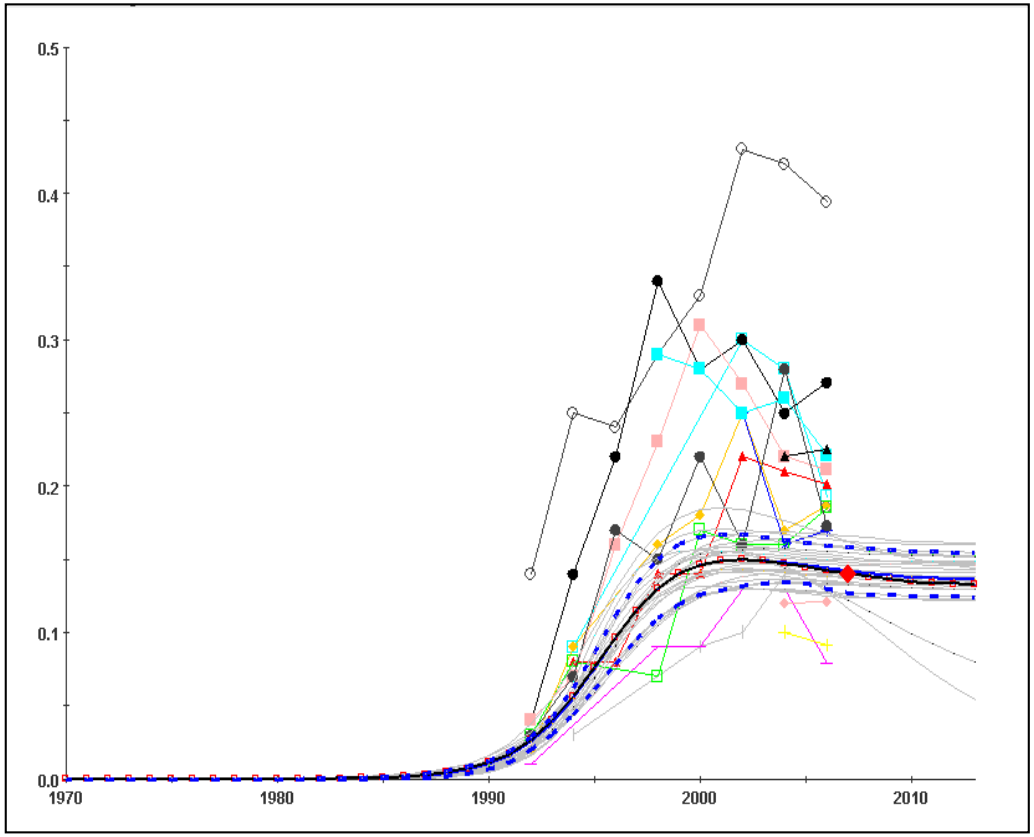
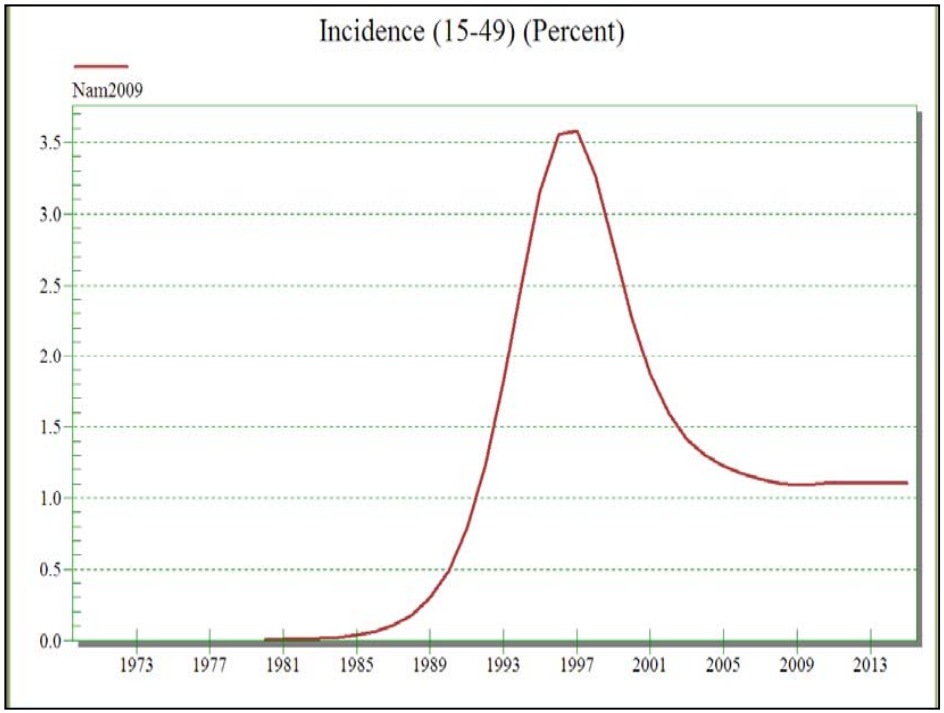
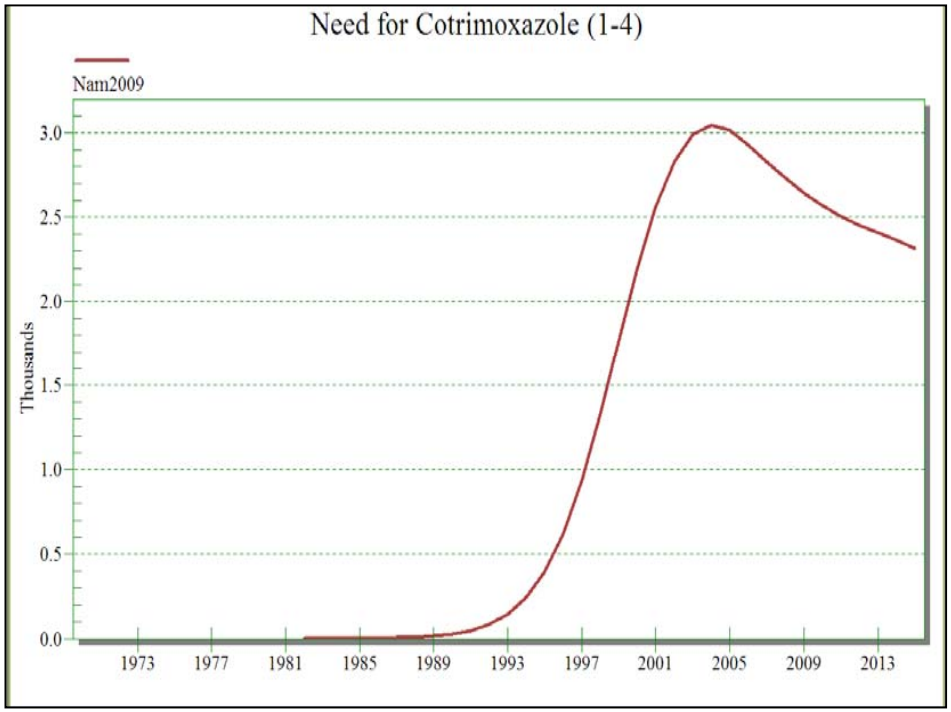
Estimation and Projection Package

1. Creates epidemic curve (HIV prevalence and incidence over time) based on surveillance data and ART programme data
2. Calibrates curve based on results from national surveys (if available)
3. Creates plausibility bounds to show uncertainty around epidemic curve



Example of Spectrum Output





Process … continued

- Over 100 countries use the models to create estimates
- Consensus meetings on inputs in country
- Estimates must be approved by government before publishing globally
- Reconciliation process to compare programme data in Spectrum with data reported to UNGASS, Universal Access Report, PEPFAR reporting (in 2010)

Assumptions

- Many countries have no data on parameters. Rely on default parameters included in the model
- Explanations of assumptions and parameters are published every two years in journal supplement

STI ONLINE

The Spectrum projection package: improvements in estimating mortality, ART needs, PMTCT impact and uncertainty bounds

J Stover, P Johnson, B Zaba, M Zwahlen, F Dabis and R E Ekpini

Sex Transm Inf 2008;84;i24-i30
doi:10.1136/sti.2008.029868

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Decisions on models and parameters are informed by UNAIDS Reference Group

- Reference group meetings (such as this one) to consider existing and new evidence
- MTCT transmission rates based on review in 2006 and consultation in 2008
- Defaults are reviewed every two years (or as needed)

Global uses of estimates

- Advocacy
- Target setting
- Determining priorities
- Broad impact monitoring

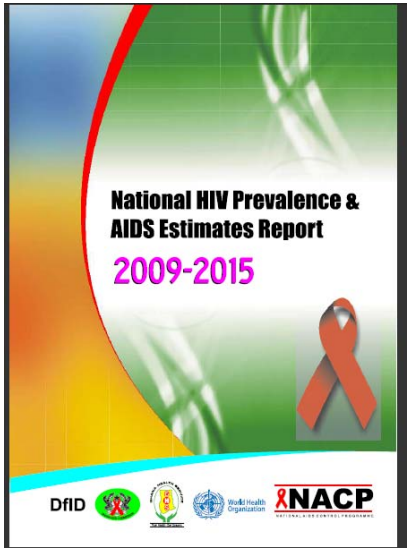
Global uses of estimates

Global summary of the AIDS epidemic, 2008

Number of people living with HIV in 2008	Total	33.4 million [31.1 – 35.8 million]
	Adults	31.3 million [29.2 – 33.7 million]
	Women (aged 15 and above)	15.7 million [14.2 – 17.2 million]
	Children under 15 years	2.1 million [1.2 – 2.9 million]
People newly infected with HIV in 2008	Total	2.7 million [2.4 – 3.0 million]
	Adults	2.3 million [2.0 – 2.5 million]
	Children under 15 years	**430 000 [240 000 – 610 000]**
AIDS-related deaths in 2008	Total	2.0 million [1.7 – 2.4 million]
	Adults	1.7 million [1.4 – 2.1 million]
	Children under 15 years	280 000 [150 000 – 410 000]

Country uses

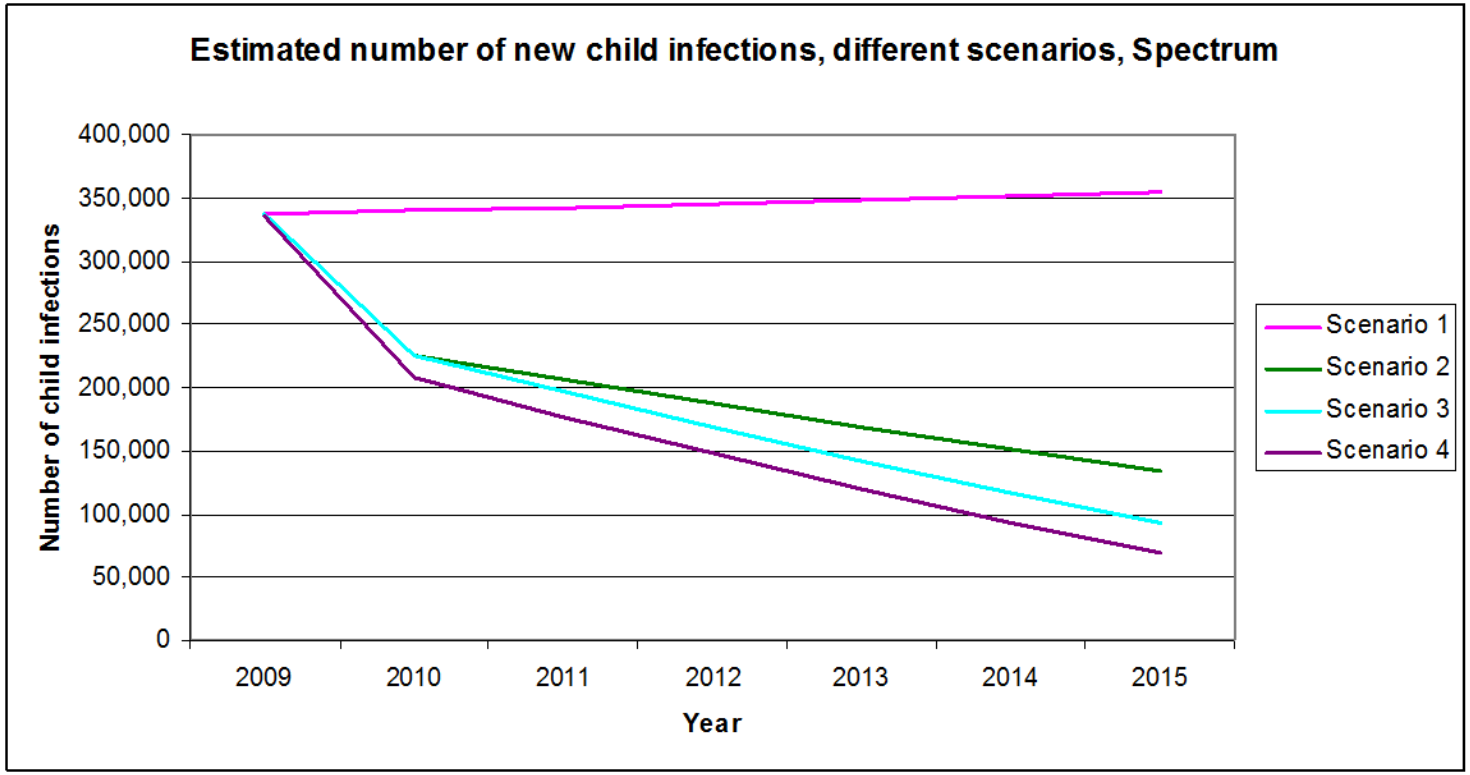
- Surveillance reports include estimates of national HIV prevalence and other variables produced in Spectrum
- Target setting for national strategic plans
- GFATM proposals
- Projections
- Monitoring - denominators
- Program planning



Recent work helping countries

- Measure potential reduction in new child infections of various PMTCT interventions
  - What will it take to reach “virtual elimination” ?
  - What should target be?
- MTCT interventions we can model:
  - Reduced incidence
  - Improved access to family planning
  - Increased coverage of highly effective ARV prophylaxis or ART among pregnant women
  - Reduced infections through safer infant feeding

Use models to consider various scenarios



Implications of using wrong transmission rates?

- Wrong messages on what is feasible to achieve
- Countries set unrealistic targets or set targets that they have already achieved
- Programme managers will be unprepared
- …

Thank you