

## Spectrum Update List

**Version** 4.49  
**Date** 5/12/2012

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- General
  - Added sum feature to all editors. Selecting a group of cells will display the sum in a hint.
  - Changed format of PJN file to support Unicode file names.
  - Increased the recent file history count to total of 8.
  
- AIM
  - Added new version of EPP R-24
    - Fixes a bug introduced by Java 1.7 in reading EPP XML files created with earlier versions of Java.
      - Note: Anyone using Java 7.0 (also known as 1.7) will need to use this newer version to avoid potential data loss in data files.
    - Fixes a downscaling bug in national uncertainty when “Adjust to prevalence of xx in year yy” calibration is used.
  - Fixed error introduced on calculations of HIV transmission during breastfeeding, such that the number on Option A or B for perinatal prophylaxis were also being counted for postnatal prophylaxis regardless of what was in the editor for postnatal prophylaxis.
  - New display indicators in AIM: Distribution by CD4 count: HIV+ not on ART (15-49), Distribution by CD4 count: HIV+ not ART (15-49).
  - Update to age pattern of incidence to correct a problem where the patterns were not adding up to 100 percent.
  
- AIM Scenario Generator
  - Fixed problem with projection file naming under CSV approach.
  
- Extract
  - Fixed issue regarding the Impact indicators in AIM.
  
- FamPlan:
  - Fixed problem with TFR being incorrectly calculated in the years before the survey year with calibration turned on.
  - Added Proximate Determinants interactive policy screen.
  - Added addition information on the survey data used in the configuration screen.
  
- Goals
  - Restructure of Goals menu bar.
    - Costing implementation for goals has been repositioned into the Resource Needs module.
    - All Intervention Coverage editors moved from Goals to Resource Needs module.
    - The Coverage and Unit Costs editors from Resource Needs Module remain accessible from Goals when RNM is active.
  - New display indicators: Distribution by CD4 count: Newly on ART and Distribution by CD4 count: Newly eligible for ART.
  
- LiST
  - Added French translated help files.

- Child, Maternal and Stillbirth deaths prevented by intervention by cause have been added to results.
- Added in the ability to link Interventions into all causes of death. This function can be found under LiST configuration in the manage interventions section.
  - Added export functionality for linked interventions.
  - Therapeutic feeding to be linked in for all diseases and age cohorts.
- Resource Needs Module:
  - Vaccines and PrEP are in the Coverage and Unit Costs editors but are only visible when Goals is active.
  - Restructure of Population sizes, Coverage and Unit cost editors in RNM.
  - User defined populations can be added in both General and Most at-risk population groups.
  - When Goals is active, RNM retrieves population values from Goals.
  - When Goals is active, RNM sets first year of estimates to the Goals base year of coverage, and the last year of estimates to the final year of the projection (to keep Goals and RNM in sync). The first year and last year of estimates can be viewed but not changed in the configuration editor when Goals is active.
  - There is now a default data file for RNM which is loaded when a projection is created.

<b>Version</b>	<b>4.48</b>
<b>Date</b>	<b>4/11/2012</b>

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- AIM
  - Fixed result under Total population – Need for ART, ages were not summing correctly.
  - Fixed error in the calculation of ART coverage in the summary display for adults 15+.
  - Fixed a display issue with the New HIV Infections by Risk Group and HIV Population by Risk Group tables.
  - Fixed problem with the calculation of HIV+ children under the age of two.
  - ARV Regimen and Breastfeeding editor values put into Extract.
  - The MTCT, Adult ART and Child treatment editors now have an option to convert values to and from Percents and numbers based on last calculated need.
- AIM Scenario Generator
  - More flexibility added to CSV approach for adjusting multiple data inputs for multiple projections.
- Extract
  - Adult and Child ART inputs from AIM have been added to the selection.
- FamPlan
  - Corrected unmet need calculation issues.
  - Fixed problem with births calculation due to slight variations in Total Fecundity when proximate determinants are calibrated to the survey year.
- Goals:
  - Fixed problem with reading in older goals data before we removed microbicide data.
- LiST
  - Added Spanish help screens.
  - Fixed problem with default values not being set for Herd immunity.
  - Added new help to coverage editors.

- “Calculate Abortion from FamPlan” is now set to true if FamPlan is added to an existing projection and false if it’s removed.
  - Fixed problem with direct entry of wasting causing odd cause of death structure in results.
  - Changes to default country data.
  - This fixes a detailed vaccine calculation issue where affected fraction was multiplied into the impact twice.
  - Fixed a bug in cohort vaccine wherein the projection bombs when calculating.
  - Added direct entry of wasting data to the coverage editor. In order to access the editor you first need to activate wasting in LiST configuration.
  - Fixed problem when loading FP to an existing LiST projection.
- LiST EzLiST
    - Pentavalent is now disabled if it is unchecked in the Vaccine coverage tab inside of EzLiST.
    - Fixed problem with delivery levels and coverages being scaled up in the base projection.
    - Fixed problem with delivery levels and coverages being flatlined before the impact base year.
    - In EZLiST, delivery level coverages and intervention coverages were increasing from 0 to calculated values in the Impact year. EZLiST now flat lines the data from the coverage base year to the impact base year so the jump is not extreme.
    - Fixed problem with EzLiST where checked interventions were changing numbers in baseline projection upon reentrance into EzList.
- LiST Scenario Generator
    - Fixed interaction with checkboxes in detailed delivery input.
    - Delivery editor will now show all interventions for all delivery levels.
- LiST Uncertainty Analysis
    - Changes to List Uncertainty calculations.
    - Fixed an error that caused older projections to drop LiST when opening.
    - Fixed floating point error in the coverage editor when cohort vaccines are active.

<b>Version</b>	<b>4.47</b>
<b>Date</b>	<b>2/22/12</b>

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- General
  - Various Internal changes to Spectrum related to the efficiency of reading and writing of data files.
  - Added link to online Spectrum support to Welcome page and Help Menu.
  - Fixed problem with country selection changing with multiple projections loaded.
- AIM
  - Added EPP2011 R22.
  - New patterns for mortality on ART (including LAC).
  - New patterns for incidence by age.
  - New output for Children under 2.
  - PMCT editor retains numbers and percent’s unless you over-write until you click OK.
  - Modified fertility reduction factor for ‘TFR reduction’ editor.
  - Updated data for distribution of new infections by age and sex.
  - Modified ‘HIV mortality with ART’ editor. Added ability to select regional pattern.

- Added 'Children under 2' result menu and 'HIV+ children under 2' indicator.
  - Added ability to enter ART coverage using CD4 categories.
  - Fixed problem with 15+ summary displays where ART coverage percent for the final year was not being calculated correctly when the first year of the display was something other than the first year of the projection.
  - Corrected issue with MTCT editor where row headings were not displaying properly when changing from percent or number to numbers and percent.
  - Corrected a few dropdown boxes to not allow manually entered data. Manually entered data would cause range check and access violation errors.
- AIM Uncertainty analysis
    - Added the following intervention; New HIV Infections – male 15-24, New HIV Infections – female 15-24, Annual AIDS Deaths (15-24).
- FamPlan
    - Fixed problem with pregnancies display and the summary output table.
- Goals:
    - Added ability to enter ART coverage using CD4 categories.
    - Modified the indicators used for display in UA
    - Added help text to editor screens.
    - Added Total Cost and Distribution by CD4 count HIV + on ART and not on ART to the Summary table.
    - Added option to select Impact Matrix from list of 3 tables, along with default data for each variation of the table.
- Goals Uncertainty
    - Uncertainty for Goals added as a beta version. In UA for Goals there are two tabs on the editor. The first tab is the “traditional” UA and creates a historical fit file along with a HVUAC file. On the second tab, the user selects a historical fit file which is used to determine the epidemiology values for each of the UA runs.
- LiST
    - Fixed problem with detailed vaccines, detailed measles and delivery coverages not being transferred properly in Scenario Generator.
    - Abortions are now being written out to the costing file.
    - Fixed problem with child birth coverage data not saving correctly.
    - Updated output for Costing Spread Sheet.
    - Fixed research version issue where intervention note maps to incorrect custom intervention if an intervention is deleted.
    - Made calculation changes to fix weighting of 'Percent of stunting reduction accounted by each intervention relative to intervention year.' Previously, this indicator did not always sum to 100 in a given year.
    - Made changes to delivery calculations (maternal, stillbirth, child). Previously, deaths were falsely being prevented from changes in delivery level coverages, even if the interventions themselves did not have coverage changes.
    - Added AIDS to Neonatal deaths prevented by cause and Neonatal deaths by cause.
    - Changed format structure of the CS file to CSV to match other modules.
    - In Health Status editor added decimal places to Cause of death totals.
    - When creating a new projection, the Cohort approach in LiST configuration will be unchecked when new projections are created and no projections are already open.
    - The Pie chart tab titles now display the indicator name.
    - In the Coverage editor, fixed up sum of case management of neonatal infection.
    - Detailed measles- greyed out measles coverage when detailed measles is entered.
      - Coverage will now transfer from Measles to MCV1 when “Enter detailed measles coverage” option is checked.

- Coverage will transfer from MCV1 to Measles coverage when “Enter detailed measles coverage” option is unchecked.
    - Scenario Generator for LiST will now set MCV1 coverage from Measles when “Enter detailed measles coverage” is on for the projection.
  - Fixed problem with custom interventions not saving correctly.
  - Fixed problem with effectiveness editors not holding data correctly.
  - Delivery level coverages were not being set in SGLiST and EZLiST when delivery interventions were checked. This caused a problem with the delivery calculations, and caused different results than Expert mode LiST. This bug has been fixed in both SGLiST and EZLiST.
  - Fixed the “show all items” checkbox in EZLiST
  - Corrected default country data.
  - Percent stunted’ and ‘Percent of stunting reduction accounted for by intervention relative to intervention year’ have been updated and have the 0-60 month summary.
  - Breastfeeding prevalence problem with data not being saved on tab change has been fixed.
  - Floating point error for projections with zero deaths for all causes except measles has been fixed.
  - Detailed measles inputs have been added to coverage and effectiveness editors.
  - Herd effect is now covering detailed vaccines.
  - Added new indicator, Percent of stunting reduction accounted by each intervention relative to intervention year
  - Moved the declining coverage checkbox for EZLiST into the configuration form.
- LiST Scenario Generator
  - Vitamin A, Zinc, IPT can now be entered.
  - Fixed issues with the data file, it will now save the declining coverage checkbox state as well as the state of the childbirth interventions.
  - Fixed an issue where projections with IPTp checked block all interventions from being saved.
  - Scenario Generator for LiST will now adjust detailed vaccines if detailed vaccines are active.
- Resource Needs
  - Revised PMTCT Costing calculations.
  - In configuration editor corrected dropdown boxes for first and final years so that a number cannot be added manually.
  - The value range warning for Program Support and Mitigation has been corrected to include the editor name.
  - Corrected calculations for unit costs for IDU categories. Resources required summary now correctly displays values for the IDU categories.

<b>Version</b>	<b>4.46</b>
<b>Date</b>	<b>11/11/11</b>

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- General
  - Restructured and streamlined module calculation management in Spectrum. This will allow for more advanced integration of modules in the future.
  - Added Undo/Redo to right click of Spectrum editors.
- AIM
  - Fixed problem with prevalence not being calculated correctly when using direct entry for prevalence without visiting the sex ratio editor.

- Fixed regional summary table to display values for appropriate sex based on sex ratio from EPP. For example, table will show zero for females when the region is MSM.
- Cost Effectiveness Analysis Tool for Goals
  - Corrected calculation so that values are calculated in the proper sequence to produce expected numbers.
  - Refresh “recently opened projections” so that the listed projections correspond correctly to actual projection history. Eliminated temporary files from this list.
- Demproj
  - Fixed problem with displaying population disaggregated by single age with multiply projections loaded.
  - Added help to each input editor and detailed help to the “help” button.
  - Added the year to the editor title of First Year Population.
  - Calculations were corrected to save treatment percent for infants.
- FamPlan
  - Added help to each editor and detailed help to the “help button.
  - Updated strings using “unwanted pregnancy” to “unintended pregnancy.”
  - When a method is now added to an existing projection (for new projections going forward), the Source mix defaults to 100 rather than 0.
  - When LiST is active, the Child Survival Tab and Post-Abortion Care button are not shown.
  - Emergency Contraceptive was eliminated.
  - The language “EasyProj” was changed to “Country” in the Configuration editor.
  - The editor tabs under Family Planning button have been rearranged for easier input.
  - Standard Days (SDM) method was added to the method selections.
  - The Goal editors were updated to have a more pleasing layout.
  - The Display configuration was updated to only include relevant options for the indicator being displayed.
- Goals
  - Uncertainty was updated to produce a CSV file with all Epidemiology values generated along with a goodness of fit for the run. This will presently be used for internal analysis.
  - Addition of greater than 500 CD4 count to Goals inputs.
- LiST
  - Update to Spanish Strings
  - Added new delivery relationships into EZLiSt and Scenario Generator LiST.
  - Scenario Generator LiST now has delivery/childbirth.
  - New default data.
  - Fixed the checkbox on the postnatal coverage page.
  - Fixed problem with data in coverage of delivery care editor not saving correctly when base year of coverage is changed.

- Fixed problem with result labels for intervention over extending rather than using hover text.
  - Breastfeeding promotion calculation has been adjusted.
  - EZLiST has a checkbox by which the user can allow declining coverages.
  - EZLiST has a cancel button for when the user accidentally clicks “OK.”
  - Childbirth editors have been enlarged.
  - The bottom childbirth editor now selects row 1, col 1 as the active cell.
  - In Coverage, case management of severe neonatal infections (in coverage) are slightly restructured.
  - Childbirth relationships have been moved into a csv.
  - Enlarged the mortality rate boxes in health status to accommodate Spanish text.
  - Added malaria to the detailed vaccines input.
- Resource Needs
    - Calculations were corrected to include costs for infant treatment and triple ART treatment for women.
    - Added PMTCT and Care and Treatment services to Resources required summary and Number of People reached summary.
    - Added calculations for ARV therapy, Non-ART care and prophylaxis and PMTCT to the Required Resources output.

**Version**      **4.451**  
**Date**        **10/24/11**

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- RAPID
  - Fixed problem when reading in previously created RAPID files.

**Version**      **4.45**  
**Date**        **10/7/11**

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- General
  - Added searchable Help feature although content is currently limited.
- AIM
  - Default data for PMTCT for Zimbabwe was added.
  - Fixed problem with calculations failing when called by Uncertainty.
- Aggregate
  - Calculations for the Mean Age of Childbearing values were corrected.
- Cost Effectiveness Analysis Tool for Goals
  - If blank or non-entry is left for Microbicides or PrEP in the target year, then those interventions are not calculated.
- Demproj
  - Fixed problem with life table being selected incorrectly when loading default country data. This affected small number of countries.
- Goals

- Sex acts per partner editor updated to have one set of values for both males and females.
  - Condom use graph changed to show values up to and including base year, after that values are flat-lined. Interpolated values for condom use now reflect values generated by logistics curves.
  - STI prevalence interpolated values editor reflects values generated by logistics curves for STI prevalence.
  - Cost effectiveness analysis tool: updated to allow a blank to be left for a target value. In this case the tool will not calculate for that intervention. If the base year and target year for an intervention are the same, the projection will not calculate for that intervention.
  - The table display for Distribution by CD4 count – HIV+ not on ART has been corrected to include the final category < 50.
  - The Cost by intervention table has been updated to include PMTCT. The row labels and table label have also been corrected.
  - In the GOALS editor, the logistic curve values are now placed them in the interpolated data which allows yearly numbers to be viewed. This is done for both Condom use and STI Prevalence.
- LIST
    - Fixed an issue where complementary feeding showing impact when not scaled up.
    - Fixed issue with results changing dependent on a visit to the coverage editor rather than calculation.
    - Breastfeeding promotion is selected by default when used with OneHealth tool.
    - Further changes to vaccination outputs.
    - Fixed deaths averted by year of vaccination where it was incorrectly showing the impact across year output.
    - Added 3 new custom vaccines to the coverage editor (in vaccine cohort mode) and to "effectiveness of vaccines(cohort approach)"
    - Removed disaggregation by age for deaths averted at age of first dose.
    - Fixed scenario generator so that it does not scale down target if current value is higher than default target setting for intervention. a box.
    - Changes to breastfeeding impact on diarrhea incidence.
- Resource Need Module
    - Fixed problem where Resource Need's was not being recalculated when displaying results in GOALS.

<b>Version</b>	<b>4.44</b>
<b>Date</b>	<b>9/20/11</b>

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- General
  - Incorporated welcome screen into main display tool bar
  - Added zoom feature to group displays on right click menu.
- AIM
  - Added Release 16 of EPP
- AIM Uncertainty Analysis
  - Corrected issue with reading existing Uncertainty Analysis

- Goals
  - Reconfigured risks groups to use direct entry for MSM in impact matrix.
- LIST
  - Added new output “deaths prevented by vaccine by cohort year.”
  - Fixed maternal sepsis problem
  - Enabled AMTSL for unassisted delivery

<b>Version</b>	<b>4.43</b>
<b>Date</b>	<b>9/12/11</b>

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- General
  - Added the ability to group active results into a single form in order to create a dashboard of indicators.
  - Added the ability to save active results to a favorites menu for easy retrieval in the future.
- Aggregate
  - Fixed problem with Aggregate and Resource Needs (RN) model integration. Since Treatment and PMTCT costs were moved from AIM to RN, Aggregate was generating an error when trying to access these cost. Aggregate will now only look at these cost if RN is active.
- AIM
  - Corrected the spike that occurred in the display of HIV+ Pregnant women in need of treatment when values in the MTCT editor were numbers one year and then percent's the next.
  - Added in EPP R15 to install file.
  - In Scenario Generator (When WHO eligibility is set) Spectrum now sets the eligibility to 200 up to and including 2009 and to 350 for 2010 forward. If the eligibility was set to 350 in a year prior to and including 2009, that value remains at 350.
- AIM Uncertainty Analysis
  - 'HIV+ pregnant women needing treatment' has been added to the display results.
- Demproj
  - Fixed problem with saving Urban regional data.
  - Fixed problem when disaggregating by age in Defined Population indicator.
- Extract
  - Fixed problem when selecting all indicators in the 'AIDS Impacts' category. Spectrum was only selecting the 'TB Cases'.
- Goals
  - A logistics curve option including graphs has been added to the STI prevalence and Condom Use editors.
  - Distribution by CD4 count has been added to the calculations and displays.
  - Epidemiology editor has been reorganized.
  - Population by risk group can now be displayed as numbers or percent.

- Update to Impact Matrix.
- LiST
  - Locked down EzList when detailed vaccines coverage option is selected.
  - Fixed problem with negative deaths being allocated to Measles vaccine.
  - Additional deaths prevented by children under 5 years of age is now aggregated by <1 and 1-59 age groups.
  - Fix for discrepancy between maternal deaths prevented by cause and maternal deaths prevented by intervention.
  - Fix for bug in Measles tab in vaccine tab of Coverage editor.
  - Fix for bug wherein the checkboxes in Coverage were not being saved properly.
  - Fixed Various EasyList problems.
  - DPT has been reworked across the cohorts.
  - Hib vaccine impact has been corrected for multiple doses of vaccine.
  - Pneumococcal vaccine impact has been corrected for of multiple doses.
  - Measles has been adjusted to not allow impact for under 6 months.
  - Rotavirus has the regional effects now, and Measles supplemental coverage is limited to ages 6 months and older.
  - Fixed issue for vaccine coverage discrepancy with 48 to 59 year olds.
  - Added detailed vaccine coverage output.
  - Further changes to detailed vaccine options.
  - Further changes to detailed vaccine options.
  - Updated default values.
  - Added geographic coverages for vaccines.
  - Added default data for detailed vaccine information.
  - Modified configuration so that we can only use detailed vaccine option when custom intervention are not used.
  - Changed the screen in coverage editor, so that we either see regular coverage or detailed coverage.
  - Fixed Easy LiST issue with closing displays.
- TB
  - Updated TB database.

<b>Version</b>	<b>4.42</b>	<b>Final version for UNAIDS AIM 2011</b>
<b>Date</b>	<b>8/1/11</b>	

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- General
    - Fixed problem when reading all Spectrum 3 files which used EPP in AIM.
  - AIM
    - Fixed the problem with new infections not being added to the correct CD4 categories when using prevalence input
    - Added review mode for EPP
  - AIM Uncertainty Analysis
    - Fixed regional problem when specifying bounds with local decimal indicator, such as “,” rather than “.”.
    - Increased precision on result table bounds e.g. 97.5% instead of 98%
    - Fixed summary table where upper bound was not showing.
  - FamPlan

- Updated user interface to match existing modules
- LiST
  - Fixed problem with EZlist displays
  - Fixed problem with safe abortion not impacting deaths averted.
  - Fixed problem with Impact of any breastfeeding among children 6-11 months of age
  - Fixed column label problem with table displays
  - Added in vaccine coverages by cohort (Beta only)
  - Fixed problem when reading in older files before cause of death structure change where neonatal causes of death from sepsis/pneumonia were changed to sepsis and pneumonia separately. Spectrum will now update the cause the death when reading in older files.
  - Added chart for child deaths 0-60
  - Modified calculations pertaining to the deaths proportioned by cohorts
  - Further modifications mortality calculations
- Resource Need Module
  - Additional changes to editors
- Goals Scenario Generator
  - Added in additional effectiveness parameter for vaccine
- RAPID
  - Added custom tool to facilitate data exchange between the RAPID women Excel program and Demproj

**Version**      **4.41**  
**Date**        **7/6/11**

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- AIM
  - Added, R14a for EPP which adds in the Reassign table

**Version**      **4.4**  
**Date**        **7/5/11**

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- General
  - Spectrum is now Unicode compliant. This allows the selection of Russian, Chinese or Arabic language without the need to change Windows' regional settings to accommodate non-Unicode programs.
  - UN population tables for 2010 were added.
- AIM
  - Added, R12 for EPP which adds in the Reassign table
  - Fixed problem with default data being loaded incorrectly for Sex Ratio when not in English
  - There was a problem in the AIM calculation with breastfeeding transmission. Spectrum has two breastfeeding patterns, one for those in the program and one for those not in the program. AIM has been using the proportion of women receiving postnatal prophylaxis to determine the proportion of women in the program. That causes a problem when there is not postnatal prophylaxis but the program encourages replacement feeding instead. Spectrum now uses the proportion receiving perinatal prophylaxis to determine the percentage of women in the program

- Prevalence data is not zeroes out when default AIM country data is reloaded in the Projection Manager. EPP prevalence adjustment is set to false whenever default AIM country data is reloaded
- Fixed problem with Uncertainty Analysis not working correctly for different regional settings
- FamPlan
  - Fixed problem with FamPlan incorrectly saving the active method selection.
  - Fixed problem with FamPlan allowing multiple projections to load with varying active method selections.
- LiST
  - Continued work on mortality problem. Additional changed to calculation of 1-5 and 6-11 month deaths
  - String changes (Portuguese and Spanish)
  - Additional changes to calculation of 1-5 and 6-11 month deaths
  - Updated country data defaults
- Resource Need Module
  - Beta version release

**Version**      **4.392**  
**Date**        **5/27/11**

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- AIM
  - Fixed problem with reading female/male sex ratio incorrectly from the EPP SPT file
- LiST
  - Modified Breast Feeding prevalence editors

**Version**      **4.391**  
**Date**        **5/13/11**

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- AIM
  - Fixed problem when reading in old regional data with Spectrum 3 files.

**Version**      **4.39**  
**Date**        **5/12/11**

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- AIM
  - Fixed problem when writing EPP files with users using non-English regional settings.
  - Fixed problem when reading AIM files created with Spectrum version 3.x

**Version**      **4.38**  
**Date**        **5/9/11**

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- AIM
  - New EPP added to installer

- **LiST**
  - Fixed problem with writing out costing file under tools menu

**Version**      **4.37**  
**Date**         **5/6 /11**

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- **Uncertainly**
  - Fixed problem with uncertainly failing on initial SPU file read

**Version**      **4.36**  
**Date**         **5/5 /11**

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- **General**
  - Added simplified version for selecting active projection through drop down box
  - Fixed problem when closing all projections and immediately opening a projection with dissimilar modules. Spectrum would recognize previously active modules as active even if they were not contained in current projection.
  - Added option to Export to either include or exclude EPP's bm2 files
- **AIM**
  - Add new version of EPP; EPP now supplies Spectrum with sub-region (or risk group) population values that are used to calculate HIV pop by risk group and New HIV infections by risk group
  - Added update to transmission rates and default button
  - The years to display on the Regional Table have been extended to include 2015
  - Added HIV+ pregnant women 15-24
  - In PMTCT editor, shade was added to No Prophylaxis and Total rows so that it is obvious that they cannot be edited.
  - In PMTCT editor, added a radio button to select numbers, percents or both
  - Adult and child summary table, added the input data numbers or percent on ART at the end of the table. This value is for Dec 31 rather than July 1. If the coverage is not inputted Spectrum will leave the cell blank.
  - Corrected problem when percent coverage is entered for adult ART in the future rather than numbers on treatment.
  - Some indicators such as PMTCT require the preselecting of "females" as a display option. This caused subsequent indicators to have "females" selected as default and created confusion in outputs. Spectrum now only remembers those display option specifically selected by the user
- **DP**
  - Reworked Demproj calculations to require less memory when projecting.
- **FamPlan**
  - Fixed problem with total row in the Method Mix and Source editors.
- **LiST**
  - Fixed problem with Diarrhea incidence results
  - Fixed re-calculation problem with averted deaths
  - Moved delivery effectiveness editors

- Updated delivery relationships
  - Unchecked Pentavalent by default
  - Fixed U5MR display error
  - Reworked Stunting calculations.
  - Added in custom delivery interventions
  - Added in translations for Spanish, French and Portuguese.
  - Reworked calculations to handle new deliver mode editor for child health coverages
  - Added additional hints for Interventions
  - Added total row to Curative tab for Severe neonatal case management
  - Moved Vitamin A and Zinc into same group as Complimentary Feeding.
  - Added maternal and stillbirth delivery functionality
  - Update data by country, default data, intervention data (as needed)
  - Changed names, notes, and organization of interventions
  - Re-organized coverage editor including some new calculation relationships
  - Fully re-modeled delivery editor
  - Added HTML comments. Comments with red flags not currently working
  - NOTE: Calculations for delivery changes are not fully functional. Changing delivery coverage may cause calculation errors
  - Search feature added to EasyList
- **Uncertainty**
    - Fixed problem with Number of women needing PMTCT being set to zero in the output

**Version**      **4.35**  
**Date**        **3/14/11**

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- **AIM**
  - Fixed problem with ART by age group indicator not matching standard 0-14 indicator
- **TB**
  - Various changes.

**Version**      **4.34**  
**Date**        **3/10/11**

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- **General**
  - Added new banding look to all editors.
  - Fixed Export function to include EPP files associated with an AIM projection
- **AIM**
  - Fixed problem with calculation of the effects of ARV prophylaxis on HIV transmission during breastfeeding.
  - Corrected some minor errors in the calculation of new child infections.
  - Updated version of EPP
- **TB**
  - Various changes to the TB module.

**Version** 4.33  
**Date** 3/7/11

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- **General**
  - Fixed problem with installation file not including supporting tag file for GOALS
- **AIM**
  - The “Median time from infection to AIDS death” is calculated and displayed in the “Years in CD4 count category” tab of the “Transition parameters” editor. The Median time can be recalculated when the values in the “Average number of years in CD4 count category” are changed.
- **Goals**
  - The Goals impact matrix has been updated to include new columns for MSM, MSM:IDU and IDU.

**Version** 4.32  
**Date** 3/3/11

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- **LiST**
  - Fixed issue with vaccines displaying herd effect inappropriately.
  - Fixed issue that causes custom intervention effectivenesses to be reset when CHERG message appears.

**Version** 4.31  
**Date** 3/3/11

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- **General**
  - Fixed problem with projections starting in 2011 causing an error in the Demproj calculations
- **AIM**
  - Corrected display issue in the AIM 15+ summary table for adult ART editor values as well as those for children in the AIM Children 0-14 summary table.
  - Updated the scenario generator editors for AIM and Goals.

**Version** 4.3  
**Date** 3/2/11

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- **General**
  - Removed MTCT module since functionality is now contained inside of AIM
  - The country-specific default values for EasyAIM are now automatically loaded for new projections and when AIM is added to an existing projection, as they are for DemProj.
  - We have added an exception log file that will report on any conditions that are trapped by the program but should not be happening. For example, if the number of people in a category is negative, Spectrum will set it to zero and write that action to the log file. By default, the exception file will be turned off, that is, it will not be generated. To turn the exception log on, go to options

- and select "Generate Exception Log". The exception log file will be saved under (my) Documents --> Spectrum and will be called "ExceptionLog.csv".
- Fixed problem with Demproj data file not reading correctly when regional settings for Thousands and Decimal separator were adjusted differently from US standard.
  - Adjusted editors in LiST to support 1024x800 resolution commonly used by net books
  - Fixed label problem in Extract output.
- **AIM (Major revisions to AIM in order to meet UNAIDS 2011 specifications)**
    - Enhanced Export function to include EPP files
    - Enhanced Transition Parameters to have a red cell if the user changes a value to be different than the default
    - Fixed UA so that the random generator does not produce negative numbers
    - Added new editor called, Reduction in HIV transmission when on ART, to the HIV mortality with ART tab under Transition Parameters. This value is passed to EPP.
    - Modified the procedure to read the SPT file so sub-group population data can be saved. This data is used to calculate and display values for HIV population by risk group and New infections by risk group
    - Modified Extract to handle the new indicators produced in #5.
    - Fixed bug in Adult ART editor so that the Linear projection button options show properly.
    - On return from EPP, the projection is now always made invalid to force a recalculation prior to displaying data.
    - Updated default values for Years in CD4 count category, proportion of new infections at CD4 count 350-499 and HIV mortality without ART.
    - Added "Restore all transition default values" button so the transition parameters values can be restored to the defaults if changes are made.
    - Added a new "editor" to the "Years in CD4 count category" that shows the median time from infection to AIDS death. Currently, the editor shows the default value of 11. At present this value does not change. We plan to allow the user to update the median values via a "recalc median" button when the user makes a change in the Average number of years in CD4 count category (this is not yet fully implemented).
    - Added arrows that show the progression through the AIM editors.
    - Corrected the issue with Total population for the base year in DemProj.
    - Corrected the issue with creating a new projection when using a language that uses numerical punctuation different than English (i.e. 1,000.32 instead of 1.000,32).
    - Corrected a small bug in which the sum of the incidence allocation by age might not sum to exactly 100%. The difference was small but with this change the incidence output from Spectrum matches the input exactly
    - A link to the JAVA website has been added to the message that appears when the user tries to run EPP but does not have JAVA installed on his/her computer. The user can cancel or click the button "Download JAVA" and the download website appears in the form.
    - The child (0-14) summary table now shows number on ART as of July 1 just like adults. New rows have been added at the bottom for "Total receiving cotrimoxazole (Dec 31)" and "Total receiving ART (Dec 31)" to the Child 0-14 Summary table. These new rows show the inputs for ART and cotrimoxazole.
    - Added the ability to read regional patterns of ART mortality. At the moment all countries are assigned to the East Africa pattern. As we get new patterns from leDEA we can modify the assignments appropriately.

- When a projection is copied using “Save as”, all files associated with the projection are now copied. This includes the SPU, SPT, ep1, ep3, UA, UAC and all files generated by EPP.
  - Added the configuration to the title of the Distribution by CD4 count tables and charts. When the table is copied into excel it will now show the configuration.
  - The issue regarding values for Distribution of CD4 count in Extract has been corrected. They are now properly saved according to time, CD4 count and sex.
  - A problem in the child model that was not progressing children on ART correctly has been fixed. We now store the duration of infection at the time of starting ART and apply the mortality reduction due to ART to the appropriate non-AIDS mortality.
  - HIV+ population by CD4 count can now be displayed by sex. This indicator can be found under AIM Results --> 15+.
  - Added new display indicator, “Need for ART by age”. This indicator is located under AIM Results --> Total population.
  - The Projection Manager form has been rearranged so that module selections are listed before the country selection button.
  - Modified the Mx tables display to show up to age 80 and correctly display non-AIDS Mx values
  - Modified the calculations of ART for children so they are handled just like adults, inputs refer to Dec 31, outputs are July 1
  - Added an adjustment in the PMTCT calculations for situations when the inputs specify more women on Option A and B than there are women with CD4 counts over 350. The correction adjusts the transmission probability of women on Option A or B by including a 1.45% transmission rate for those with CD4 counts under 350.
  - Modified the first year survival of children on ART to use  $\text{Surv0} / \sqrt{\text{Surv1}}$  rather than  $\sqrt{\text{Surv0}}$
  - Corrected a problem with double counting the impact of cotrimoxazole in the child calculations
  - The default values in Spectrum have been updated with the latest revision of the table of probability of mother-to-child transmission from Nigel Rollins.
  - Transmission due to incident infections during breastfeeding has now been implemented. Spectrum assumes that incidence among breastfeeding women is the same as among all women 15-49. For any woman who has a new infection during breastfeeding the transmission will occur as a single event. This may happen in year 1, 2 or 3 after the child’s birth. Transmission only occurs if the woman is still breastfeeding, as represented by average proportion breastfeeding during the year
  - **Adult ART.** There has been confusion over dates in the output summary tables since most indicators are for July 1 – June 30, but the number on ART indicator is for Dec 31. This has now been re-done. The output for number on ART will be for July 1 – June 30, just like all the other indicators. For the Adult 15+ Summary Table only, there will be a new row at the bottom of the table to show the input numbers on treatment as of Dec 31.
  - **Distribution of new infections.** A total row has been added to editor for “Male distribution of new infections” and “Female distribution of new infections”. If the total value is  $> 1.01$  or  $< .99$  a message is displayed. The user has the option of returning to the editor or to continue with the value in question.
  - Adjusted data files to support 5 decimals of accuracy to avoid problems with rounding errors during successive calculations.
- **Extract**

- Added Spectrum version number to Extract CSV file.
- Reworked calculation code in Extract
- **FamPlan**
  - Fixed problem with EasyFamPlan and age-specific mode of FamPlan. EasyFamPlan was setting the age-specific fertility to the total fertility. The solution is to skip that calibration when using the age-specific feature since we don't have age-specific data in EasyFamPlan.
- **LiST**
  - Added Export capability to the Intervention Manager for the research version.
  - Fixed an issue with herd effect vaccines.
  - Fixed an invalid floating point error in extract
  - Added 'Post abortion case management Basic EMOC', 'Post abortion case management comprehensive EMOC level', 'Ectopic case management basic EMOC level', and 'Ectopic case management comprehensive EMOC level' to the calculations in Periconceptual calculation type.
  - Added in type ordering in calculations for maternal and stillbirths.
  - Fixed bug that occurs on deletion of custom intervention
  - Put checks in place to turn off herd effect when coverage is declining
  - Removed Stillbirth capability from Vaccine, Curative and Preventive interventions
  - Removed maternal capability from Vaccine interventions.
  - Add 'Other' cause of death to postnatal effectiveness editor
  - Fixed bug that occurs when two vaccines are scaled up jointly
  - Fixed problem with Measles herd effect. It will now work for detailed and non-detailed measles vaccine.
  - Added in new option for creating custom Interventions (Advanced Users)
  - Fixed problem with export to MBB Spreadsheet in MBB transfer tool.
  - Fixed problem with zinc not impacting stunting.
  - Relaxed LiST validation requirements for Preeclampsia and Hypertension
  - Fixed issue with Coverages getting set to 0 for Delivery care interventions.
  - Fixed the issue with stunting not showing in deaths prevented by intervention.
- **MBB transfer**
  - An error was discovered during the LiST calculation if baseline year in MBB was greater than current year. This has been fixed with the following rule:
    - LiST base year and Intervention year is set to earliest of MBB year
    - Coverage of interventions from intervention year to MBB target year == linear interpolation between MBB baseline coverage and MBB target coverages.
- **Uncertainty Analysis:**
  - UA has been updated to incorporate the new inputs, including progression rates, ART mortality by CD4 count and duration on ART, and the new PMTCT transmission probabilities. The SPU file from EPP, if it exists, will automatically be used and does not require action by the user. Note that previously generated UA and UAC files are not compatible with the new Uncertainty Analysis tool.
  - Removed optimizer from Uncertainty Analysis
- **Scenario generator**
  - Number tag indicator extended to children on ART and Cotrimoxazole.

- <P> for percent and <N> for number tag has been added to the CSV input file format. The default is percent if no tag is included or there is an error with the tag. At the moment this is only done for Adult ART input. The tag should be entered in column B in the Adult ART row.

**Version** 4.22  
**Date** 11/10/10

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- **AIM**
  - Fixed problem with Orphans summary table not displaying correctly.
  - Fixed problem with MTCT default transmission parameters not be set correctly when a new projection is created.
- **LiST**
  - Added detailed measles information with new editors on the Vaccine tab of the Coverage editor, and inside PNN efficacy- Measles tab.
  - Added new country default data.
  - Reduction in mortality change (it now shows the Exclusive breastfeeding coverage change for 1-5 months).
  - Fixed an issue with the display menu not showing the correct indicators.
  - Fixed intermittent bug which caused EasyList to fail during setup.

**Version** 4.2  
**Date** 11/01/10

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- **General**
  - Fixed problem with language change concerning new menus.
  - Display options have been moved to the edit bar of each module and are now titled results.
  - Word wrapping in the editors has been improved.
- **Aggregate Uncertainty**
  - Aggregate uncertainty in regions mode now has an error log that shows any errors that occur while the aggregate uncertainty analysis is running. The log is saved in the same directory as the regions input file. It is called AggregateUARegionsErrorLog. The file will be overwritten each time the aggregate uncertainty analysis is run.
  - A new field was added to the aggregate uncertainty form that shows which file (in non-regions mode) or region (in regions mode) is being processed
  - Fixed various problems with Aggregate Uncertainty not calculating AIM indicators.
- **AIM**
  - Added in new Chinese translation to new strings.
- **FamPlan:**
  - An error in FamPlan that caused the CYP for vaginal barriers to be zero was corrected.
- **Goals**
  - There is a new editor in the Epidemiology Editor called Blood Transfusion which is where new infections caused by contaminated blood can be entered.

- **LiST**
  - Partial fix to Percent Reduction in Mortality indicator. Now Breastfeeding will show up if prevalence values are entered. However, when Prevalence values are entered the increase in coverage will be 0.
  - Added border functionality to indicate error messages.
  - Fix for Reduction in mortality display.
  - Changed the results menu so that items are grouped.
  - Fixed issue with breastfeeding impact not showing in results table.
  - Herd vaccine editor fix.
  - Added neonatal mortality indicators.
  - Post abortion case management bug fixed.
  - Changed the output file so that all indicators with invalid sums are set to 0.
  - Added new default data.
  - Fixed problem with extract not showing diabetes care, FGR and 41+ week induction.
  - Changed defaults for stillbirths.
  - Fixed U5MR calculation.
  - BF Prevalence display now properly shows the results.
  - Coverage editor validation bug fixed.
  - Hints have been added to effectiveness editors.
  - Reduction in mortality by intervention indicator is sorted by percent reduction.
  - EasyLiST display has been revamped and the calculation button has been removed. Calculation now occurs automatically (as needed) when the user tries to view results.
  - Country selection is no longer required for LiST.
  - Updated the 'Delivery and emergency obstetric care' and 'Abortion services' displays in Stillbirth and Maternal display.
  - Added the ability to create a LiST projection with nonexistent country data.
  - Added Still birth display option to configuration from.
  - Added in new default data for LiST.
  
- **Uncertainty Analysis**
  - Improved default starting values for the generation of random incidence curves are now used in the optimization routine.

<b>Version</b>	<b>4.1</b>
<b>Date</b>	<b>9/3/10</b>

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- **Demproj**
  - Fixed problem with Mx values were being calculated incorrectly for that Mx table output in DemProj.
  
- **FamPlan**
  - Added the ability to select a starting year in the display
  - Corrected problem with Famplan output tables not showing all years.
  
- **Goals**
  - Fixed calculation so that we calculate the costs for all youth not just those not enrolled in school.
  - Fixed problem with impact matrix values being read incorrectly from file.

- Model Fitting (display). Four additional MSM groups added to Male option for display when “four MSM risk groups” is selected in the Goals configuration.
  - Model Fitting (display). Display configuration now shows correct indicators based on selection in Sex options.
  - When choosing a Goals display by “single risk group”, the proper charts/tables are shown for MSM and IDU (previously they were swapped).
  - Goals editor: Unit Costs now displays the proper editor (it used to show the vaccine editor).
  - Editor default values for Impact Matrix editor fixed to make sure accurate values are used for Reduction in Condom Non Use and Reduction in Number of Partners when four MSM risk groups is selected in the Goals configuration.
- **LiST**
    - Corrected problem with Still birth numbers using Extract.
    - Correct Vaccine ordering so that the vaccines are applied together and then apportioned with all other preventions.
    - New vaccine effectiveness layout.
    - Update to effectivenesses that are reset when the CHERG message appears.
    - Fix to Scenario Generator warning message about the base year.
    - Flat line after the target year for checked interventions in Scenario Generator.
    - Fix to calculation of NMR that was allowing the NMR to be 100 times greater than it was supposed to be.
    - Fixed stillbirth affected fractions.
    - Updated stillbirth values.
    - Scenario Generator LiST now allows scaling down to 0.
    - New affected fraction values vary by country and are reset when the user chooses to revert to latest CHERG values.

<b>Version</b>	<b>4.0</b>
<b>Date</b>	<b>7/23/10</b>

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- **General**
  - Addition of new ribbon menu interface along with other cosmetic changes. Version 4 includes all internal analytical changes included in version 3.x.
  - Table and chart displays now offer a print option on right click
- **Aggregate**
  - Adjusted Aggregate function to work with all Demproj and AIM summary tables.
- **Aggregate Uncertainty**
  - Fixed problem with Aggregated mean not being adjusted to deterministic projection.
- **AIM**
  - Fixed various problems with child summary displays
  - Fixed problem with adult need for ART calculation
  - Fixed problem with Russian strings not displaying correctly.
  - Added new PMTCT input variables for costing and treatment. (Temporarily disabled awaiting approval)

- **Extract**
  - Fixed problem with Extract not being able to open SPU file when running uncertainty analysis.
- **FamPlan**
  - Added new CSV structure to Famplan data file.
- **Goals**
  - Changed “Summary Table” display to show appropriate rows based on “Number of MSM Groups” selection.
- **LiST**
  - Added stillbirth calculation including new default values
  - Made the tab/page controls homogenous
  - Put in the LiST notes
  - Changed order of stillbirth calculation
  - Added in a fix to the flickers on efficacy pages
  - Updated "impacts on wasting" editor and changed therapeutic feeding calculations
  - Update to historic Trend Files and default country data.
  - Changes to French strings.
- **Scenario generator**
  - Fixed problem with scenario projection not being saved in selected projection folder.
  - Specifically set Demproj to “Invalid” in scenario projection. This will force a recalculation when scenario projection is run.
- **Uncertainty Analysis**
  - Fixed problem with analysis stopping in 2008 when generating SPU file in Spectrum.
  - Added incidence 15-49 indicator.

**Version**        **3.56**  
**Date**            **11/01/10**

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- **AIM**
  - Fixed various problems with Aggregate Uncertainty not calculating indicators.

**Version**        **3.55**  
**Date**            **8/10/10**

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- **Goals**
  - Fixed problem with intervention costs being calculated before HIV population was calculated.
- **AIM**
  - Fixed various problems with Aggregate Uncertainty not calculating indicators.
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**Version** 3.54  
**Date** 8/6/10

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- **AIM**
  - Fixed problem when the percentage of women receiving triple ART is higher than the proportion still breastfeeding. Spectrum was previously not appropriately categorizing them as not breastfeeding.
- **LIST**
  - Fixed buffer overrun error with 3D graphs.

**Version** 3.53  
**Date** 7/29/10

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- **AIM**
  - Added a check when the input for number of children on ART exceeds the total number of HIV+ children, in order to avoid negative AIDS deaths
  - Corrected an error in the calculation of breastfeeding transmission past 12 months of age for mothers on ART. The percentage on ART was incorrectly divided by 100 producing an under-estimate of the number of new child infections

**Version** 3.52  
**Date** 7/21/10

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- **Uncertainty Analysis**
  - Added AIDS deaths (1-4) indicator

**Version** 3.51  
**Date** 7/15/10

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- **Aggregate Uncertainty**
  - Aggregate Uncertainty analysis does not include summary indicators in the output file while in regions mode.

**Version** 3.5  
**Date** 6/25/10

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- **LiST**
  - Fixed problem with Cause of death structure when reading in older files which did not include Pertussis.

**Version** 3.49  
**Date** 6/15/10

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- **AIM**
  - Fixed various problems with child summary displays
  - Fixed problem with adult need for ART calculation
  - Fixed problem with Russian strings not displaying correctly.
- **Extract**
  - Fixed problem with Extract not being able to open SPU file when running uncertainty analysis.
- **Uncertainty Analysis**

- Fixed problem with analysis stopping in 2008 when .spu generated in Spectrum.
- Added incidence 15-49 indicator
- **Aggregate Uncertainty**
  - Fixed problem with Aggregated mean not being adjusted to deterministic projection.

**Version**        **3.48**  
**Date**            **5/28/10**

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- **General**
  - Fixed problem with scenario generator not saving List module with appropriate name.
  - Added custom Spectrum Scheduler to facilitate automatic processing of Extract and Uncertainty against multiple country data.
  - Uncertainty file is now renamed properly during a “SaveAs” function.
- **Extract**
  - Fixed problem with Young adults 15-24 not saving values.
- **Goals**
  - Fixed problem with Goals not working under Windows 7
  - Added additional MSM risk groups
- **LiST**
  - Update to historic Trend Files and default country data.
  - Fixed problem with LiST scenario generator.
  - Fixed problem with Herd effect data not saving to file.
  - Fixed problem with DPT link with Pertussis
  - Modifications to default effective sizes.
  - Modification to therapeutic feeding apportioning calculation.
  - Modification to intervention apportioning calculations.
  - Fix in herd vaccine calculation for meningitis.
  - Fix for Complimentary feeding aggregation in results.
  - Added direct entry for stunting option.
  - Adjusted output for LiST costing spread sheet.
- **Uncertainty Analysis**
  - Implement an adjustment to the double logistics fit when Spectrum generates curves for uncertainty analysis. This compensates for patterns where the logistic does not fit well. The adjustment value for each year is equal to the actual data point divided by the value of the curve fit and ensures that the curves have the appropriate shape while still maintaining the same amount of uncertainty. Note: these changes were added in 3.46 but were inadvertently removed in 3.47.
  - AIDS Impacts Ratio of fertility of HIV+ women aged 15-19 and 20-24 will now accept values between 0 and 5.

**Version**        **3.47**  
**Date**            **4/8/10**

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- **General**

- Fixed problem with loading older version of the LiST module requiring the Intervention module.
  - Fixed problem with SaveAs not changing the name of the Intervention module.
  - Indicator output windows now appear as selectable tabs on the main screen. Any tab may be undocked or floated using the right click menu.
- **Aggregate Uncertainty**
    - A new option, Use Regions Mode, if checked the new Regions Mode dialogue window appears. When the open button is clicked, the user is prompted to select a “regions file”. The “regions file” is a csv file that has the following fields: Region, Country ID, Country, PJN file (including the path) for the country. This file is prepared outside of Spectrum by the user.
    - Clicking the Process and Export button causes Spectrum to create a separate Aggregate Uncertainty analysis of all the PJN files for each region. The data for each region is saved to the same csv file and contains the following data: Spectrum Version Number, Regions file name, Region, Indicator (Indicator and Configuration combined), Year and Estimate. The file is automatically named “...RegionsAUA\_YYYY-MM-DD\_THH-MM-SS” and saved in the same directory as the input Regions file.
    - It is possible to append .AUA files together. If this is done, the original file name remains and the word “modified” is placed next to the number of files. If one or more of the countries are the same in the additional AUA files, a message box indicates which country is duplicated and it is not added to the list.
- **AIM**
    - There is a bug in the way AIM is calculating the transmission of HIV through breastfeeding.
    - A new section, Young Adults (15-24), was added to the AIM Display menu. It has all of the same indicators as the Adults (15-49) and Adults 15+ sections.
    - A new section, Young Adults (15-24), was added to the AIM Display menu. It has all of the same indicators as the Adults (15-49) and Adults 15+ sections. Output will be completed in the next beta release.
- **Extract:**
    - A new report called Data List was added. Data List is a csv file that contains the Projection File Name, Projection Title, Country, Indicator (Indicator and Configuration combined), Year and Estimate.
    - If a saved Extract file (.ex extension) is opened, the file name is now displayed along with the number of projections in the “ex” file.
    - It is now possible to append Extract files together. If this is done, the original file name remains and the word “modified” is placed next to the number of files duplicated country files are skipped.
    - Fixed problem with ART among children 1 to 4 display.
    - Added fixed form data list output.
    - Added the ability to append existing EX file with currently loaded EX file.
- **LiST**
    - Cause of death inputs are not separated between neonatal and post neonatal.
    - Pertussis is now an active cause of death.

**Version**        **3.46**  
**Date**            **2/16/10**

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- **General**
  - Update to source code compiler.
  - Added country name output to Extract file.
  - Fixed problem with transpose selection under Extract.
  - When creating a new projection, the module selection dialog as been updated to include LiST trend data. This removes the need to have a separate Trend projection option in the “File” menu.
  - Fixed EasyProj to account for population 85+ from UN population data.
  - Fixed projection history problem where newly created projections were being saved in history while the projection was discarded.
  - Moved the position of spectrum.ini file to windows application data folder. LiST Trend data is also saved to this folder.
  - Fixed problem with Import not loading projection in newly selected folder.
  
- **AIM**
  - Fixed default values in AIM for child eligibility for treatment when reading older files.
  - Revised code for the child eligibility calculations.
  - Changed default values in AIM for child eligibility for treatment.
  - Updated AIM to include new progression patterns along with CD4 count guidelines for treatment.
  - Added new analysis of child cohorts to determine the progression from infection to death in the absence of treatment by those infected perinatally and those infected through breastfeeding.
  - Added a new section to determine eligibility for ART among children. Spectrum now estimates the distribution of HIV+ children by CD4 count and CD4 percent at each age, based on data from European cohorts. The user can specify the national eligibility criteria in terms of the age below which all HIV+ children should be on ART, the CD4 count and the CD4 percent.
  
- **FamPlan**
  - Fixed calculation of abortions when abortion rate is specified directly in proximate determinates editor.
  - Added feature turn off TFR calibration based on Easyproj survey year.
  - Changed the way FamPlan calculates total fecundity (TF) when Easy FamPlan is selected. In the past TF was calculated at the survey year. This has been changed to calculate TF at the bass year of the projection
  
- **Goals**
  - Fixed small problem with Goals Vaccines editor
  
- **LiST**
  - Fix for IPT, BES, MMS (IUGR impact) calculation.
  - Updated effectiveness default data.
  - Aggregated 1-59 for the child death indicators.
  - Removed mortality rate summary indicator.
  - Fixed Therapeutic Feeding calculation causing impact an a new baseline projection. Updated therapeutic calculation concerning cohort disaggregation.
  - Further revisions to IPT malaria calculations.
  - Various Label changes.
  - Added Nutrition effectiveness to default refresh of data.

- Put in check for decreasing coverage relative to the base year.
  - Reordered calculations to follow specific intervention sequencing
  - Added new causes of death
  - Fixed baseline mortality rate editor validity check.
- **Uncertainty Analysis**
    - Implement an adjustment to the double logistics fit when Spectrum generates curves for uncertainty analysis. This compensates for patterns where the logistic does not fit well. The adjustment value for each year is equal to the actual data point divided by the value of the curve fit and ensures that the curves have the appropriate shape while still maintaining the same amount of uncertainty.

**Version**        **3.45**  
**Date**            **11/30/09**

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- **FamPlan**
  - Fixed paste problem in Prevalence editor for CPR Goal
- **General**
  - In Easy FamPlan, adjusted prevalence calculation to accommodate change in abortion index and unmet need with time.
- **Extract**
  - Fixed small bug introduced in version 3.44 which prevented the selection of Uncertainty indicators.

**Version**        **3.44**  
**Date**            **11/20/09**

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- **General**
  - Added filename hints to projection selection in various tools.
  - Added new welcome screen
  - Added projection history to file menu
  - Added updated splash screen
  - Adjusted single year calculation of 5 year TFR for 2008 UN population data in Easyproj for final year.
  - Changed file format of string dictionary to accommodate strings larger than 255 characters and future Unicode support.
  - Updated Spectrum to MBB Link.
- **Demproj**
  - Fixed problem with rural population being miscalculated when the First Year population editor was not visited.
  - Fixed label problem with summary indicators when switching display parameters. Table was not being sufficiently cleared.
- **LiST**
  - Update to default country data.
  - Fixed problem with IPTp set to 100% exposed in all countries, regardless of changing it.
  - Update labels
  - Update effectiveness scores for child and maternal

- Herd effect is now active at the start of level (i.e. 90%)
- Updated French, Spanish and Portuguese strings
- **Bottleneck analysis (Beta Module)**
  - Various changes
- **FamPlan**
  - Now uses the proximate determinants model to calculate the proportion of births that are unwanted and due to unmet need.
  - Added an unmet need option to the prevalence goal. This allows unmet need to be reduced as prevalence increases. The initial value is read from Easy Famplan and will remain constant from the first year of the projection to the survey year in the database.
  - Fixed column with problem in child survival editor.

**Version**        **3.43**  
**Date**            **10/9/09**

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- **General**
  - Fixed Import procedure to properly work with Uncertainty files. Export now zips prevalence (\*.SPU) file.
  - Fixed format problem with CopyAll function in editors where some rows were being displayed with incorrect precision (right decimal) after Excel paste.
  - Added normalize to “Right Click” menu on editors.
- **AIM**
  - Replace the default female/male ratio for non-IDU driven epidemics to the same one that is used for IDU driven epidemics.
  - Fixed problem with Child ART need numbers for single indicator not matching summary table.
  - Fixed problem with HIV summary tables showing incorrect data when using a FirstYear parameter other than the first year of the projection.
  - Changed the display of need to be all those on ART plus those eligible on July 1 but not yet on ART. This is in response to a timing issue where Spectrum was displaying the number on ART as of December 31, but calculating the number in need for July 1.
  - Removed restriction on the number of children on ART to the identified need.
- **Demproj**
  - Fixed problem with infant mortality rate calculation when using single sex parameter.
- **Goals**
  - Fixed MSM labels in behavior editors, they were showing incorrectly.
  - Goals will transfer incidence numbers to AIM during calculation.
  - Now includes the effects of the parameter ‘Transmission multiplier for male to female’ entered in the epidemiology section of the Goals editor.
- **Extract**
  - Fixed problem with AIM’s children under 1 indicators. They were showing all zeroes.
- **LiST**
  - Various calculation modifications.

- Added the ability to choose a LiST trend file when creating a projection.
  - Corrections to the calculation of the impact of interventions on stunting.
  - Corrections to calculation of diarrhea incidence used in stunting.
  - Added maternal deaths averted indicator.
  - Word Wrapped intervention names in order to create move horizontal room in editors.
  - Updated MBB transfer procedure so MBB model can remain open during Spectrum data transfer.
  - Elapsed time for MBB transfer operation was significantly reduced.
- **Uncertainty Analysis**
    - Initial release of Uncertainty aggregate feature.
    - Uncertainty results are now written out to a binary (\*.uac) file in order to lessen space requirements. The complete unsorted results for each indicator is saved in the \*.uac file along with the upper, median and lower bound results for sorted iterations.
    - Modified the double logistics fit so that it would reject any curves showing incidence less than or equal to 0 in 2015
    - When generating SPU files, Spectrum now writes out a zero prevalence number. Previously Spectrum was repeating the incidence number in the prevalence column. This was causing incorrect incidence adjustments when AIM was calculating.

**Version**        **3.4**  
**Date**            **7/22/09**

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- **AIM**
  - Fix problem introduced in 3.38 where AIM was incorrectly adjusting the incidence for new projections created without using Incidence data from EPP.
- **Extract**
  - Fixed problem with orphan calculations showing all zero's in CSV file.
  - All output written with a value of < 1 will use a 4 decimal format.

**Version**        **3.39**  
**Date**            **7/21/09**

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- **Uncertainty Analysis**
  - Added new indicator to the uncertainty output, 'Number of new HIV infections among adults and children.
  - Fix problem introduced in 3.38 where Uncertainty Analysis was incorrectly adjusting the prevalence during calculation.

**Version**        **3.38**  
**Date**            **7/10/09**

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- **General**
  - Added print function to right-click menu on all charts.
  - Title of indicator has been added to table print output.
  - Spectrum now unzips imported projections in the same folder where the zip file resides.

- **Demproj**
  - Added First Year selection to all displays.
- **LiST**
  - Changed order of delivery coverage indicators in editors.
  - Adjusted delivery related formulas in the coverage editor.
  - Fixed Breastfeeding display issue with <1 cohort.
  - Update to default data database.
  - Update to Costing output tool
  - Update to MBB transfer tool
  - Fixed data problem of various indicators when reading in old data projections.
  - Added checkbox to scenario generator which allow the option to flat line unchecked interventions from the intervention year to the target year.
  - Fixed problem with LiST calculating too many averted deaths for HIV interventions when coverage in the AIM module was scaled up to large percentages.
  - EasyLiST only validates checked interventions which avoids unnecessary calculation warnings.
  - Reworked Intervention links across cohort calculations.
  - Added output folder selection to Scenario Generator
  - Maternal effectiveness editor is now displayed by death cause
  - Fixed bug in EasyLiST related to validate
  - Changed the list of indicators so that they appear in order in EasyLiST
  - Changed the default Base year for LiST to 2003 where possible.
  - Fixed problem with random numbers appearing in EasyLiST output tables
  - IPT Malaria's affected fraction is calculated as the proportion of women in the first or second pregnancy.
  - Modified List Scenario generator to include scale up year.
  - Unhooked EasyLiST from expert mode and added transfer option for EasyLiST coverage values to expert mode.
  - Added 3 inactive wasting editors
- **AIM**
  - Adjusted treatment cost calculations to match summary table.
  - Updated progression patterns.
  - When reading in incidence from EPP, Spectrum will calculate the incidence among all adults 15-49 required to match the EPP prevalence for historical years. For future years, Spectrum will adjust EPP's incidence based on an adjustment calculated in the last historical year between the adjusted incidence and EPP's incidence
  - Single indicator for Number of children receiving ART now correctly matches the same output in the summary table.
- **RAPID**
  - Added First Year selection to all displays.
  - Increased accuracy of consumption of major crop input in the Agriculture sector.
- **Uncertainty Analysis**
  - Added Indicators to extract routine

**Version**        **3.37**  
**Date**            **6/1/09**

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- **AIM**

- Fixed problem with language change improperly showing menu indicators until Spectrum was restarted.
- **LiST**
  - Added maternal mortality section to LiST
  - Added new reduction in mortality by intervention indicator

**Version**      **3.36**  
**Date**        **5/28/09**

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- **AIM**
  - Fixed problem with CD4 count labels.
  - Fixed problem with Regional Summary Indication not showing the correct year.
- **LiST**
  - Temporarily reversed vaccine herd effect, and prevalence entry for Breastfeeding options.

**Version**      **3.35**  
**Date**        **5/21/09**

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- **General**
  - Fixed problem with background color and merged cells in editors and tables.
  - Fixed problem with EasyProj migration numbers in database. Numbers larger than 1 million (small number of countries) were being divided across two years.
- **FamPlan**
  - Fixed problem with TFR calculation when using EasyProj. Repeated calculations were causing a TFR reduction.
- **AIM**
  - Added Russian translations to new screen in AIM
- **LiST**
  - Added an editor in list to extend the vaccine herd effect to allow differential effectivenesses from 50 percent coverage to 100 percent coverage.
  - Added direct prevalence entry for Breastfeeding patterns. An option remains to use to use the breastfeeding promotion intervention.
  - Fixed problem with “percent stunting graph” showing 0-60 months as a graph rather than a summary table.

**Version**      **3.34**  
**Date**        **5/07/09**

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- **General**
  - Fixed problem with Editor “CopyAll” not showing table title after an Excel Paste.
- **Demproj**
  - Added 2008 UN population database
- **AIM**
  - Correction made to the calculation of the cost of TB-ARV treatment. The number of people receiving TB treatment and ARZs is estimated as the number newly

starting ART times the percentage that are also on TB treatment. The percentage on TB treatment was estimated as total TB cases divided by the adult population. In this correction it is estimated as total TB cases divided by the total need for ART, since most TB cases will be among those HIV+ in late stage.

- **Famplan**
  - Fixed problem in the “Reducing unmet need for contraception” editor. The interpolate and duplicate functions now work as expected.
- **Goals**
  - Fix problem concerning Configure for secondary school enrollment rate and the percentage of the adults in formal sector employment inputs. These are in percents but the calculations were treating them as rates.
- **LiST**
  - Spectrum will only prompt for effectiveness updates once during each Spectrum session and user’s choice is applied to each subsequent file loaded.
  - Affected fractions on (effectiveness of nutritional interventions, IUGR tab) which are locked are now shaded to indicate they are linked to another source.
  - Added source buttons for the different tabs under the coverage editor. "
  - ‘Complementary feeding education’ and ‘complementary feeding education and supplementation’ interventions now have direct outputs. Previously they were funneled into a single output.
  - In Deaths prevented by intervention indicator, any intervention showing zero deaths is hidden from the output table.

**Version** 3.33  
**Date** 4/13/09

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- **General**
  - Easy Famplan now selects prevalence as the default goal.
  - Fixed problem with CopyAll function duplicating data after an Excel paste.
  - Added Duplicate and Interpolate options to Editor’s right click menu.
  - Fixed display problem switching from table to line chart with various indicators.
- **Fiscal Space**
  - Module opened for testing.
- **LiST**
  - Fixed problem with LiST not recognizing PMTCT coverages when entered as percents.
- **RAPID**
  - Fixed protection fault error with Health sector displays.
- **MBB Tool**
  - Bas year of generated scenarios will start no latter than current year -1. This is needed for proper AIM calculations.

**Version** 3.32  
**Date** 4/07/09

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- **AIM**
  - Add Search button to find sexual activity for TFR reduction editor
  - Added new breastfeeding editor to support DHS survey data.

- **LiST**
  - Added EZ list Interactive editor.
  - “Other” category relabeled “Injury/Other”.
  - Took out Pertussis as a cause of death.
  - Pie charts numbers on cause of death indicator are now round to whole numbers.
  - User is now asked to update effectiveness with Spectrum version change.
  - LiST now supports Portuguese.
- **Famplan**
  - Spacing problem corrected with Summary of Inputs and Risk adjusted mortality rate output tables.

**Version**        **3.31**  
**Date**            **3/23/09**

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- **AIM**
  - The Adult ART editor projection options, now work with both first line and second line data.
  - The default values for ART survival in the first year are now 0.86. The default value for ART survival in subsequent years is 0.90.
  - The regional table output is now working with regional data read from EPP.
- **LiST**
  - Made additional changes to scenario builder tool.
- **Uncertainty analysis**
  - Summary table’s drop down display year is now working correctly.

**Version**        **3.3**  
**Date**            **3/12/09**

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- **General**
  - Added the ability to reload EasyProj defaults in an existing projection.
  - Added Family planning data to EasyProj for specific countries.
  - Added the ability to increase or decrease decimal accuracy in the editors and tables via the right click menu.
  - Updated the appearance of Editors and Charts.
- **AIM**
  - Spectrum now uses incidence as the main input for future projections. It has new patterns to describe the age distribution of new infections calculated from DHS and service statistics.
  - New patterns of progression from infection to need for treatment and from need for treatment to AIDS deaths have been developed based on cohort data. Different patterns are provided for eligibility for treatment at CD4 counts under 200 and for CD4 counts under 350.
  - The model can now be used to estimate the effects of switching eligibility criteria from CD4 count under 200 to under 350 in some future year.
  - Survival in the first year of ART can now vary by year as program coverage improves.
  - New factors for the effect of HIV infection on fertility have been developed from DHS data sets.

- Children with HIV are now tracked separately for those infected perinatally (fast progressors) and those infected through breastfeeding. (slow progressors).
- The proportion of children diagnosed with PCR can now be entered by year.
- The model now uses the new WHO guidelines for children on eligibility for treatment.
- The effects of cotrimoxazole on child mortality are now calculated separately for child on ART and not on ART.
- The equation for estimating the number of double orphans has been updated from the latest DHS data.
- The uncertainty procedure can now generate incidence curves for the uncertainty analysis if an uncertainty file from EPP is not available.
- New output indicators have been added including the perinatal transmission rate, ART coverage, and children living with HIV, new infections, AIDS deaths, need for cotrimoxazole and need for ART for children under the age of 1 and children 1-4.
- Calculation for orphans now uses perinatal transmission rate at the time of the birth rather than the year of calculation.
- **Extract**
  - Extract is now working for all LiST indicators.
- **Goals**
  - HIV module has been renamed Goals and behavioral interventions/calculations have been added.
  - New editors have been added to Goals Module.
- **LiST**
  - Fixed problem in Extract, the tool will now deliver the correct information for deaths prevented relative to the intervention year.
  - Added Scenario Generator tool
  - Added new 3D bar charts.
  - Added MBB transfer wizard to Tools menu.
  - Fixed problem with proportioning deaths across cohorts.
  - Fixed problem with facility birth scale up not interacting correctly with home births' lives saved.
  - Spilt coverage editors into various grouping tabs.
  - Added start date for displays.
  - Added French translation.
  - Fixed problem with calculation of deaths averted due to AIM interventions. This was achieved by running AIM multiples alternating PMTCT ART and cotrim inputs.
  - Fixed problem with ART preventing negative deaths.
  - Calculation for deaths averted by ART is changed so we don't take credit for saving the same child year after year.
  - Fixed child deaths apportioned to 6-11 month cohort. Previously only AIDS deaths were being placed in the 6-11 month cohort.
  - Added a display to show neonatal, infant and Under 5 mortality rates on the same page.
  - LiST was using Child mortality rates from Demproj to split LiST calculated u5mr by sex. CMR was not read in from the Life tables before LiST needed. This has been corrected.
  - Added the ability to export data to Costing spread sheet.
  - Deaths were not being apportioned correctly by cohort. Too many were being put into 0-1 Month. This has been corrected.

Date 10/24/08

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- General/Demproj
  - Child Survival (LiST) module added to Spectrum.
  - Added new editor input routines to Demproj, AIM, and LiST modules.
  - New main menu system.
  - When creating a projection in the projection dialog, warning message will alert user if Easyproj was not selected.
  - Fixed problem with new projection created using Easyproj. Population was not being calculated correctly until the Demproj editors were visited.
  - Upgraded Custom life table to single year layout.
  - Added Custom Russian life Tables.
  
- AIM
  - In AIM, fixed transmission probabilities for mother to child by type of infant feeding. Previously exclusive and replacement labels were interchanged.
  - Fixed AIM's orphan indicators which were showing incorrect data with language option set to non-English.
  - Corrected the calculation of number of children on cotrimoxazole when coverage was set high.
  - Revised the calculation of births to HIV+ mothers to reflect that fact that the ratio of fertility reduction among HIV+ women should be interpreted as the ratio of fertility among HIV+ to HIV- women rather than HIV+ to all women. This has the effect of estimating somewhat more births to HIV+ women – up to about 10% more when prevalence is as high as 25%. It has no noticeable effect when prevalence is low.
  - Updated Treatment labels to PMTCT.
  - Fixed regional summary calculation in AIM. Prevalence and Incidence were calculated incorrectly in successive calculations. This was also causing an error in Uncertainty Analysis calculations.
  
- Family Planning
  - Fixed net reproduction rate in FamPlan.
  
- PMTCT
  - Fixed year adjustment problem in PMTCT module. This was causing errors in output indicators and in saving input data.
  
- Vaccine
  - Fixed final year discrepancy in Vaccine module's HIV Prevalence editor.
  - Fixed calculation error in Number of people on ART in Vaccine Module.
  
- Uncertainty Analysis
  - Changed Uncertainty Analysis to use a constant seed in random number generation. This will produce replicable results with repeated runs.
  - Added HIV Adults 15-49 to Uncertainty Analysis.
  - Uncertainty Analysis now generates Prevalence files (SPU) to match year settings of loaded projection. Previously it was fixed at 2012.
  - Increased decimal accuracy of generated prevalence file inside of UA module. This will match accuracy of prevalence inputs in AIM module.
  - Fixed calculation error with projections starting latter than base year of workbook.
  
- Scenario Generator
  - Modified the Scenario Generator in Spectrum so that you can easily create a 'No ART' scenario.

- Added variable selection to Scenario Generator to target specific variables.
- Scenario Generator now saves Active Indicator Check Box to saved options data file.
- Extract
  - Fixed order of indicators in Extract transpose file to match indicator selection list.
  - Spectrum will be more responsive during long Extract processing, i.e. not hang.
  - Added a progress bar in Extract.
  - Fixed corruption in Extract transpose file with data being misaligned in wrong columns.
  - Spectrum will no longer skip over Non-UA projections during Extract. Non-UA projections will show blanks under UA indicator columns.
  - Fixed problem with Extract ignoring Uncertainty Analysis module data when reading in previously saved Extract (EX) data files.
  - Fixed problem with Extract and projections with UA data. UA data was not being properly read in and causing error messages during processing.
  - Fixed problem in Extract tool in the generation of the transpose file. Spectrum was omitting data with one indicator selected and multiple projection files.
  - Transpose selection in Extract is now being saved in EX file.
  - Fixed AIM (summery of age) indicator in Extract. It was not being included in the transpose CSV file.

**Version**        **3.14**  
**Date**            **11/02/07**

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- Added total cost for all AIM treatment indicators.
- Fixed editor error "Class not installed" which would appear after installation of 3.13 on various machines.

**Version**        **3.13**  
**Date**            **10/30/07**

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- Added Portuguese translation for the Vaccine module in Spectrum
- Fixed problem with CTX users getting counted twice in Demproj.
- A problem was discovered in the MTCT editor. The editor was not correctly picking up the number of women not on treatment.
- Fixed problem with extracting Deaths by Age in Extract tool.
- Fixed problem with U5MR calculation.
- Fixed problem with Defined age display in Demproj. Error would occur with when choosing high age = 80, electing 'table' and 'disaggregate by age'.
- Fixed the calculation of IMR in Demproj.
- Fixed Extract calculation problem with multiple projections chosen.
- Spectrum will now auto re-project data files created from previous versions of Spectrum. This eliminates the need to force a re-project by entering and saving data in an editor.
- In AIM corrected the calculation of new HIV infections needed to achieve the input prevalence so that the output prevalence exactly matches the input prevalence
- In AIM changed the calculation of incidence indicator so that it uses the formula:  $incidence_t = \text{new infections}_t / (\text{adults}_{t-1} - \text{HIV}_{t-1})$  This allows the user to copy incidence from a projection that is based on prevalence and use it to create another projection that is based on incidence and that will produce the same output prevalence.
- In Aim corrected the calculation of incidence by sex when the projection is based on incidence as the input. Female and male incidence are now determined by the input prevalence for both sexes combined and the ratio of female to male prevalence. Note that the ratio of female to male prevalence is usually close to the ratio of female to male

incidence but is not exactly the same. For the best results the user should calculate the ratio of female to male incidence from the Adult 15-49 Summary Table and put the result in the input editor for the sex ratio.

- Smooth curve for the sex ratio of prevalence when you create a new projection or press the Generalized Epidemic button in AIM.
- In Vaccine, fix to the MSM spike problem.
- Added the ability to copy table data to the clipboard when viewing Uncertainly output.

**Version**        **3.12**  
**Date**            **7/02/07**

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- Version 3 of Spectrum includes a number of enhancements to the demographic projections (DemProj) and HIV/AIDS module (AIM). The demographic projection routines have been completely re-written to integrate the impact of AIDS more tightly into the demographic calculations and to improve the handling of the timing of demographic events and the estimates of mortality by single age.
- New life tables have been constructed from the UN and Coale-Demeny model life tables that now include survival by single age.
- The HIV/AIDS calculations now track people by stage of infection (uninfected, asymptomatic, in need of treatment, on treatment, dead from AIDS). Options have been expanded to include first and second line ART for adults and distributions of treatment and infant feeding regimens for PMTCT.
- New epidemiological patterns have been implemented, following the recommendations of the UNAIDS Reference Group on Estimates, Models and Projection.
- A new section on uncertainty has been added that allows the estimation of the uncertainty ranges associated with key HIV/AIDS indicators.
- New tools have been added to Spectrum that allow the easy creation of multiple scenarios from a number of country files (Scenario Generator), extraction of selected indicators from a number of different Spectrum files (Extract) and aggregation of indicators across a number of Spectrum files (Aggregate).

**Version**        **2.42**  
**Date**            **11/14/06**

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- Added in LAM method and calculation to FamPlan.

**Version**        **2.41**  
**Date**            **10/2/06**

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- Added new feature to the source button. The user is now able to copy, cut, paste, and print text entered in the Source editor.
- Added new HIV Vaccine model into Spectrum
- Updated string files.

**Version**        **2.40**  
**Date**            **4/25/06**

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- Fixed bug in demographic routine. It affects demographic projections with migration.
- Fixed regional error when reading in .spt files from the EPP program.

- Updated strings in the FamPlan model.

**Version**        **2.39**  
**Date**            **2/15/06**

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- Changed default values for % on cotrimoxazole surviving to the following year, % on ART surviving to the following year, and % on ART and cotrimoxazole surviving to the following year in AIM.
- Increased the maximum AIDS years from 20 to 30 under HIV Progression.
- Updated constants for Adult and Children, fast and slow patterns.
- These new constants will be forced in for old data files.
- Added new Emergency Contraception model in FamPlan.
- Added new Demographic Dividend outputs in Demproj.
- Updated Wanted Pregnancies calculation so that outputs are not negative.
- Added new Safe Motherhood Model.

**Version**        **2.38**  
**Date**            **10/14/05**

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- Fixed bug in Famplan. There was a division by zero error that would happen in Growth rates when certain inputs were entered.
- For Unwanted Pregnancies terminated, changed maximum value to 86.
- Changed the way the pop up warning for PAC model is displayed.
- Update feature added.

**Version**        **2.37**  
**Date**            **6/1/05**

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- Updated strings for new AIM and Demproj changes.
- Added new section in PMTCT.
- Fixed bugs in the EPP routine.
- Numerous bug fixes in the new AIM section.

**Version**        **2.36**  
**Date**            **4/12/05**

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- Found and fixed bug that was causing incorrect outputs for New Infections, New AIDS Cases, and Number Infected.

**Version**        **2.35**  
**Date**            **4/5/05**

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- Fixed bug found in EasyProj routine.

**Version**        **2.34**  
**Date**            **4/1/05**

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- Added new EasyProj Data files that will be read into Demproj. These include ASFR, Sex Ratio, and Migration.

**Version**        **2.33**  
**Date**            **3/24/05**

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- Fixed bug for the calculation of the effect of the PMTCT program in AIM.
- Fixed bug for new EasyProj Sex Ratio inputs.
- Fixed Final Year bug that occurs because of the new Ranges and Regions summary tables.
- Fixed string error in AIM. New infections by age had "Percent" in the title.

**Version**        **2.32**  
**Date**            **3/21/05**

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- Fixed bug with "Number on ART" output in AIM. This was not being calculated.

**Version**        **2.31**  
**Date**            **3/19/05**

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- Fixed bug in Prevalence and Incidence outputs in AIM. It was being displayed as a whole number instead of having two decimal places after it.

**Version**        **2.30**  
**Date**            **3/9/05**

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- Added ability to read new SPT files from EPP as well as the older version.
- Prevalence can now be read in from formatted excel files in AIM.
- Added new DHS inputs in AIM.
- Reworked the "HIV Age Distribution" tab in AIM. Added buttons "Apply Generalized Epidemic Pattern" and "Apply Concentrated Pattern". Updated the patterns.
- Reworked the MTCT tab in AIM. Added three new options the user can choose from. "Medium Duration of Breast Feeding in Population", "Treatment program", and "Infant feeding options". Two new inputs were added, "Base transmission rate (no program)" and "Transmission rate with program". User can specify if they want to enter "Pregnant women receiving PMTCT" as percent or as a number.
- Added new "Child Treatment" tab in AIM. Five new inputs were added here. They include: "Percent of children born to HIV+ mothers receiving cotrimoxazole", "Percent of children with moderate-to-severe HIV disease receiving ART", "Percent of children on cotrimoxazole surviving to the next year", "Percent of children with moderate-to-severe HIV disease on ART surviving to the next year", and "Percent of children with moderate-to-severe HIV disease on ART and cotrimoxazole surviving to the next year. The user can also decide if "Early diagnosis of HIV-infection is available".
- Reworked the AIM display. It is now split into the submenus "Total populations", "Adults", "Children", "Regional table", "Ranges table", "Orphans", and "Impacts".
- Added new summary table outputs "Regional" and "Ranges"
- Added four new outputs for children. They are "Need for cotrimoxazole", "On cotrimoxazole", "Need for ART", and "On ART".
- Updated the EasyProj data.
- Disable the "HIV/AIDS parameters" tab in AIM.

- Added version number to the splash screen.
- Removed unused AIM impacts inputs and outputs. "TB incidence without HIV", "Percent pop with latent TB", and "TB incidence with HIV" are only needed.
- Changed the name of the install file from "Spectrum.exe" to "SpecInstall.exe". This was done to avoid user confusion from the actual install file name to the run file name.

**Version**            **2.29**  
**Date**                **12/3/04**

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- Added new feature in AIM. For Adult HIV Prevalence, the user can now click on a check box to be able to display 4 decimal places instead of 2. Adult HIV Prevalence is now being written to the output file with 4 decimal places.

**Version**            **2.28**  
**Date**                **8/20/04**

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- Made changes to PAC display menu. Removed "Lives Saved" output.
- Made string changes in the CR model. Changed Population Group names for "Commercial Sex Workers" to "Sex Workers", "Married or In-Union Couples" to "Married or In-Union Couples (for HIV)", and "Family Planning Users" to "Family Planning Users (for FP)".
- Added a warning popup dialog that comes up when the user is using the PAC model. It basically reminds them to have the abortion option "Calculate from unwanted pregnancies" enabled.

**Version**            **2.27**  
**Date**                **6/10/04**

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- Spectrum can now display the Chinese language.
- Fixed bug in EasyProj. When certain countries were selected an error message would display.
- Changed the way Number newly needing ARV therapy is calculated. It now uses Number on ARV Therapy.
- Fixed bug in Life Expectancy output. A Floating Point Error would occur when the user would display Life Expectancy without a re-calc.
- Added Total Number Needing ARV output.
- Added Adult population 15-49 to the Adult 15-49 summary sheet.
- Added child population 0-14 to the Child 0-14 summary sheet.
- Fixed bug in Sex Birth Ratio calculation.
- Updated the way All AIDS orphans are being calculated. It now takes in account if one parent dies from AIDS it is more likely that the other parent will also die of AIDS than if the parent dies from some other cause.
- Fixed bug in "Total Number Needing ARV" calculation.
- Fixed bug in Sex Ratio. The formula to calculate male and female infections to achieve the desired sex ratio didn't work well over the long term.
- Fix bug in the Life Tables that would occur when Easy Proj was selected with the Japanese country.
- Fixed bug in All AIDS Orphans calculation.
- Made changes to NewGen calculations.
- Added New Orphans section in AIM.

- Reworked the New Orphans section. New outputs are “Total New Orphans” and “Orphans and Vulnerable Children”.
- Fixed bug in PAC model, it now handles division by zero error.
- Fixed bug with the new Custom Model Life table. Program will set the Life table back to default if the path is invalid.
- PJN file now writes the version number out.
- Added new Condom Resource Model.

**Version**        **2.26**  
**Date**            **2/11/04**

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- Modified the AIM output file to now write out the new Orphans change from 0 to 14. It now goes from 0 to 17.
- Added to new indicators in the AIM Adult 15-49 Summary output table. Indicators added are: Number newly needing ARV therapy(both sexes), Number newly needing ARV therapy(male), Number newly needing ARV therapy(female), and Number on ARV therapy(both sexes).

**Version**        **2.25**  
**Date**            **2/09/04**

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- Fixed bug in AIM. After the projection was re calculated it produced no children less than 14 with HIV.

**Version**        **2.24**  
**Date**            **2/02/04**

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- Fixed bug in Pyramid Charts. The max year constant was not changed from 50 to 100 years. If user had projection over 50 years and tried to display a Pyramid Chart they would get a Range Check Error.
- Fixed bug in AIDS death by Age Pyramid Chart. Data wasn't being correctly outputted to the Pyramid Chart.
- Fixed bug in Number On ARV Therapy calculation.
- Changed default values for HIV Sex Ratio.
- New default pattern for sex ratio of female to male prevalence in generalized epidemics, peaking at 1.3.
- New default value for the reduction in TFR among HIV+ women 20-49 of 0.7, to balance the sex ratio change.
- Life table designations in EasyProj are updated according to Ian's report of the meeting at UNPOP.
- In EasyProj, non-AIDS life expectancy at birth has been re-estimated for those countries with changed life table designations in order to maintain the same child mortality.
- Fixed a bug so that the Fast button for the child pattern for progression to AIDS death now gives the new default pattern.
- In DemProj the sex ratio at birth is now a vector instead of a scalar - you can make it change over time.
- You can now have your own custom life table file. In the model life table editor you can select "Custom" and designate a file name. The only thing to remember is that the life table file must be in the Spectrum\DP directory.
- Added a feature to DemProj to allow you to enter the base year population by single age.

**Version**        **2.23**  
**Date**            **1/09/04**

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- Added 4 new HIV indicators under AIM Epidemiology.
- Fixed Orphan Calculation problem, difference in years before AIDS epidemic.
- Added default values for the AIDS orphans inputs. 71 for both.
- Added new default values for child survival
- Added direct calculations of children born HIV+
- Added new indicator called Number on ARV Therapy under AIM Epidemiology.
- Added new summary of inputs table under AIM Epidemiology
- Copy All feature now displays the Indicator name.
- Added break lines in the display dropdown menu list under AIM Epidemiology
- Updated the life table to match what the UN Pop Division uses.
- Fixed bug in EasyProj that occurred when starting a projection in 1950
- Orphans now show ages 0 to 17 instead of 0 to 14.
- Fixed bugs in the PAC model calculations

#### 2.22 8/7/03

- Added new model in FamPlan called Post-Abortion care.
- Fixed bug in FamPlan. The Duplicate and Interpolate buttons were not working in the Goals section.
- In FamPlan, fixed the calculation of acceptors of IUD and implants to exclude the separate calculation of discontinuation of new acceptors in the year of acceptance.

#### 2.21 7/16/03

- Made change in FamPlan so that there can be no negative Acceptors output.
- Fixed Summary of Inputs bug in FamPlan. Summary Of Inputs should not show Female and Male Ster. Average age when Age Group Option is set to Five year Age Groups.
- Made a calculation change in FamPlan. The calculation was using a discontinuation rate based on the average age to calculate sterilization acceptors. Changed the calculation to remove the discontinuation from the calculation of acceptors for male and female sterilization.
- Fixed bug in FamPlan. When multiple Projections are loaded, the data is lost for Method Mix.
- Added Normalize button on the International Migration tab in Demproj. This button can only be used for Male and Female Age Distribution.
- Resized editors in Demproj and AIM so that more years are displayed without the user having to scroll.
- Now Arabic and Russian strings show up within cells. This is used in certain summary tables.
- Fixed bug in Demproj, on the ASFR tab if user selected "Enter from Keyboard" and tried to display a chart the "Custom" column would not show up.
- Updated Arabic strings.
- Updated Russian strings.
- Fixed Arabic and Russian string bugs.

#### 2.20 5/6/03

- Made a fix in the Family Planning module. The Normalize button was not showing up in the Method Mix and Source Mix tabs.
- Fixed the Disaggregated check boxes in Family Planning Display.
- Added Select Fonts dropdown list in Environment dialog. It is now possible for the user to choose from many different fonts.
- Updated Portuguese strings in AIM and Demproj
- Updated Arabic strings.

2.19 4/25/03

- Updated strings for Russian and Arabic in AIM and Demproj.

2.18 4/18/03

- Made a change in the NewGen module. In the Abortion Rate editor sheet, set the input for two decimal places instead of one.
- Resolved the problem of having the user manually adjust the window size when using large fonts.

2.17 4/17/03

- Updated the data in the Easy Proj section of Spectrum.
- Changed the size of the Easy Proj screen to show counties with long names.
- Made a change in the Demproj editor. In the Demographic Data button, first year population tab. For very large first year population the numbers would not fit in the columns. Also set it up so that if the scalar is set to Units then no decimal place is shown.

2.16 4/8/03

- Fixed bug in EasyProj. When user would try to open an EasyProj file they would get a Range Check error.
- All EasyProj countries were not being read in correctly. Namely China Hong Kong SAR, China Macao SAR and China.

2.15 4/3/03

- All Orphans outputs were not being written to the AIM output file. Thus whenever a user came into the display and didn't force a recalculation data wouldn't show up.

2.14 3/31/03

- Fixed scaling problem in the Orphans Section.
- Made a change in NewGen. Changed calculations for Pregnancies, Births, and Abortions.

2.13 3/24/03

- Changed output files so that NAN and INF are not being outputted.

2.12 3/13/03

- Fixed bug in Orphans section, Maternal AIDS Mortality time loop error.

2.11 3/13/03

- Added Portuguese strings for new AIM Orphans section
- Added Portuguese strings for PMTCT
- Changed Summary by Age output in AIM section so that it now goes from 0 to 14 instead of 0 to 15.

#### 2.1 3/3/03

- Fixed scaling problem in the new AIM Orphans summary section.

#### 2.0 2/28/03

- The new version of Spectrum will not run under Windows 3.1. It will work under Windows 95, 98, ME, 2000, and XP. Anyone who is still using Windows 3.1 should continue to use the last release, version 1.63.
- Long file names, longer than 8, characters are now fully supported.
- There is a new chart type that displays a chart with a table of values at the bottom.
- Projections can now extend up to 100 years.
- The population projection now saves all the single age information. For most purposes this will not make any difference, but in cases where you are looking at special age groups, such as primary school age students, this change will make the projections more precise.
- There is a new section on orphans that calculates maternal, paternal, dual and total orphans due to AIDS and non-AIDS causes and can display all orphans or by single years of age.
- Updated patterns for the age and sex distribution of HIV are included and the interface with EPP has been updated to accommodate the new version of EPP that will be released in about one month.
- The latest changes in NewGen are included.

#### 1.63 6/03/02

Added French and Spanish Strings to PMTCT module.  
Adjusted SPT file reader in AIM to handle region specific data from EPP.  
Modified Aids deaths calculations for future years.

#### 1.62 4/12/02

Added Portuguese Strings.  
Modified limits in PMTCT Module and adjusted equations.

#### 1.61 2/4/02

- Fixed last year calculation in AIDS Deaths display.
- Fixed Child AIDS summary. Female AIDS deaths were not displayed correctly.

#### 1.57 8/6/01

- Fixed integer overflow problem in FamPlan displays.

#### 1.56 6/4/01

- Added button in HIV prevalence editor to read EPP data.

#### 1.55 6/4/01

- Fixed error in creating new MTCT projection.

1.54 5/24/01

- Added abbreviated names to MTCT editor.
- Added Distribution of Cost Pie chart to MTCT.
- Fixed mistake in Coale-Demeny West Male life table.

1.53 3/7/01

- Increased primary school enrollment rate in RAPID education sector.
- Added Male data support to NewGen.

1.52 1/11/01

- In AIM fixed the back casting routine so that it correctly calculates HIV prevalence and the sex ratio of prevalence during the back casting period.
- In DemProj corrected the displays of GRR and NRR to reflect the reduction in fertility due to HIV infection.
- In AIM corrected the calculation of AIDS orphans to reflect the reduction in fertility due to HIV infection.

1.51 1/02/01

- Added Portuguese support.
- Fixed problem with Male and Female AIDS births.

1.50 12/04/00

- Checked the file attribute on the Spectrum.ini file. Spectrum will not write to this file if marked read only.

1.49 11/28/00

- Fixed problem with population with-AIDS projection. AIDS deaths were not being subtracted out in latter years.

1.48 11/02/00

- Added MTCT module
- Fixed regional setting problem in Easyproj

1.47 7/13/00

- Fixed message dialogs with large fonts.
- Fixed Copy/Paste with regional settings.
- Modified NewGen Strings.
- Correction to calculation of proportion progressing to AIDS 20 years after infection.

1.45 7/13/00

- Fixed Commodity cost editor in SupplyPlan module.

#### 1.44 6/15/00

- Fixed Life Expectancy read problem in Demproj.

#### 1.43 5/26/00

- Fixed scaling on horizontal bar charts. Scale is displayed in the right margin.
- Changed input mask on Demproj Migration distribution by age to -999 to 999%.

#### 1.42 2/24/00

- Modified Russian Strings.

#### 1.41 2/17/00

- When using TFR goal, 5-year age groups and selected Model table, FamPlan was not loading the ASFR correctly from the tables.
- Fixed problem with AIDS summary screen with multiple projections loaded AIM.
- Corrected back casting procedure in AIM to use the new definition of HIV prevalence.
- Corrected calculation of HIV incidence in AIM.
- Fixed Negative number of HIV+ problem in AIM.

#### 1.40 1/13/00

- Fixed problem in AIM where the calculation of AIDS Deaths overflowed assigned field. This would cause an Error in Spectrum when re-reading the projection from file.
- Fixed problem with disaggregating Users by source in FamPlan. This problem was introduced in version 1.38 with the "Users Need" fix.
- Added FPLM module (Beta).
- Added "BenCost" short name.

#### 1.39 11/11/99

- Changed Russian strings.

#### 1.38 11/05/99

- Fixed Reducing Unmet Need (Goal1) editor. TFR editor was not being displayed correctly. Number of users were not being displayed properly when disaggregating by need in Family Planning.
- Fixed Growth Rate display when disaggregating by source Family Planning.
- Removed the ability to disaggregate by need in Acceptors and CYP displays Family Planning.
- Changed Benefit-Cost's title caption in editor selection dialog.

#### 1.37 10/27/99

- Changed Benefit-Cost's title caption in Config editor.
- Changed Perinatal Transmission Rate in DP to a time dependant input.
- Changed the conversion of old HIV age distribution to start at the 10-14 age group.

#### 1.36 10/07/99

- Changed the way incidents were calculated based on new definition of prevalence that now includes AIDS.
- Fixed problem with accessing EasyProj.

#### 1.35 9/27/99

- Changed the name of the FOCUS module to YARH.
- Modified French Strings.
- Added ability to convert old HIV age distribution input to new format when reading in file.

#### 1.34 8/31/99

- Modified French Strings.
- Added EasyProj to Spectrum.
- Added Benefit-Cost Module.
- Changed the way HIV age distribution is inputted in AIM editor.

#### 1.33 3/19/99

- Modified Spanish strings.

#### 1.32 3/17/99

- Changed Total Abortion Rate's input range, under 5 year age groups, to 0-1000.
- Changed input range in prevalence editor to 0-100.

#### 1.31 3/11/99

- Fixed default method selection in FamPlan for single indicators.
- Fixed HIV and STD Incidence calculation in Focus Module.

#### 1.27-1.30 3/2/99

- Modified Spanish strings.
- Modified Arabic strings.
- Changed footer caption on Fertility Displays in Demproj to indicate Females.

#### 1.26 1/27/99

- Spectrum will now except 0 for ASRF input in FamPlan.
- Modified FamPlan's read/write to handle large numbers in cost outputs.

#### 1.25 1/20/99

- Added 3 decimals to Total Abortion Rate under 5 year age groups.
- Fixed labeling on Proximate Determinates under 5 year age groups.

#### 1.24 12/3/98

- Added ability to aggregate multiple projections into one (Demproj Only).

#### 1.23 11/18/98

- Removed Leed Courier font.
- Added the ability to disaggregate across single age in Demproj Defined Age Group Population display.
- Fixed duplicate and saving problem in Percent Married editor in Focus module.
- Changed Average Birth Interval to Median Birth Interval in Focus.
- Adjusted ASFR editor in Focus to accept standard ASFT numbers 0-999.

#### 1.22 11/12/98

- Fixed problem with inputting negative numbers. This problem was introduced in version 1.20.

#### 1.21 11/5/98

- Fixed abortions as a percentage of unwanted births in FamPlan.
- Fixed Chart Font selection. It was only working for displays in Demproj.
- Improved fit of Russian Strings in all modules.

#### 1.20 10/20/98

- Fixed problem with thousand separator under regional settings being a space.
- Fixed problem with calendar dates showing up in editors with invalid entries.
- Added Russian text.

#### 1.19 9/25/98

- Changed label of 'HIV Deaths' to 'AIDS Deaths' in Focus.
- Added inputs by marital status in Focus.
- Added ability for Focus to effect TFR and Births in DemProj.
- Modified dependency ratio calculation in DemProj to include last age group.
- Fixed problem in Cost Regression calculation in FamPlan.

#### 1.18 7/27/98

- Fixed problems with five year age group calculations in FamPlan module.

#### 1.17 7/10/98

- Fixed problems with the single age desegregation at the higher ages in DemProj.
- In DemProj migration editor, added ability to specify negative percentages for age distribution.

#### 1.16 6/26/98

- Added a check to prevent user from adding more than 10 sources in FamPlan.
- Fixed problem when displaying FamPlan inputs when number of output lines exceeded 128 in spreadsheet.
- Fixed various translation strings in DemProj.

#### 1.15 5/15/98

- Added Age selection to Graph label on FC displays.

#### 1.14 5/11/98

- Fixed problem in DemProj editor that was causing the rural growth rate to be replaced by the urban growth rate.
- In DemProj, Fixed the urban population projection when using the method of urban-rural growth rate difference in a single year projection.
- In DemProj Summary Indicators, fixed the growth rate indicators when the urban or rural options are selected.
- Made slight modification to the way AIDS deaths are distributed by year. Previously, no deaths occurred in the year in which AIDS developed. Now some AIDS deaths can occur in that year, depending on the setting for the AIDS life expectancy.
- Added CYP display in FamPlan.
- Removed the Urban and Rural Selection from the AIDS section.
- Fixed problem with Installation. Program Icon was not being created with French and Spanish.
- Fixed source editor in Focus.
- Fixed editor captions in Focus.
- Fixed a problem with Focus calculations when adult HIV prevalence was zero in two sequential years.
- Fixed problem with saving negative numbers in the Focus module.

#### 1.13 3/25/98

- Added spreadsheet clipboard feature to Protrain.
- Added FOCUS module.

#### 1.12 3/3/98

- Saved the RAPID spreadsheet in Office95 format.
- Fixed a memory problem in Protrain when a projection is deleted.
- In DemProj, fixed a problem with switching between the options of "No urban/rural projection" to "Urban/rural projection".

#### 1.11 2/2/98

- Added more statistics to reality check Protrain spreadsheet.
- Dropped the selection of TI in the Protrain spreadsheet.

#### 1.10 1/29/98

- Added Percent of Acceptors/Users served by Cadre to reality check in Protrain spreadsheet.
- Fixed several strings in Protrain.

#### 1.09 1/26/98

- Fixed problem with AIM data file saving and reading very large numbers.
- Added Sample data file.
- Changed installation script to include Sample data file component and backup option.

#### 1.08 1/14/98

- Fixed module labels in projection editor to match module names in menu.
- Fixed problem when creating a new projection on a diskette. Does not require a subdirectory anymore.
- Added Protrain Module.

#### 1.07 10/23/97

- Fixed FP problem in Cost per Users.
- Minor modifications to Urban population projection.

#### 1.06 10/01/97

- Fixed problem with Urban population projections.

#### 1.05 9/26/97

- Added Spanish support.

#### 1.04 9/25/97

- Fixed a problem in DemProj in the calculation of the survival rate of the oldest age group.
- Added the scale multiplier to the display of migration in the DemProj summary output.
- In DemProj added code to sum the male and female urban and rural population by age.
- Fixed problem in RAPID in calculation of new households when more than one projection is active.
- Fixed problem with Pyramids scale label.
- Fixed Menu problem in AIM when language was changed.
- Took out check for 0-100 in ASFR editor. Now user can enter actual ASFR and then use the normalize button.
- Added the input ASFR table to the comparison graph.
- Added total for Males and Females in the HIV distribution editor.
- Changed Efficiency to Efficacy in AIM Measles variable name.
- Put a check for blank lines in the PJN file.
- Added French support.

#### 1.03 9/19/97

- Fixed problem with year labels on pyramid for 5 year and 10 year intervals.
- Fixed problem with year labels on age group table for 5 year DemProj projections.
- Fixed Deaths calculation.

#### 1.02 8/21/97

- In RAPID changed maximum and minimum values for labor force participation rate to 0 to 120.
- Added Arabic support.
- Fixed problem with years on display charts.
- Fixed problem in calculating pregnancies with Calculate Abortion option

turned on.

- Fixed problem with urban population total in RAPID, ensuring that sum for both sexes is correct.
- Fixed problem with MWRA calculations in FamPlan.
- Turned on sex option of 15-49 population.
- Fixed problem with message box and Large Fonts.

1.01 6/25/97

- Changed RAPID education editor to allow zero values.
- Changed FamPlan Method Attributes editor to work correctly when no methods required attributes.

1.0 6/24/97 Initial release of Spectrum