GLOBAL HEALTH
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# The Extending Access Index: Promoting Global Health

## Overall Rating

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# MALARIA

"Overall Rating" spreadsheet, "Malaria" tab (Link)

# I. Data Dictionary

| Column | Header Name | Description |
|---|---|---|
| A | Country | Name of country (according to WHO format) |
| B | WHO Region | WHO-classified region (looked up from Country Data tab) |
| C | Population | Population size of country (looked up from Country Data tab) |
| D | 1st Line | First-line drug(s) |
| E | DALY | WHO age-weighted DALY 2010 estimates (for Malaria in general) |
| F | % p. falc. | Proportion (%) of Malaria cases that are p. falc. |
| G | Estimated p. falc. DALY | Adjusted DALY values to reflect impact on specifically p. falc. <br> = DALY * % p. falc <br> = Col E * Col F |
| H - L | Impact of Drugs | DALYs alleviated by specific drugs |
| M | Companies | Companies that receive credit for first-line treatment regimens |
| N | Drugs | Drugs listed by companies that receive credit |
| O | Final Impact | Impact of drugs <br> = Estimated p. falc. DALY * Treatment Coverage * Efficacy |
| P | Total Malaria Impact | Total Impact of all drugs by country |
| R - V | Treatment Efficacy | Drug-specific, country-specific efficacy (from WHO). Averages for each drug are found in row 3. |
| AB | Treatment Coverage | Country-specific treatment coverage (from DHS/ MICS survey data). |
| AC | ACT coverage "effective treatment" | Treatment coverage used |
| AD | Number Treated | Number of Individuals treated in each country |

# II. Assumptions

| Data | Value Assumed | Cell / Column | Notes |
|---|---|---|---|
| Treatment coverage | If country-specific treatment coverage from DHS/MICS surveys is available, then this is used. If not, then the regional average of the treatment coverage based on available DHS/MICS is used. If no regional data is available, then the global average of available DHS/MICS survey data is used. | AC | |
| 1st Line Drug Efficacy | Reflects the efficacy rate of the specific first-line drug in each country. If country-specific efficacy for the first-line drug is not available, we use the average efficacy for that drug. | R-V. Used in formulas in H-L. | E.g. if 1st Line for Afghanistan is AS+SP, 1st Line Drug Efficacy = Efficacy of AS+SP in Afghanistan. If this efficacy data is not available, we use the average efficacy of AS+SP instead. |
| Manufacturers | Original patent holders. | M5 to N8 | |
| % p. falc | Midpoint values of % ranges | F | Figure 3.4 in the reference below gives us the percentage of cases due to p. falc in various regions of the world. The midpoint of the range is taken. Reference: http://whqlibdoc.who.int/publications/2008/9789241563697_eng.pdf |

# III. Missing Data

- Treatment percentage and efficacy data is sparse.
- Ideally, we would have data on particular ACT proportions at the country-level
- There is some concern about GBD DALY estimates over-estimating the number of people over 5 in Africa with malaria

# IV. Scoring Calculations

Current scoring mechanism is as follows:

1. For each country, DALY values (for malaria in general) in Col E are calculated by % p. falc. to obtain estimated DALY values for p. falc in Col G.

2. If more than one first-line drugs are listed, the number of DALYs that could be alleviated by each drug is calculated as (total DALYs) * (1/n), where n is the number of first-line drugs in that country.

3. Efficacy for first-line drugs are calculated based on WHO data: we use country-specific drug-specific data if available, otherwise we use drug-specific averaged across all countries.

4. Treatment coverage is calculated using DHS/MICS survey data. If country-specific treatment coverage from DHS/MICS surveys is available, then this is used. If not, then the regional average of the treatment coverage based on available DHS/MICS is used. If no regional data is available, then the global average of available DHS/MICS survey data is used

5. To calculate the impact score for each country, (Col H)
   = (1/n) * Estimated p. falc. DALY * Treatment Coverage * 1st line efficacy

6. Total impact scores for each manufacturer is totaled based on the drugs they produce, e.g. for Norvatis that produces drug AL, total impact score for Novartis is the sum of impact values from Col H where AL is one of the corresponding first-line drug used.

# V. An Example Scoring Calculation: Novartis

The following is an example on the calculation to get Novartis' final impact score (Cell O5). Drug(s) manufactured by Novartis is **AL**.

Taking Angola (Row 10) as an example where AL is the only first-line drug, we have:
- DALY                    = **4,207.70**          (Cell E10)
- % p. falc.             = **100%**              (Cell F10)
- Estimated p. falc. DALY = DALY * % p. falc.
                                 = **4,207.70** * **100%**
                                 = **4,207.70**        (Cell G10)
- Treatment coverage     = **29.3%**             (Cell AC10)
- 1st line drug efficacy    = **98.8%**       (Cell R10)
- 
- Impact for Angola
  - = (1/number of first-line drugs) * Estimated p. falc. DALY * Treatment Coverage * 1st line efficacy
  - = (1/1) * 4,207.7 * 100% * 29.3% * 98.8%
  - = **1,218.06**           (Cell H10)

The above process is repeated for every country, so that an impact score for every country (reflected in Col P) is obtained.

To get the total impact score for Novartis, we want to sum the impact scores where the first-line drug (Col C) includes "AL", which Novartis manufactures. Hence,

**Total impact score for Novartis** (Cell O5)
= Impact scores for AL in (Angola + Bangladesh + Benin + Bhutan + Botswana + Cape Verde + Central African Republic + Comoros + Ethiopia + Gambia + Guinea-Bissau + Guyana + Kenya + Lao People's Democratic Republic + Malawi + Mozambique + Namibia + Nepal + Niger + Papua New Guinea + Rwanda + South Africa + S. Africa (KwaZulu Natal) + S. Africa (Mpumalanga) + Solomon Islands + Suriname + Swaziland + Tajikistan + United Republic of Tanzania + Timor Leste + Uganda + Vanuatu + Zambia + Zimbabwe)
= Cells (H7 + H10 + H21 + H26 + H28 + H32 + H33 + H37 + H42 + H44 + H45 + H51 + H68 + H73 + H79 + H82 + H88 + H105 + H109 + H118 + H121 + H124 + H133 + H134 + H135 + H137 + H142 + H143 + H151 + H163 + H171 + H174 + H179 + H181 + H185 + H186 + H190 + H19 + H203 + H207 + H212 + H218 + H219)
= **13,534,956.85**

# Tuberculosis

"Overall Rating" spreadsheet, "TB" tab (Link)

## I. Data Dictionary

| Column | Header Name | Description |
|---|---|---|
| A | Country | Name of country (according to WHO format) |
| B | WHO Region | WHO-classified region (looked up from Country Data tab) |
| C | Population | Population size of country (looked up from Country Data tab) |
| D | DALY | WHO age-weighted DALY 2010 estimates |
| E | Active TB treatment | TB treatment regimen for drug-susceptible TB |
| F | Treatment Coverage | % of DALYs that receive drug treatment |
| G | Companies | Companies that receive credit for first-line treatment regimens |
| H | Drugs | Drugs listed by companies that receive credit |
| I | Final Impact | Impact of drugs |
| J | TB Prevalence | Prevalence of TB in each country (WHO) |
| K | TB Incidence | Incidence of TB in each country (WHO) |
| L | % TB Cases With Known HIV Status | % of TB cases in each country with a known HIV status (WHO) |
| M | TB Cases With Known HIV Status | Number of TB cases in each country with a known HIV status (WHO) |
| N | TB/HIV+ | Number of TB cases with known HIV status who are HIV+ (WHO) |
| O | %TB Incidence with Known HIV Status | % of incident TB cases in each country with known HIV status (col L unless blank; if blank, then we calculate what the missing data would have to be in order to meet the global average of 34%: 6.78% |
| P | #TB Incidence with known HIV status | Number of Incident TB with known HIV status (Col O * Col K) |
| Q | TB/HIV+ Among Incident Cases With Known HIV Status | Number of Incident TB with known HIV status that are HIV positive (Col N / Col M * Col P) |
| R | TB/HIV- Among Incident Cases With Known HIV Status | Number of Incident TB with known HIV status that are HIV negative (Col P - Col Q) |
| S | TB/HIV+ Proportion | Percent of Incident TB that are HIV+ (Col Q / Col P) |

| | | |
|---|---|---|
| T | TB/HIV- Proportion | Percent of Incident TB that are HIV- (Col R / Col P) |
| U | Total DALYS Lost to Drug Susceptible TB | DALYs that are lost to drug-susceptible TB (Col D - Col AL - Col AQ) |
| V | DALYs Lost to TB/HIV+ | DALYs lost to drug-susceptible TB/HIV+ cases (Col U * Col S) |
| W | DALYs Lost to TB/HIV- | DALYs lost to drug-susceptible TB/HIV- cases (Col U * Col T) |
| X | Treatment Coverage for TB / HIV+ | Treatment Coverage for drug-susceptible TB/HIV+ cases (Cell I39) |
| Y | Treatment Coverage for TB/HIV- | Treatment Coverage for drug-susceptible TB/HIV- cases (Cell I39) |
| Z | Impact of TB/HIV+ Treatment Regimen | Impact of treatment for drug-susceptible TB/HIV+ (Col V * Col X * Cell I23) |
| AA | Impact of Active TB/HIV- Treatment Regimen | Impact of treatment for drug-susceptible TB/HIV- (Col W * Col Y * Cell I24) |
| AB | New cases that have MDR-TB | Number of incident cases that have MDR-TB (from WHO) |
| AC | % cases that have MDR-TB | Percent of incident cases that have MDR-TB (from WHO) |
| AD | retreatment cases that have MDR-TB | Number of retreatment cases that have MDR-TB (from WHO) |
| AE | % of retreatment cases that have MDR-TB | Percent of retreatment cases that have MDR-TB (from WHO) |
| AF | Estimated new cases (any type) | Estimated number of new cases of any type of TB (Col AB / Col AC) |
| AG | Estimated Retreatment Cases (any type) | Estimated number of retreatment cases of any type of TB (Col AD / Col AE) |
| AH | Weighted average of proportion of new and retreatment cases that have MDR-TB | Total proportion of cases (new and retreatment) that have MDR-TB [(Col AB + Col AD) / (Col AF + Col AG)] |
| AI | # MDR-TB Needing Treatment | Total number of MDR-TB cases needing treatment (Col J * Col AH) |
| AJ | # MDR-TB Receiving Treatment | Total number of MDR-TB cases receiving Treatment (from WHO) |
| AK | Treatment Coverage for MDR-TB | Treatment coverage for MDR-TB (Col AJ / Col AI) |

| | | |
|---|---|---|
| AL | DALYs Lost to MDR-TB | Total DALYs lost to MDR-TB [(Col D * Col AH) - Col AQ] |
| AM | Impact of MDR-TB Treatment Regimen | DALYs alleviated due to MDR-TB treatment (Col AL * Col AK * Cell I25) |
| AN | # XDR-TB Needing Treatment | Number of XDR-TB cases needing treatment (Col AI * Cell I31) |
| AO | # XDR-TB Receiving Treatment | Number of XDR-TB cases receiving treatment (Col AN * Col AP) |
| AP | Treatment Coverage for XDR-TB | Treatment coverage for XDR-TB cases (Cell I38) |
| AQ | DALYs Lost to XDR-TB | Total DALYs lost to XDR-TB (Col D * Col AH * Cell I31) |
| AR | Impact of XDR-TB Treatment Regimen | Total DALYs alleviated by treatment for XDR-TB (Col AQ * Col AP * Cell I26) |
| AS | Total TB Treatment Impact | Total DALYs alleviated by all TB treatment (Col Z + Col AA + Col AM + Col AR) |

# II. Assumptions

| Data | Value Assumed | Cell / Column |
|---|---|---|
| Efficacy of treatment for HIV+ TB | 73% | I23 |
| Efficacy of treatment for HIV- TB | 87% | I24 |
| Efficacy of MDR-TB treatment | 48% | I25 |
| Efficacy of XDR-TB treatment | 20% | I26 |
| % of MDR-TB that is XDR-TB | 9.00% | I31 |
| XDR-TB Treatment Coverage | 43% | I38 |
| Drug-Susceptible-TB Treatment Coverage | 65.9% | I39 |

# III. Missing Data

- XDR-TB Treatment coverage at country level
- Drug-susceptible TB treatment coverage at country level
- Country-specific MDR-TB treatment regimen breakdown

# IV. Scoring Calculations

Current scoring mechanism is as follows:
- For each country (each row), treatment impact is computed by:
    **= DALY * Treatment Coverage * treatment efficacy**
    This is dependent upon the type of TB.
    For drug-susceptible TB/HIV+ (Col Z):
        = Col V * Col X * Col Cell I23
    For drug-susceptible TB/HIV- (Col AA):
        = Col W * Col Y * Cell I24
    For MDR-TB (Col AM):
        = Col AL * Col AK * Cell I25
    For XDR-TB (Col AR):
        = Col AQ * Col AP * Cell I26

The treatment impacts are then broken down in the following way:

- For drug-susceptible TB, each of the drugs in the standard first-line regimen (H + R + E + Z) are given equal weight. Each component drug then gets 25% of the total impact for drug-susceptible treatment impact.

    Impact of each = (Col Z / 4) + (Col AA / 4)
- For MDR-TB, drug combinations are broken down according to resistance patterns to the drugs therein. Drugs are credited in the following way:

| Drug Combination | Proportion of Treatment Use |
|---|---|
| Z + S + Lfx + Eto + Cs + PAS | 22.51% |
| S + Lfx + Eto + Cs + PAS | 3.49% |
| Km + Lfx + Eto + Cs + PAS | 74.00% |

- As such, the total MDR-TB treatment (col AM) is multiplied by the proportion of treatment use, and then each drug therein is credited for 1 / n (where n=number of drugs in that regimen). Example:

    Impact of Z = MDR-TB treatment impact * Proportion of Treatment Use * (1 / n)
    = Col AM * 22.51% * (1 / 6)
- When a drug appears in multiple combinations (e.g. Eto), the separate impacts are all summed.
- For XDR-TB, the treatment regimen is the following: Cs + Km (or) Amk (or) Cm + Lfx (or) Mfx (or) Gfx (or) Ofx
- Each drug is then given its proportion of the regimen. For example, Cs will always be one third of the regimen, so it receives 33.33% of the credit for XDR-TB impact. Km, on the other hand, is only one of three possible drugs that account for one third of the regimen. As such, Km receives one-third of one-third of the credit for XDR-TB credit, or 11.11%.

| Drug | Drug proportion of regimen |
|---|---|
| Cs | 33.33% |
| Km, Amk, or Cm | 11.11% |
| Lfx, Mfx, Gfx, or Ofx | 8.33% |

Example:

    Impact of Km = XDR-TB treatment impact * drug proportion of regimen
    = Col AR * 11.11%

# V. An Example Scoring Calculation: Novartis

The following is an example on the calculation to get Hoffman-LaRoche's final impact score (Cell I7). Hoffman-LaRoche manufactures isoniazid (H).

H is used in both the standard first-line regimen for drug-susceptible TB.

Taking Algeria (Row 7) as an example, we have 98,172.48 DALYs due to drug-susceptible TB. Of these, 12,762.42 are lost to HIV+ TB and 85,410.06 are lost to HIV- TB. To get H's impact in the standard regimen for drug-susceptible TB, then, we use:

- TB/HIV+ DALY        = **12,762.42**        (Cell V7)
- Treatment coverage  = **65.90%**        (Cell X7)
- Treatment efficacy  = **73%**        (Cell I23)
-
- TB/HIV- DALY        = **85,410.06**        (Cell W7)
- Treatment coverage  = **65.90%**        (Cell Y7)
- Treatment efficacy  = **87%**        (Cell I24)

- Impact of H in drug-susceptible TB treatment in Algeria:
  - = (TB/HIV+ DALYs * Treatment Coverage * Treatment efficacy * (1/4)) + (TB/HIV- DALY * Treatment Coverage * Treatment efficacy * (1/4))
  - = (V7 * X7 * I23 * (1/4) + (W6 * Y6 * I4 * (1/4))
  - = (12,762.42 * 65.90% * 73% * 25%) + (2,198.11 * 65.90% * 87% * 25%)
  - = 1,534.90 + 315.06
  - = **1,849.96**

- The impact for Hoffman-LaRoche, then, is the combination of the impact of H in all countries across the world: **6,587,721.05** (cell I7)

# HIV

"Overall Rating" spreadsheet, "HIV" tab (Link)

# I. Data Dictionary

| Column | Header Name | Description |
|--------|-------------|-------------|
| A | Country | Name of country (according to WHO format) |
| B | WHO Region | WHO-classified region (looked up from Country Data tab) |
| C | Population | Population size of this country (looked up from Country Data tab) |
| D | Geographical Region | Geographical Region of this country (looked up from Country Data tab) |
| E | WHO Group | Countries in region "Latin America and the Caribbean" are categorized as Group B, while the rest are Group A (more details in section IV. WHO Groupings) |
| F | DALY (all age groups) | WHO age-weighted DALY 2010 estimates for all age groups |
| G | Adult DALYs | WHO age-weighted DALY 2010 estimates for ages 15+ |
| H | Children DALYs | WHO age-weighted DALY 2010 estimates for ages 0-14 |
| I | Overall (Adults & Children) Number Receiving Treatment | Number of all individuals receiving antiretroviral therapy in 2010 (WHO) |
| J | Overall (Adults & Children) Number Needing Treatment | Number of all individuals needing antiretroviral therapy in 2010 (WHO) |
| K | Overall (Adults & Children) % Treatment Coverage | Percent of Adults and children needing treatment in 2010 who were receiving treatment (Col I / Col J) |
| L | Adults Number Receiving Treatment | Number of adults (15+) receiving treatment in 2010 (Col I - Col ) |
| M | Adults Number Needing Treatment | Number of adults (15+) needing antiretroviral therapy in 2010 (Col J - Col P) |
| N | Adults Percent Treatment Coverage | Percent of adults (15+) needing treatment in 2010 who were receiving treatment (Col L / Col M) |
| O | Children Number Receiving Treatment | Number of children (0-14) receiving treatment in 2010 (WHO) |

| | | |
|---|---|---|
| P | Children Number Needing Treatment | Number of children (0-14) needing treatment in 2010 (WHO) |
| Q | Children Percent Treatment Coverage | Percent of children (0-14) receiving treatment in 2010 (WHO) |
| R-AC | Impact Scores by Drug | Drug-specific, country-specific impact scores. Calculated by the sum of (DALYs * treatment coverage * percent (first- or second-line) * proportion of treatment with drug for that treatment * efficacy of that treatment * percent of treatment credited to drug) for each regimen of which that drug is a part. Example: impact of d4T as part of d4T + 3TC + NVP as an adult, first-line regimen in A countries for adults in Afghanistan: = Adult DALYs in Afghanistan * Adult treatment coverage in Afghanistan * percent of treatments for adults in A countries (Afghanistan is an A country) that are first-line treatment * percent of first-line treatments for adults in A countries that are given the regimen (d4T + 3TC + NVP) * efficacy of (d4T + 3TC + NVP) in first-line treatment for adults in A countries (Afghanistan is an A country) that are first-line treatment * percent of first-line treatments for adults in A countries that are given the regimen (d4T + 3TC + NVP) * efficacy of (d4T + 3TC + NVP) in first-line treatment for adults in A countries * percent of d4T + 3TC + NVP for which d4T is credited = 21,733.66 * 4.29% * 97.10% * 27.70% * 69.95% * (1/3) = 58.16 This is repeated for every treatment regimen of which d4T is a part, and these are summed to get the total impact of d4T in Afghanistan of 91.67 |
| AD | Overall Treatment Impact | Country-specific impact of HIV treatment of any type |
| AF | Group A Countries | List of the 46 countries designated as Group A by the WHO: Low- and Middle-income countries excluding the region of the Americas |

| AG | Group B Countries | List of the 20 countries designated as Group B by the WHO: Low- and middle-income countries in the Americas |
|---|---|---|
| AI-AK | Antiretroviral Treatment Breakdown Summary | Breakdown of percentage of: 1. individuals receiving treatment in Group A vs. Group B countries; 2. Of those in each group of (1), the percent that are either children or adults; 3. Of those in each group in (2), the percent that receive first-, second-, or third-line treatment regimens |
| AM-AR | Treatment Regimen Efficacy Summary | Breakdown of percentage of treatments that are given for group A and group B adults and children, and the efficacies thereof |
| AT | Originator Company | List of drug manufacturers |
| AU | Drug(s) | Drugs produced by the manufacturers listed in AT |
| AV | Final Impact | Company-specific impact based on the impact of each drug listed in AU |

# II. Assumptions

| Data | Cell / Column | Notes |
|---|---|---|
| Efficacy of all drugs | AM2-AR51 | Survey data used for treatment regimens in various subgroups (e.g. adult first-line treatment in A countries). Fallback data where not available of: (1) average efficacy of that regimen in all subgroups; then (2) average efficacy of all regimens in that subgroup. |
| "A" and "B" extrapolation | E | We extrapolate A or B status to countries without a WHO-designated status |

# III. WHO Groupings

- 45 mid- and low-income countries affected by HIV are categorized into the following regions by WHO:
    - Sub-Saharan Africa
    - Latin America and the Carribean
    - East, South and South-East Asia
    - Europe and Central Asia
    - North Africa and the Middle East
    - Western Pacific
  ***Countries from Region of America are not considered

- Various WHO regions are then grouped into 2 groups:

  - Group A:
      - Sub-Saharan Africa
      - East, South and South-East Asia
      - Europe and Central Asia
      - North Africa and the Middle East
      - Western Pacific

  - Group B:
      - Latin America and the Caribbean

# IV. Scoring Calculations

Current scoring mechanism is as follows:
1.  For each country, age-specific treatment coverage is first calculated.
    a.  For adults:
        **Treatment Coverage %** (Col N)
        = # Receiving Antiretroviral Treatment / # Needing Antiretroviral Treatment
        = Col M / Col L
    b.  For children:
        **Treatment Coverage %** (Col Q)
        = # Receiving Antiretroviral Treatment / # Needing Antiretroviral Treatment
        = Col P / Col O

    If for either adults or children, the # Receiving Antiretroviral Treatment or the # Need ing Antiretroviral Treatment is unavailable, the treatment coverage for the region of which that country is a part is used as fallback data (from UNAIDS, cells AT16-AW27)

2.  Of those treated, percentages who receive first-, second-, or third-line treatment are provided by UNAIDS, the WHO, and the Futures Institute (Cells AI2-AK13). Of adults treated in group A countries, for example, 97.10% get first-line treatment and 2.90% receive second-line treatment.

3.  Treatment efficacy is calculated dependent on three things: Group A or B designation; age (adult or children); and first- or second-line treatment. Multiple treatment regimens are used in all sub-groups (e.g., group A adult first-line treatment contains 9 regimens). The proportion of each sub-group that is treated by each regimen is also provided by UNAIDS, the WHO, and the Futures Institute. d4T + 3TC + NVP, for example, accounts for 27.70% of all first-line treatment for adults in group A countries. Study data is then used to calculate the efficacy of these regimens in each region. First, if data is available for that treatment in that sub-group, that is used. If that data is not available, the average efficacy for that treatment across all sub-groups is used. If this is also unavailable, the average efficacy for all treatments in that sub-group is used.

4.    Having gathered the information in (1) - (3), we can calculate the impact of the drug in a particular regimen in a particular sub-group:

> = Relevant DALYs (adult or children, Col G or Col H) * Relevant Treatment Coverage (Col N or Col Q) * Percent treated in the relevant quadrant (Cells AI2-AK13) * Proportion treated by the relevant regimen (Col AN or Col AQ) * Efficacy of relevant regimen (Col AO or Col AR) * Proportion of regimen constituted by the drug (1/n, where n = number of drugs in regimen)

As an example, let's calculate the Impact of AZT in the regimen AZT + 3TC + EFV as a first-line treatment for adults in Angola (Angola is a group A country):

> = Adult DALYs * Treatment Coverage * Percent of treatment for adults in group A countries that is first-line * Proportion of total group A adult first-line treatment that is AZT + 3TC + EFV * Efficacy of AZT + 3TC + EFV in group A adult first-line treatment * Proportion of AZT + 3TC + EFV constituted by AZT

> = Cell G10 * Cell N10 * Cell AJ6 * Cell AN10 * Cell AO10 * (1/n)
> = 459,335.19 * 38.83% * 97.10% * 11.40% * 72.03% * (1/3)
> = **4,740.18** DALYs alleviated by AZT as a part of AZT + 3TC + EFV in adult first-line treatment in Angola.

This is then repeated for each of the regimens of which AZT is a part to get a total impact of AZT in Angola of **18,566.54**. When performed for all the countries and summed, the total impact of AZT comes to **3,115,141.01.**

# V. An Example Scoring Calculation: GlaxoSmithKline

The following is an example on the calculation to get Merck's final impact score (Cell AV12).

Merck produces the drug EFV. Its total impact on HIV, then, is solely based on the impact of EFV.

Taking Afghanistan (Row 5) as an example country,

- Geographical region = **East, South and South-East Asia** (Cell C5)
  **looked up from Country Data tab
- WHO Group = **Group A** (Cell D5)
  ** Group B = Latin America and the Caribbean
  Group A = all other countries (refer to Section IV: WHO Groupings)
- Adult DALYs = **21,733.66** (Cell G5)
- Children DALYs = **2,307.78** (Cell H5)
- Adult Treatment = # Receiving Antiretroviral Therapy / # Needing Antiretoviral Therapy
  coverage = Cell L5 / Cell M5
  = 45 / 1,050
  = **4.29%** (Cell N5)
- Children Treatment = # Receiving Antiretroviral Therapy / # Needing Antiretoviral Therap
  coverage = Cell O5 / Cell P5
  = 1 / 550
  = **0.18%** (Cell Q5)

- In group A countries, EFV is used in eight types of treatment regimens. The impact of EFV in Afghanistan in each of these regimens is calculated in the following way:

  1. AZT + 3TC + EFV in first-line treatment for adults
     = Cell G5 * Cell N5 * Cell AJ6 * Cell AN9 * Cell AO9 * (1/n)
     = 21,733.66 * 4.29% * 97.10% * 14.00% * 77.50% * (1/3)
     = **32.71**

  2. TDF + 3TC + EFV in first-line treatment for adults
     = Cell G5 * Cell N5 * Cell AJ6 * Cell AN10 * Cell AO10 * (1/n)
     = 21,733.66 * 4.29% * 97.10% * 11.40% * 72.03% * (1/3)
     = **24.76**

  3. TDF + FTC + EFV in first-line treatment for adults
     = Cell G5 * Cell N5 * Cell AJ6 * Cell AN11 * Cell AO11 * (1/n)
     = 21,733.66 * 4.29% * 97.10% * 10.60% * 76.73% * (1/3)
     = **24.52**

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4. TDF + FTC + EFV in first-line treatment for adults
     = Cell G5 * Cell N5 * Cell AJ6 * Cell AN12 * Cell AO12 * (1/n)
     = 21,733.66 * 4.29% * 97.10% * 3.50% * 81.06% * (1/3)
     = **8.55**

5. d4T + 3TC + EFV in first-line treatment for children
     = Cell H5 * Cell Q5 * Cell AJ11 * Cell AN33 * Cell AO33 * (1/n)
     = 2,307.78 * 0.18% * 96.80% * 15.60% * 77.50% * (1/3)
     = **0.16**

6. AZT + 3TC + EFV in first-line treatment for children
     = Cell H5 * Cell Q5 * Cell AJ11 * Cell AN34 * Cell AO34 * (1/n)
     = 2,307.78 * 0.18% * 96.80% * 7.20% * 72.03% * (1/3)
     = **0.07**

7. ABC + 3TC + EFV in first-line treatment for children
     = Cell H5 * Cell Q5 * Cell AJ11 * Cell AN35 * Cell AO35 * (1/n)
     = 2,307.78 * 0.18% * 96.80% * 6.20% * 59.00% * (1/3)
     = **0.05**

8. AZT + ddl + EFV in second-line treatment for children
     = Cell H5 * Cell Q5 * Cell AJ12 * Cell AN46 * Cell AO46 * (1/n)
     = 2,307.78 * 0.18% * 3.20% * 6.60% * 65.34% * (1/3)
     = **0.00**

The total impact for AZT in Afghanistan, then, is the sum of the impact of AZT in each of these regimens:
  = 32.71 + 24.76 + 24.52 + 8.55 + 0.16 + 0.07 + 0.05 + 0.00
  = **90.82**

Repeating the above for all countries, we will have the breakdown of "DALY recovered" values by drug. For EFV, the total is **3,110,048.90** (cell W4). This, then, is the total impact for Merck (AV12).