TRACHOMA CALCULATION

Spreadsheet Documentation

Definitions

- WHO region: designated regions provided by the World Health Organization[1]
- DALY: Disability-Adjusted Life Years (D)
  - Years of life taken by disease from population if it was in a healthy state free from disease
- Treatment Coverage (θ):
  - Ratio between number of people receiving treatment to the estimated number of people needing treatment
- Efficacy (e):
  - Percentage of population receiving treatment that were actually cured
- Data generated from WHO, UNAID database

[1]*http://www.who.int/neglected_diseases/preventive_chemotherapy/sch/en/*

Impact Formula

$$I = \frac{D * e * \Theta}{1 - e * \Theta} * p$$

- Where:
  - D = DALYs
  - e = Efficacy
  - Θ = Treatment Coverage
  - p = Prevalence

Country Data

- **Column A:** Country
- **Column B:** Countries sorted by WHO Region
- **Column C:** Population

	A	B	C
1	**Country**	**WHO Region**	**Population**
2			
3			
4	**Afghanistan**	EMR	33,736,494
5	**Albania**	EUR	2,880,703
6	**Algeria**	AFR	39,871,528
7	**American Samoa**	WPR	55,537
8	**Andorra**	EUR	78,014
9	**Angola**	AFR	27,859,305

Daly Data

- **Range D:F:** All DALY data sourced from the IHME

D	E	F
Trachoma DALYs		
Male	*Female*	*Total*
598.543662	757.864814	1356.40848
0	0	0
946.149591	1342.89514	2289.04473
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
111.069425	196.559158	307.628584

Treatment Coverage

- Original data points (Cols G, H, and I) are sourced from the WHO's PCT databank
- Regional and global averages are then applied (Col J)

G	H	I	J
Trachoma Treatment Coverage			
Prevalence	Number Treated	Trachoma Treatment Coverage	Estimated Trachoma Treatment Coverage
		30.62%	44.75%
			11.57%
			44.75%
5392	4614	85.57%	85.57%
			31.22%
			44.75%
0	72		38.36%

Prevalence

- All prevalence data sourced from the GBD Results Tool

K	L	M
Prevalence %		
Trachoma	Trachoma	Trachoma
Male	Female	Total
0.000301805	0.000599	0.000448734
0	0	0
0.0000399	0.0000613	0.0000506
0.000021	0.0000384	0.0000298
0	0	0
0	0	0

Trachoma Efficacy

- Efficacy data is sourced from numerous studies found by the systematic review team

- If no country-level efficacy data exists we apply regional or global averages

N	O
Trachoma Efficacy	
Azithromycin	
Original	*Estimated*
	63.30%
	89.58%
	78.00%
	76.96%
	89.58%
	78.00%
	76.96%

Treatment Guidelines

- **Col P:** Country level endemicity data

P
Treatment Guidelines
Trachoma
1 if Endemic
1
0
1
0
0
0
0

Treatment Guidelines

To determine which mass drug intervention was initiated in each country we applied two algorithms provided by the WHO's PCHH found on pages 16 and 17. The visualization of these algorithms is found to the right.
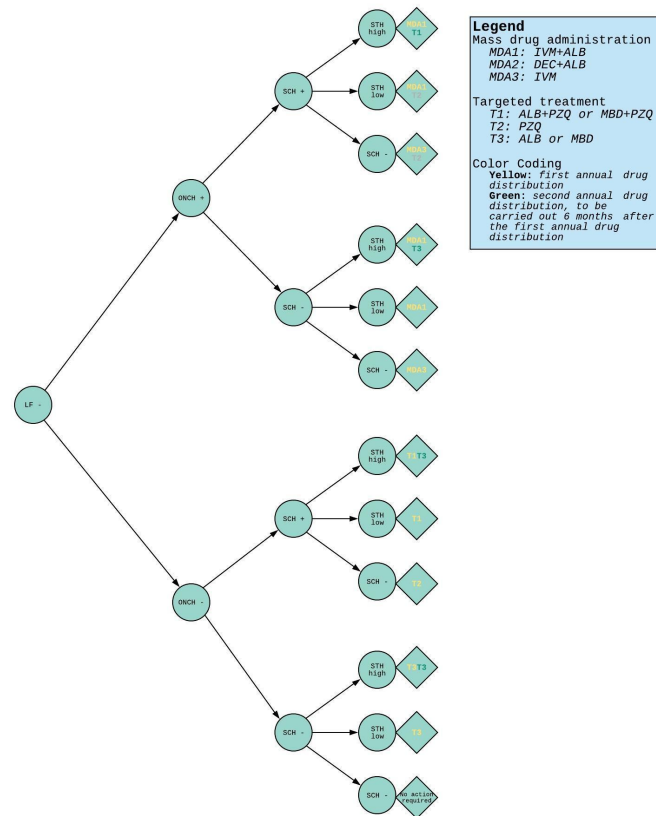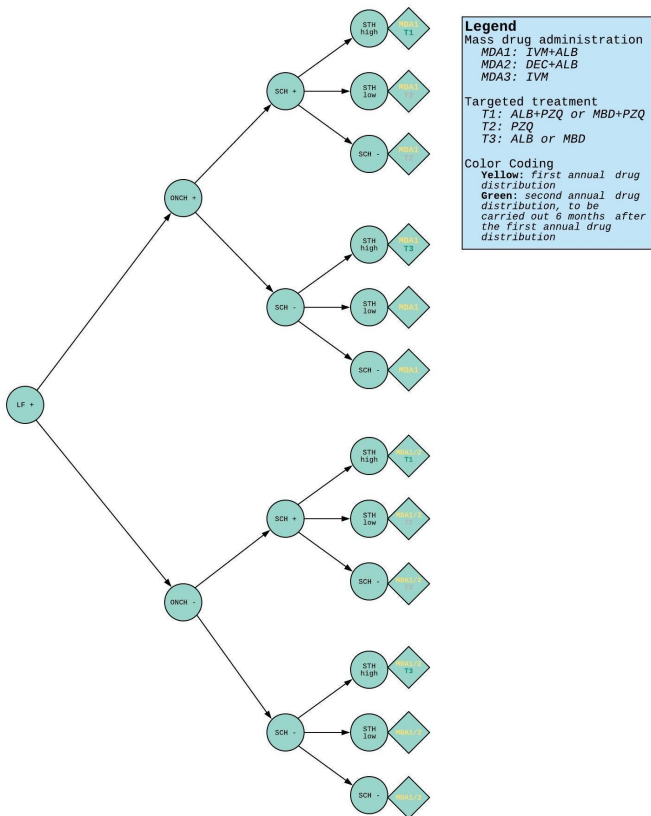
Impact Score

- The impact formula shown on slide 3 is applied to all diseases

Q
Impact
Azithromycin
136,624.01
107.1589101
0
4594.378867
0
0
0
0

Example: Drug Score
Impact of Azithromycin in Algeria in 2017

Let's calculate the impact of Azithromycin in Algeria in 2017.

$$I = \frac{2{,}289.04 * 85.83\% * 85.57\%}{1 - 85.83\% * 85.57\%}$$

DALYs = 2,289.04

Efficacy = 85.83%

Treatment Coverage = 85.57%

Prevalence = .000051%

Using this equation we arrive at **the final impact of Azithromycin in Algeria in 2017: 6332.15**