

# HEALTH AND ECONOMIC IMPACTS OF ACHIEVING THE WHO 2020 TARGETS FOR NTD CONTROL AND ELIMINATION

Country	Total Population (millions)	Population affected by at least one NTD (millions)	Diseases Present										TOTAL 2011-2030	DALYs averted if 2020 NTD goals are met**		
			LF	ONC	SCH	STH	TRA	CHA	HAT	LEP	VL	TOTAL 2011-2030				
Afghanistan	28.3	13.4				x	x						x	\$300,700,000	2,017,300	
Algeria	37	0.0087			x	x	x						x	\$2,353,000,000	751,300	
Angola	19.5	12.09	x	x								x		\$5,122,791,790	11,490,800	
Argentina*	40.3	1.5							x				x	\$2,258,900,000	1,016,600	
Armenia	2.9	0.04											x	\$5,300,000	7,800	
Azerbaijan	9	1.7											x	\$33,300,000	65,700	
Bangladesh	151.1	46.6	x										x	\$12,989,900,000	17,894,700	
Belize	0.3	0.001											x	\$22,669,400	20,500	
Benin	9.5	3.77	x	x									x	\$679,245,054	1,493,300	
Bhutan	0.71	0.11											x	\$10,822,600	15,500	
Bolivia	10.1	2.1											x	\$212,573,200	393,700	
Botswana	1.9	0.28											x	\$231,967,834	57,100	
Brazil	195.2	11.5	x										x	\$18,467,100,000	18,021,500	
Burkina Faso	15.5	11.65	x										x	\$789,585,608	1,498,300	
Burundi	9.2	3.8	x	x									x	\$349,488,187	1,518,800	
Cambodia	14.3	5.6											x	\$1,750,400,000	1,062,600	
Cameroon	20.6	15.99	x	x									x	\$2,537,271,838	4,937,600	
Central African Republic	4.3	3.3	x	x									x	\$144,852,738	2,434,200	
Chad	11.7	7.27	x	x									x	\$1,009,669,151	3,230,200	
Chile*	17.1	0.012											x	\$905,700,000	642,900	
China	1359.8	25.97											x	\$247,400,000,000	106,219,100	
Colombia	46.4	4.4											x	\$2,817,400,000	2,226,700	
Congo	4.1	2.6	x	x									x	\$1,336,669,363	6,140,000	
Costa Rica	4.6	0.028	x										x	\$490,723,300	232,700	
Côte d'Ivoire	18.9	17.39	x	x									x	\$1,330,510,004	3,870,700	
Cuba	11.2	0.05											x	\$480,500,000	150,700	
Democratic People's Republic of Korea (North Korea)	24.5	5.6											x	\$687,500,000	350,300	
Democratic Republic of Congo	62.1	43.5	x	x									x	\$1,001,011,292	37,892,400	
Djibouti	0.83	0.11											x	\$39,623,786	37,900	
Dominican Republic	10	1.1	x										x	\$203,600,000	89,300	
Ecuador	15	1.78											x	\$1,416,700,000	670,800	
Egypt	78	1.1	x										x	\$13,033,300,000	7,562,000	
El Salvador	6.2	0.82	x	x									x	\$534,719,100	348,400	
Equatorial Guinea	0.69	0.42	x	x									x	\$1,018,331,809	491,700	
Eritrea	5.7	1.43											x	\$135,357,742	691,800	
Ethiopia	87	75.68	x	x									x	\$3,940,375,315	10,617,800	
Fiji	0.86	0.89	x										x	\$138,206,300	93,400	
Gabon	1.5	1.29	x										x	\$988,781,189	626,700	
Ghana	24.2	12.6	x	x									x	\$1,983,568,855	4,495,000	
Guatemala	14.3	3.2											x	\$1,626,600,000	2,627,800	
Guinea	10.8	6.07	x	x									x	\$412,240,193	2,180,200	
Guinea-Bissau	1.5	1.67	x										x	\$90,573,136	179,800	
Guyana	0.78	0.72	x										x	\$22,066,300	46,100	
Haiti	9.8	11.36	x										x	\$77,995,400	589,100	
Honduras	7.6	2.66											x	\$181,345,200	596,600	
India	1205.6	480.85	x										x	\$126,700,000,000	134,520,700	
Indonesia	240.6	92.76	x										x	\$26,140,900,000	9,959,000	
Iraq	30.9	2.04											x	\$50,300,000	332,900	
Jamaica	2.7	0.41											x	\$255,000,000	142,700	
Kenya	40.9	10.05	x										x	\$2,393,120,191	11,876,200	
Kyrgyzstan	5.3	0.11											x	\$11,541,200	113,800	
Lao People's Democratic Republic (Laos)	6.3	2.1	x										x	\$376,851,000	374,400	
Lesotho	2	0.517												\$24,900,000	72,900	
Liberia	3.9	3.17	x	x									x	\$132,489,456	1,000,300	
Madagascar	21	18.35	x	x									x	\$979,245,557	4,002,200	
Malawi	15	11.67	x	x									x	\$500,377,176	5,152,700	
Malaysia	28.2	0.18											x	\$10,943,600,000	3,081,300	
Mali	13.9	17.09	x	x									x	\$761,213,618	1,708,000	
Mauritania	3.6	0.68	x										x	\$263,144,183	316,700	
Mexico	117.8	10.16											x	\$8,834,100,000	5,579,300	
Mozambique	23.9	18.22	x										x	\$937,338,391	5,588,800	
Myanmar	51.9	37.19	x										x	\$8,517,912,300	4,743,700	
Namibia	2.1	0.78											x	\$90,927,102	43,000	
Nepal	26.8	15.9	x										x	\$1,757,000,000	2,344,100	
Nicaragua	5.8	1.75											x	\$210,200,000	339,400	
Niger	15.8	10.24	x										x	\$271,996,986	1,162,700	
Nigeria	159.7	119.84	x	x									x	\$12,044,007,610	25,016,900	
Pakistan	173.1	30.42											x	\$3,313,900,000	4,078,800	
Panama	3.6	0.39											x	\$756,000,000	286,600	
Papua New Guinea	6.8	5.6	x										x	\$497,500,000	700,600	
Paraguay	6.4	0.8											x	\$181,379,800	211,500	
Peru	29.2	2.98											x	\$1,748,200,000	1,366,300	
Philippines	93.4	29.47	x										x	\$17,634,500,000	12,231,400	
Republic of Tanzania	44.9	19.79	x	x									x	\$2,714,447,435	6,985,000	
Rwanda	10.8	3.27	x											\$319,795,522	1,181,200	
Senegal	12.9	8.35	x										x	\$537,240,084	910,000	
Sierra Leone	5.7	5.7	x	x									x	\$388,741,898	1,282,200	
Solomon Islands	0.52	0.53	x										x	\$19,014,100	26,600	
Somalia	9.6	4.64											x	\$600,220,885	1,590,800	
South Africa	51.4	5.32												\$4,643,000,000	2,219,800	
Sudan (includes South Sudan)*	35.6	21.55	x	x									x	\$6,945,405,177	16,712,600	
Suriname	0.52	0.051											x	\$13,460,100	4,800	
Swaziland	1.1	0.44												\$104,084,020	112,700	
Tajikistan	7.6	0.12											x	\$4,031,700	100,200	
The Gambia	1.6	0.26											x	\$32,224,030	74,600	
Timor-Leste	1	1.07	x											\$15,575,600	24,200	
Togo	6.3	3.85		x									x	\$151,375,419	547,100	
Trinidad and Tobago	1.3	0.018											x	\$30,200,000	1,500	
Uganda	33.9	16.42	x	x									x	\$2,834,212,987	32,053,200	
Uzbekistan	27.7	0.39											x	\$17,300,000	94,900	
Vanuatu	0.23	0.23											x	\$19,386,900	14,600	
Venezuela	29	0.21											x	\$3,786,600,000	2,435,700	
Vietnam	89	8.85											x	\$14,138,400,000	8,096,700	
Yemen	22.7	9.3	x										x	\$1,101,700,000	1,264,300	
Zambia	13.2	8.78	x										x	\$308,146,758	1,663,000	
Zimbabwe	13	6	x										x	\$143,453,010	1,338,500	
<b>TOTAL</b>	<b>5,160,640,000</b>	<b>1,412,015,700</b>												<b>\$596,758,595,879</b>	<b>572,678,500</b>	

## NEGLECTED TROPICAL DISEASES (NTDS) AFFECT MORE THAN ONE BILLION PEOPLE AROUND THE WORLD AND COST DEVELOPING ECONOMIES BILLIONS OF DOLLARS EVERY YEAR.

The five most prevalent diseases — lymphatic filariasis (LF), onchocerciasis (ONC), schistosomiasis (SCH), soil-transmitted helminths (STH), and trachoma (TRA) — can be easily managed by preventative chemotherapy (PC) treatments through mass drug administration in affected communities. The other diseases listed here — Chagas (CHA), human African trypanosomiasis (HAT), also known as sleeping sickness, leprosy (LEP), and visceral leishmaniasis (VL) — are addressed through innovative and intensified disease management (IDM) (CHA, HAT, and VL) or multi-drug therapy (MDT) (LEP). A consortium of generous pharmaceutical companies donates more than \$4 billion of medicines each year to help reach global control and elimination goals for these diseases.

It is estimated that meeting the World Health Organization (WHO)'s 2020 goals for NTDS could save upwards of \$596 billion international dollars and avert more than 572 million years of life lost to poor health, disability, or early death worldwide.

### DID YOU KNOW?

- 1987:** Albendazole - a GlaxoSmithKline (GSK) drug - is approved for human use.
- 1987:** Merck CEO Roy Vagelos announces the company's commitment to donate Mectizan to treat river blindness for as long as needed. The Mectizan Donation Program (MDP) and the Mectizan Expert Committee were formed. A secretariat is established at the Task Force for Global Health to provide medical, technical, and administrative oversight.
- 1998:** Pfizer's global donation of Zithromax begins and the International Trachoma Initiative is established by Pfizer and the Edna McConnell Clark Foundation to aid in the elimination of blinding trachoma.
- 1998:** Merck expands the MDP to include Mectizan for the elimination of LF in African countries and Yemen where LF overlaps with river blindness.
- 1998:** GSK joins the LF elimination efforts and donates albendazole for LF through the MDP.
- 2000:** Novartis partners with the WHO to donate MDT for leprosy (commitment was renewed in 2012 and drug donation program will continue through 2020).
- 2001:** Sanofi partners with the WHO with a \$5 million a year contribution including financial support and medicine donations (the partnership originally focused on sleeping sickness, but was extended to include leishmaniasis, Buruli ulcer, yaws, and Chagas disease).
- 2003:** The not-for-profit research and development organization, Drugs for Neglected Diseases initiative (DNDi), is established to deliver new treatments for neglected diseases.
- 2004:** Bayer HealthCare partners with the WHO in the fight against Chagas disease through the provision of drugs and financial assistance for logistics and distribution (the agreement was renewed in 2011 and the drug donation was doubled to 1 million tablets a year).
- 2006:** Children Without Worms launches supported by Johnson & Johnson and the Task Force for Global Health.
- 2007:** Johnson & Johnson begins donation of mebendazole for deworming. Bangladesh, Cameroon, Uganda, and Zambia are the first countries to receive drugs.
- 2007:** Merck Serono (now Merck KGaA) launches the Merck Praziquantel Donation Program.
- 2009:** AbbVie (then the pharmaceutical division of Abbott) creates an Executive Council for Neglected Diseases to coordinate company-wide efforts to contribute innovative technologies, drug compounds, and scientific expertise to non-profit organizations, academic research institutions, and multilateral agencies.
- 2010:** Eisai signs a statement of intent with the WHO to donate 2.2 billion 100mg tablets of diethylcarbamazine citrate (DEC) for the treatment of LF (the donation program commenced in 2012).
- 2011:** Gilead signs a partnership agreement with the WHO to donate 445,000 vials of AmBisome over five years for the treatment of VL in resource-limited countries.
- 2012:** Members of the public and private sector, including many pharmaceutical companies, convene to sign the London Declaration on NTDs, which pledges to support the achievement of the WHO 2020 goals in respect to 10 NTDs.
- 2012/13:** Eisai, Sanofi, and Bill & Melinda Gates Foundation donate 120 million tablets of DEC to the WHO LF elimination program - providing treatment to 30 million people.
- 2014:** The Global Schistosomiasis Alliance is launched with the support of Merck KGaA.

\* Reflects countries with populations over 100,000 infected with a non-PCT NTD (CHA, HAT, LEP, VL). Countries with populations less than 100,000 infected with a non-PCT NTD were removed: Iran, Kazakhstan, Lebanon, Libya, Morocco, Saudi Arabia, Sri Lanka, Thailand, Tunisia, and Turkey.

\*\* Disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability, or early death.

<sup>1</sup> Data for the following countries is not available in the Erasmus study: Andorra, Bahamas, Bahrain, Barbados, Cabo Verde, Comoros, Dominica, Grenada, Kosovo, Liechtenstein, Maldives, Malta, Mauritius, Micronesia (Federated States of), Monaco, Palau, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Samoa, San Marino, São Tomé and Príncipe, Seychelles, and Singapore.

<sup>2</sup> The Erasmus study listed the following countries as having zero NTDs present: Belarus, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, Germany, Iceland, Ireland, Japan, Kuwait, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Republic of Moldova, Romania, Serbia, Slovakia, Sweden, Ukraine, United Kingdom of Great Britain, and United States of America.

<sup>3</sup> Sudan and South Sudan are combined in this table due to the fact that Erasmus' calculations are based on the GBD-2010 estimates for the years 1990 and 2010 - when both countries were still one country.

<sup>4</sup> Economic data for the following countries is not available from the Global Disease Burden (GBD) study as reported by Erasmus: Albania, Australia, Austria, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Croatia, Cyprus, France, Greece, Hungary, Israel, Italy, Kiribati, Macedonia, Marshall Islands, Nauru, Portugal, Russian Federation, Saint Lucia, Slovenia, Spain, Switzerland, Tonga, Tuvalu, and Uruguay.

<sup>5</sup> Population affected data for the following countries is not available from the WHO Global Health Observatory and/or PCT data bank: Georgia, Jordan, Mongolia, Oman, Palestine, Qatar, Republic of Korea, Syrian Arab Republic, Turkmenistan, and United Arab Emirates.