PREVALENCE OF MALARIA IN SUB-SAHARAN AFRICA

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FOOTNOTES

1. Richard Idro et al., “Cerebral Malaria: Mechanisms of Brain Injury and Strategies for Improved Neurocognitive Outcome,” *Pediatric Research* 68, no. 4 (2010): 267–274, https://doi.org/10.1203/pdr.0b013e3181eee738.
2. Julianna Schantz-Dunn and Nawal M. Nour, “Malaria and Pregnancy: A Global Health Perspective,” *Reviews in Obstetrics and Gynecology* 2, no. 3 (2009): 186.
3. “CDC - Malaria - Malaria Worldwide - How Can Malaria Cases and Deaths Be Reduced? - Indoor Residual Spraying,” *Centers for Disease Control and Prevention,* January 4, 2019, https://www.cdc.gov/malaria/malaria_worldwide/reduction/irs.html.
4. Ibid.
5. “What Is Microscopy?” *The University of Edinburgh,* September 27, 2018, https://www.ed.ac.uk/clinical-sciences/edinburgh-imaging/for-patients-study-participants/tell-me-more-about-my-scan/what-is-microscopy#:~:text=Microscopy%20is%20the%20technical%20field,range%20of%20the%20normal%20eye).
6. “NCI Dictionary of Cancer Terms,” *National Cancer Institute,* accessed December 2, 2022, https://www.cancer.gov/publications/dictionaries/cancer-terms/def/morbidity.
7. Stephen M. Rich et al., “The Origin of Malignant Malaria,” *Proceedings of the National Academy of Sciences* 106, no. 35 (2009): 14902–14907.
8. “CDC - Malaria - About Malaria - Disease,” *Centers for Disease Control and Prevention,* March 22, 2022, https://www.cdc.gov/malaria/about/disease.html#uncomplicated.
9. “Sub-Saharan Africa,” *Data,* World Bank, accessed November 15, 2022, https://data.worldbank.org/country/ZG.
10. “CDC - Malaria - About Malaria - Disease,” Centers for Disease Control and Prevention.
11. “Malaria,” *Centers for Disease Control and Prevention,* March 22, 2022, https://www.cdc.gov/malaria/about/faqs.html.
12. “Malaria Transmission Cycle,” *Mayo Clinic,* Mayo Foundation for Medical Education and Research, accessed October 12, 2022, https://www.mayoclinic.org/diseases-conditions/malaria/multimedia/malaria-transmission-cycle/img-20006373.
13. “Malaria,” *Mayo Clinic,* Mayo Foundation for Medical Education and Research, October 12, 2021, https://www.mayoclinic.org/diseases-conditions/malaria/symptoms-causes/syc-20351184.
14. “Malaria Transmission Cycle,” Mayo Clinic.
15. “Malaria,” Centers for Disease Control and Prevention.
16. “Malaria Transmission Cycle,” Mayo Clinic.
17. “World Malaria Report 2021,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
18. Max Roser and Hannah Ritchie, “Malaria,” *Our World in Data,* November 12, 2019, https://ourworldindata.org/malaria#citation.
19. “Malaria,” *World Health Organization,* June 28, 2019, https://www.who.int/news-room/facts-in-pictures/detail/malaria.
20. “Malaria,” Centers for Disease Control and Prevention.
21. Denise L. Doolan, Carlota Dobaño, and J. Kevin Baird, “Acquired Immunity to Malaria,” *Clinical Microbiology Reviews* 22, no. 1 (2009): 13–36, https://doi.org/10.1128/cmr.00025-08.

22. Jean Langhorne et al., “Immunity to Malaria: More Questions than Answers,” *Nature Immunology* 9, no. 7 (2008): 725–732.
23. “Malaria,” Centers for Disease Control and Prevention.
24. Ibid.
25. Max Roser and Hannah Ritchie, “Malaria,” *Our World in Data,* November 12, 2019, https://ourworldindata.org/malaria#citation.
26. *World Malaria Report 2020* (Geneva: World Health Organization, November 30, 2020), https://www.who.int/publications-detail-redirect/9789240015791.
27. “World Malaria Report 2021,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
28. “Who Urges Countries to Move Quickly to Save Lives from Malaria in Sub-Saharan Africa,” *World Health Organization,* April 23, 2020, https://www.who.int/news/item/23-04-2020-who-urges-countries-to-move-quickly-to-save-lives-from-malaria-in-sub-saharan-africa#:~:text=According%20to%20the%20World%20malaria,under%20the%20age%20of%20five.
29. Antonella Rossati et al., “Climate, Environment and Transmission of Malaria,” *Infez Med* 2 (2016): 93–104.
30. “Malaria,” Centers for Disease Control and Prevention.
31. Max Roser and Hannah Ritchie, “Malaria,” *Our World in Data,* November 12, 2019, https://ourworldindata.org/malaria#citation.
32. “World Malaria Report 2021,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
33. James L. A. Webb Jr., “Malaria in Africa,” *History Compass* 9, no. 3 (2011): 162–170, https://doi.org/10.1111/j.1478-0542.2010.00757.x.
34. “Impact,” *President's Malaria Initiative,* April 22, 2022, https://www.pmi.gov/impact/.
35. James L. A. Webb Jr., “Malaria in Africa,” *History Compass* 9, no. 3 (2011): 162–170, https://doi.org/10.1111/j.1478-0542.2010.00757.x.
36. François Nosten and Nicholas J. White, “Artemisinin-Based Combination Treatment of Falciparum Malaria,” *American Journal of Tropical Medicine and Hygiene* 77, no. 6 (2007), https://www.ncbi.nlm.nih.gov/books/NBK1713/.
37. C. F. Curtis et al., “Insecticide-Treated Bed-Nets for Malaria Mosquito Control,” *Journal of the American Mosquito Control Association* 22, no. 3 (2006): 501–506, https://doi.org/10.2987/8756-971X(2006)22[501:IBFMMC]2.0.CO;2.
38. Bianca Pluess et al., “Indoor Residual Spraying for Preventing Malaria,” *Cochrane Database of Systematic Reviews* 4 (2010), https://doi.org/10.1002/14651858.cd006657.pub2.
39. “World Malaria Report 2021,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
40. Francis EG Cox, “History of the Discovery of the Malaria Parasites and their Vectors,” *Parasites & Vectors* 3, no. 1 (2010): 1–9, https://doi.org/10.1186/1756-3305-3-5.
41. Ibid.
42. Max Roser and Hannah Ritchie, “Malaria,” *Our World in Data,* November 12, 2019, https://ourworldindata.org/malaria#citation.
43. “World Malaria Report 2021,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
44. Krijn P. Paaijmans et al., “Influence of Climate on Malaria Transmission Depends on Daily Temperature Variation,” *Proceedings of the National Academy of Sciences* 107, no. 34 (2010): 15135–15139, https://doi.org/10.1073%2Fpnas.1006422107.
45. Rossati et al., “Climate, Environment and Transmission of Malaria.”
46. Ibid.

47. Paaijmans et al., “Influence of Climate on Malaria Transmission Depends on Daily Temperature Variation.”
48. “Where Malaria Occurs,” *Centers for Disease Control and Prevention,* April 9, 2020, https://www.cdc.gov/malaria/about/distribution.html#:~:text=Temperature%20is%20particularly%20critical.,and%20thus%20cannot%20be%20transmitted.
49. Olivia Serdeczny et al., “Climate Change Impacts in Sub-Saharan Africa: From Physical Changes to their Social Repercussions,” *Regional Environmental Change* 17, no. 6 (2017): 1585–1600, https://doi.org/10.1007/s10113-015-0910-2.
50. “Tanzania - Summary,” *Climate Change Knowledge Portal,* World Bank, accessed September 19, 2022, https://climateknowledgeportal.worldbank.org/country/tanzania.
51. “World Bank Climate Change Knowledge Portal.” Climatology | Climate Change Knowledge Portal. Accessed September 19, 2022. https://climateknowledgeportal.worldbank.org/country/ghana
52. Ibid.
53. “Where Mosquitoes Live,” *Centers for Disease Control and Prevention,* May 27, 2022, https://www.cdc.gov/mosquitoes/about/where-mosquitoes-live.html.
54. C. J. M. Koenraadt, A. K. Githeko, and W. Takken, “The Effects of Rainfall and Evapotranspiration on the Temporal Dynamics of Anopheles Gambiae s.s. and Anopheles Arabiensis in a Kenyan village,” *Acta Tropica* 90, no. 2 (2004): 141–153, https://doi.org/10.1016/j.actatropica.2003.11.007.
55. Rossati et al., “Climate, Environment and Transmission of Malaria.”
56. *Amazon Malaria Initiative (AMI)/ Ravreda IX Annual Evaluation* (Geneva: World Health Organization, 2010), https://paho.org/hq/dmdocuments/2011/WHO_Treatment_Guidelines_Olumense.pdf.
57. Peter B. Bloland, *Drug Resistance in Malaria* (Switzerland: World Health Organization, 2001), https://apps.who.int/iris/handle/10665/66847.
58. *The World Health Report 2006: Working Together for Health* (World Health Organization, 2006), https://apps.who.int/iris/handle/10665/43432.
59. Michael Olivar et al., “Presumptive Diagnosis of Malaria Results in a Significant Risk of Mistreatment of Children in Urban Sahel,” *Transactions of the Royal Society of Tropical Medicine and Hygiene* 85, no. 6 (1991): 729–730.
60. Ibid.
61. Bloland, “Drug Resistance in Malaria.”
62. Catherine Goodman et al., “Medicine Sellers and Malaria Treatment in Sub-Saharan Africa: What do they do and How can their Practice be Improved?” *The American Journal of Tropical Medicine and Hygiene* 77, no. 6 Suppl (2007): 203.
63. Michael S. Deming et al., “Home Treatment of Febrile Children with Antimalarial Drugs in Togo,” *Bulletin of the World Health Organization* 67, no. 6 (1989): 695.
64. C. Molyneux et al., “Maternal Responses to Childhood Fevers: A Comparison of Rural and Urban Residents in Coastal Kenya,” *Tropical Medicine & International Health* 4, no. 12 (1999): 836–845, https://doi.org/10.1046/j.1365-3156.1999.00489.x.
65. Goodman et al., “Medicine Sellers and Malaria Treatment in Sub-Saharan Africa: What do they do and How can their Practice be Improved?”
66. Molyneux et al., “Maternal Responses to Childhood Fevers: A Comparison of Rural and Urban Residents in Coastal Kenya.”
67. Holly Ann Williams and Caroline O. H. Jones, “A Critical Review of Behavioral Issues Related to Malaria Control in Sub-Saharan Africa: What Contributions Have Social Scientists Made?”*Social Science & Medicine* 59, no. 3 (August 2004): 501–523,https://pubmed.ncbi.nlm.nih.gov/15144761/.

68. Abdinasir A. Amin et al., “The Use of Formal and Informal Curative Services in the Management of Pediatric Fevers in Four Districts in Kenya,” *Tropical Medicine & International Health* 8, no. 12 (December 2003): 1143–1152, https://pubmed.ncbi.nlm.nih.gov/14641851/.
69. “Poverty Incidence in Kenya Declined Significantly, but Unlikely to Be Eradicated by 2030,” *World Bank Group,* accessed February 7, 2023, https://www.worldbank.org/en/country/kenya/publication/kenya-economic-update-poverty-incidence-in-kenya-declined-significantly-but-unlikely-to-be-eradicated-by-2030.
70. Nathan Nshakira et al., “Appropriate Treatment of Malaria? Use of Antimalarial Drugs for Children’s Fevers in District Medical Units, Drug Shops and Homes in Eastern Uganda,” *Tropical Medicine & International Health* 7, no. 4 (April 2002): 309–316, https://pubmed.ncbi.nlm.nih.gov/11952946/.
71. Chinazo Ujuju et al., “A Qualitative Assessment of Medicine Sellers in Igbo-Ora,” *Journal of Multidisciplinary Healthcare* 7, (April 8, 2014): 163–171, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3986293/.
72. V. M. Marsh et al., “Changing Home Treatment of Childhood Fevers by Training Shop Keepers in Rural Kenya,” *Tropical Medicine & International Health* 4, no. 5 (May 1999): 383–389, https://pubmed.ncbi.nlm.nih.gov/10402975/.
73. Nathan Nshakira et al., “Appropriate Treatment of Malaria? Use of Antimalarial Drugs for Children’s Fevers in District Medical Units, Drug Shops and Homes in Eastern Uganda,” *Tropical Medicine & International Health* 7, no. 4 (April 2002): 309–316, https://pubmed.ncbi.nlm.nih.gov/11952946/.
74. James A. Watson et al., “Concentration-Dependent Mortality of Chloroquine in Overdose,” *Elife* 9 (July 2020): e58631, https://pubmed.ncbi.nlm.nih.gov/32639233/.
75. Nathan Nshakira et al., “Appropriate Treatment of Malaria? Use of Antimalarial Drugs for Children’s Fevers in District Medical Units, Drug Shops and Homes in Eastern Uganda,” *Tropical Medicine & International Health* 7, no. 4 (April 2002): 309–316, https://pubmed.ncbi.nlm.nih.gov/11952946/.
76. Leonardo K. Basco, “Molecular Epidemiology of Malaria in Cameroon. XIX. Quality of Antimalarial Drugs Used for Self-Medication,” *American Journal of Tropical Medicine and Hygiene* 70, no. 3 (March 2004): 245–250, https://pubmed.ncbi.nlm.nih.gov/15031511/.
77. “Drug Resistance in Malaria,” *World Health Organization,* accessed February 7, 2023, https://apps.who.int/iris/handle/10665/66847.
78. V. P.Sharma, “Re-Emergence of Malaria in India,” *The Indian Journal of Medical Research* 103 (January 1996), 26–45, https://pubmed.ncbi.nlm.nih.gov/8926025/.
79. J. Aramburu Guarda, C. Ramal Asayag, and Richard Witzig, “Malaria Reemergence in the Peruvian Amazon Region,” *Emerging Infectious Diseases* 5, no. 2 (April 1999): 209, https://pubmed.ncbi.nlm.nih.gov/10221872/.
80. M. A. Malakooti, K. Biomndo, and G. D. Shanks, “Reemergence of Epidemic Malaria in the Highlands of Western Kenya,” *Emerging Infectious Diseases* 4, no. 4 (December 1998): 671, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2640260/.
81. James L. A. Webb Jr., “Malaria in Africa,” *History Compass* 9, no. 3 (2011): 162–170, https://doi.org/10.1111/j.1478-0542.2010.00757.x.
82. Umar Farooq and R. C. Mahajan, “Drug Resistance in Malaria,” *Journal of Vector Borne Diseases* 41, no. 3–4 (December 2004): 45, https://pubmed.ncbi.nlm.nih.gov/15672556/.
83. Chansuda Wongsrichanalai et al., “Epidemiology of Drug-Resistant Malaria,” *The Lancet Infectious Diseases* 2, no. 4 (April 2002): 209–218, https://pubmed.ncbi.nlm.nih.gov/11937421/.
84. N. J. White, “Drug Resistance in Malaria,” *British Medical Bulletin* 54, no. 3 (March 1998): 703–715, https://pubmed.ncbi.nlm.nih.gov/17092790/.

85. Chansuda Wongsrichanalai et al., “Epidemiology of Drug-Resistant Malaria,” *The Lancet Infectious Diseases* 2, no. 4 (April 2002): 209–218, https://pubmed.ncbi.nlm.nih.gov/11937421/.
86. Samwel Gesase et al., “High Resistance of Plasmodium Falciparum to Sulphadoxine/Pyrimethamine in Northern Tanzania and the Emergence of dhps Resistance Mutation at Codon 581,” *PLoS One* 4, no. 2 (February 4, 2009): e4569, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0004569.
87. Fleuramie Mirembou Boukoumba et al., “High Prevalence of Genotypes Associated with Sulfadoxine/Pyrimethamine Resistance in the Rural Area of Fougamou, Gabon,” *Journal of Global Antimicrobial Resistance* 25 (June 2021): 181–186, https://www.sciencedirect.com/science/article/pii/S2213716521000709.
88. Pamela Chauvin et al., “Prevalence of Plasmodium Falciparum Parasites Resistant to Sulfadoxine/Pyrimethamine in Pregnant Women in Yaoundé, Cameroon: Emergence of Highly Resistant pfdhfr/pfdhps Alleles,” *Journal of Antimicrobial Chemotherapy* 70, no. 9 (September 2015): 2566–2571, https://pubmed.ncbi.nlm.nih.gov/26080363/.
89. Lenshina Agbor and Tobias Apinjoh, “Evidence of Plasmodium Falciparum Resistance to Sulphadoxine-Pyrimethamine (SP) in Pregnant Women Along the Slope of Mount Cameroon,” *BMJ Global Health* 2, (November 2017), https://gh.bmj.com/content/2/Suppl_2/A17.1.
90. Felix Koukouikila-Koussounda et al., “High Prevalence of Sulphadoxine–Pyrimethamine Resistance-Associated Mutations in Plasmodium Falciparum Field Isolates from Pregnant Women in Brazzaville, Republic of Congo,” *Infection, Genetics and Evolution* 33 (July 2015): 32–36, https://pubmed.ncbi.nlm.nih.gov/25934142/.
91. Mallika Imwong et al., “The Spread of Artemisinin-Resistant Plasmodium Falciparum in the Greater Mekong Subregion: A Molecular Epidemiology Observational Study,” *The Lancet Infectious Diseases* 17, no. 5 (May 2017): 491–497, https://pubmed.ncbi.nlm.nih.gov/28161569/.
92. Peter Winstanley, “Modern Chemotherapeutic Options for Malaria,” *The Lancet Infectious Diseases* 1, no. 4 (2001): 242–250, https://pubmed.ncbi.nlm.nih.gov/11871511/.
93. Ibid.
94. Marta Schoch, Christoph Lakner, and Melina Fleury, “Where the Extreme Poor Live,” *World Bank,* October 12, 2020, https://blogs.worldbank.org/opendata/where-extreme-poor-live.
95. “World Malaria Report 2020,” *World Health Organization,* accessed February 7, 2023, https://www.who.int/publications-detail-redirect/9789240015791.
96. Behzad Nadjmand and Ron H. Behrens, “Malaria: An Update for Physicians,” *Infectious Disease Clinics of North America* 26, no. 2 (June 2012): 243–259, https://doi.org/10.1016/j.idc.2012.03.010.
97. Elizabeth A. Ashley, Aung Pyae Phyo, and Charles J. Woodrow, “Malaria,” *The Lancet* 391, no. 10130 (April 6, 2018): 1608-1621, https://www.thelancet.com/action/showPdf?pii=S0140-6736%2818%2930324-6.
98. S. K. Mishra et al., “Cerebral Malaria in Adults—A Description of 526 Cases Admitted to Ispat General Hospital in Rourkela, India,” *Annals of Tropical Medicine & Parasitology* 101, no. 3 (April 2007): 187–193, https://pubmed.ncbi.nlm.nih.gov/17362593/.
99. Walter R. J. Taylor et al., “Respiratory Manifestations of Malaria,” *Chest* 142, no. 2 (August 2012): 492–505, https://pubmed.ncbi.nlm.nih.gov/22871759/.
100. Elizabeth A. Ashley, Aung Pyae Phyo, and Charles J. Woodrow, “Malaria,” *The Lancet* 391, no. 10130 (April 6, 2018): 1608–1621, https://www.thelancet.com/action/showPdf?pii=S0140-6736%2818%2930324-6.
101. T. K. Hartman, S.J. Rogerson, and P.R. Fischer, “The Impact of Maternal Malaria on Newborns,” *International Child Health* 30, no. 4 (July 18, 2013): 271–282, https://www.tandfonline.com/doi/abs/10.1179/146532810X12858955921032.

102. "Malaria," *Centers for Disease Control and Prevention,* accessed February 7, 2023, https://www.cdc.gov/parasites/malaria/index.html.
103. Christopher J. L. Murray et al., "Global Malaria Mortality Between 1980 and 2010: A Systematic Analysis," *The Lancet* 379, no. 9814 (February 2, 2012): 413–431, https://www.healthdata.org/research-article/global-malaria-mortality-between-1980-and-2010-systematic-analysis.
104. "World Malaria Report 2021," *World Health Organization,* accessed February 7, 2023, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021.
105. Ibid.
106. Ibid.
107. Mogahed Ismail Hassan Hussein et al., "Malaria and COVID-19: Unmasking Their Ties," *Malaria Journal* 19, no. 1 (December 23, 2020): 1–10, https://pubmed.ncbi.nlm.nih.gov/33357220/.
108. Max Roser and Hannah Ritchie, "Malaria," *Our World in Data,* November 12, 2019, https://ourworldindata.org/malaria#citation.
109. "Severe and Complicated Malaria," *Transactions of the Royal Society of Tropical Medicine and Hygiene* 84 (January 1, 1990): 1–65, https://academic.oup.com/trstmh/article-abstract/84/Supplement_2/1/1925167.
110. Jeffrey Sachs and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature* 415, no. 6872 (2002): 680–685, https://www.nature.com/articles/415680a.
111. Brian M.Greenwood et al., "Malaria," *The Lancet* 365, no. 9469 (April 2005): 1487–1498, https://pubmed.ncbi.nlm.nih.gov/15850634/. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)66420-3/fulltext
112. Jeffrey Sachs and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature* 415, no. 6872 (2002): 680–685, https://www.nature.com/articles/415680a.
113. Nayantara Sarma et al., "The Economic Burden of Malaria: Revisiting the Evidence," *The American Journal of Tropical Medicine and Hygiene* 101, no. 6 (December 2019), 1405–1415, https://doi:10.4269/ajtmh.19-0386.
114. J. L. Gallupand J. D. Sachs, "The Economic Burden of Malaria," *American Journal of Tropical Medicine and Hygiene* 64, no. 1 (2001): 85–96, https://www.ajtmh.org/view/journals/tpmd/64/1_suppl/article-p85.xml.
115. Jeffrey Sachs and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature* 415, no. 6872 (2002): 680–685, https://www.nature.com/articles/415680a.
116. Josselin Thuilliez et al., "Malaria and Primary Education in Mali: A Longitudinal Study in the Village of Doneguebougou," *Social Science & Medicine* 71, no. 2 (July 2010): 324–334, https://pubmed.ncbi.nlm.nih.gov/20413198/.
117. D. A. Bundy et al, "What Should Schools Do About Malaria?" *Parasitology Today* 16, no. 5 (May 2000): 181–182, https://pubmed.ncbi.nlm.nih.gov/10782071/.
118. Simon Brooker et al., "Situation Analysis of Malaria in School-Aged Children in Kenya–What Can Be Done?" *Parasitology Today* 16, no. 5 (May 2000): 183–186, https://pubmed.ncbi.nlm.nih.gov/10782073/.
119. Penny A. Holding and Robert W. Snow, "Impact of Plasmodium Falciparum Malaria on Performance and Learning: Review of the Evidence," *The American Journal of Tropical Medicine and Hygiene* 64, 1–2 (February 2001), https://pubmed.ncbi.nlm.nih.gov/11425179/.
120. Jean-Francois Trape et al., "Malaria Morbidity Among Children Exposed to Low Seasonal Transmission in Dakar, Senegal and its Implications for Malaria Control in Tropical Africa," *The American Journal of Tropical Medicine and Hygiene* 48, no. 6 (June 1993): 748–756, https://pubmed.ncbi.nlm.nih.gov/8333568/.
121. Ibid.

122. Jeffrey Sachs and Pia Malaney, “The Economic and Social Burden of Malaria,” *Nature* 415, no. 6872 (2002): 680–685, https://www.nature.com/articles/415680a.
123. Joel G. Breman et al., “Conquering Malaria,” in *Disease Control Priorities in Developing Countries,* 2nd edition (Washington, DC: The International Bank for Reconstruction and Development and the World Bank, 2006), https://pubmed.ncbi.nlm.nih.gov/21250338/.
124. Justice Nonvignon et al., “Economic Burden of Malaria on Businesses in Ghana: A Case for Private Sector Investment in Malaria Control,” *Malaria Journal* 15, no. 1 (September 6, 2016): 1–10, https://pubmed.ncbi.nlm.nih.gov/27599835/.
125. Mark Purdy et al., “The Economic Case for Combating Malaria,” *The American Journal of Tropical Medicine and Hygiene* 89, no. 5 (November 2013): 819, https://pubmed.ncbi.nlm.nih.gov/24197172/.
126. Awash Teklehaimanot and Paola Mejia, “Malaria and Poverty,” *Annals of the New York Academy of Sciences* 1136, no. 1 (2008): 32–37, https://pubmed.ncbi.nlm.nih.gov/18579874/.
127. Marta Schoch, Christoph Lakner, and Melina Fleury, “Where the Extreme Poor Live,” *World Bank,* October 12, 2020, https://blogs.worldbank.org/opendata/where-extreme-poor-live.
128. Mary Ettling et al., “Economic Impact of Malaria in Malawian Households,” *Tropical Medicine and Parasitology* 45, no. 1 (March 1994): 74–79, https://pubmed.ncbi.nlm.nih.gov/8066390/.
129. Jeffrey Sachs and Pia Malaney, “The Economic and Social Burden of Malaria,” *Nature* 415, no. 6872 (2002): 680–685, https://www.nature.com/articles/415680a.
130. Shannon E. Ronca, Kelly T. Dineley, and Slobodan Paessler, “Neurological Sequelae Resulting from Encephalitic Alphavirus Infection,” *Frontiers in Microbiology* 7 (June 2016): 959, https://pubmed.ncbi.nlm.nih.gov/27379085/.
131. Robert W. Snow et al., “Estimating Mortality, Morbidity and Disability Due to Malaria Among Africa's Non-Pregnant Population,” *Bulletin of the World Health Organization* 77, no. 8 (1999): 624, https://pubmed.ncbi.nlm.nih.gov/10516785/.
132. Benedicte Ingstad et al., “The Evil Circle of Poverty: A Qualitative Study of Malaria and Disability,” *Malaria Journal* 11, no. 1 (January 11, 2012): 1–6, https://doi.org/10.1186/1475-2875-11-15.
133. Ibid.
134. Reginald Ikechukwu Chima, Catherine A. Goodman, and Anne Mills, “The Economic Impact of Malaria in Africa: A Critical Review of the Evidence,” *Health Policy* 63, no. 1 (January 2003): 17–36, https://pubmed.ncbi.nlm.nih.gov/12468115/.
135. Sean C. Murphy and Joel G. Breman, “Gaps in the Childhood Malaria Burden in Africa: Cerebral Malaria, Neurological Sequelae, Anemia, Respiratory Distress, Hypoglycemia, and Complications of Pregnancy,” *The American Journal of Tropical Medicine and Hygiene* 64, no. 1–2 (February 2001), https://pubmed.ncbi.nlm.nih.gov/11425178/.
136. Jane Crawley et al., “Malaria in Children,” *The Lancet* 375, no. 9724 (2010): 1468–1481, https://pubmed.ncbi.nlm.nih.gov/20417858/.
137. Robert W. Snow et al., “Estimating Mortality, Morbidity and Disability Due to Malaria Among Africa's Non-Pregnant Population,” *Bulletin of the World Health Organization* 77, no. 8 (1999): 624, https://pubmed.ncbi.nlm.nih.gov/10516785/.
138. “Indicator Metadata Registry Details,” *World Health Organization,* accessed November 5, 2022, https://www.who.int/data/gho/indicator-metadata-registry/imr-details/160.
139. Mark Musumba, Aklesso Egbendewe-Mondzozo, and Bruce A. McCarl, “Analysis of the Cost of Malaria in Children and Use of Insecticide-treated Bednets in Africa,” *African Development Review* 26, no. 1 (April 14, 2014): 74–87, https://onlinelibrary.wiley.com/doi/abs/10.1111/1467-8268.12065.

140. Trude Arnesen and Erik Nord, “The Value of DALY Life: Problems with Ethics and Validity of Disability Adjusted Life Years,” *BMJ* 319, no. 7222 (November 27, 1999): 1423–1425, https://pubmed.ncbi.nlm.nih.gov/10574867/.
141. Safa I. Abdalla, Elfatih M. Malik, and Kamil M. Ali, “The Burden of Malaria in Sudan: Incidence, Mortality and Disability–Adjusted Life–Years,” *Malaria Journal* 6, no. 1 (July 28, 2007): 1–9, https://pubmed.ncbi.nlm.nih.gov/17662153/.
142. Tadele Girum, Teha Shumbej, and Misgun Shewangizaw, “Burden of Malaria in Ethiopia, 2000-2016: Findings from the Global Health Estimates 2016,” *Tropical Diseases, Travel Medicine and Vaccines* 5, no. 1 (July 12, 2019): 1–7, https://pubmed.ncbi.nlm.nih.gov/31338202/.
143. Mark Musumba, Aklesso Egbendewe-Mondzozo, and Bruce A. McCarl, “Analysis of the Cost of Malaria in Children and Use of Insecticide-treated Bednets in Africa,” *African Development Review* 26, no. 1 (April 14, 2014): 74–87, https://onlinelibrary.wiley.com/doi/abs/10.1111/1467-8268.12065.
144. See Table 5, Column YLD of previous source: 849+2215+1633+174+19+77+497+2139+158+932+791+907+23+634+494+29+470+4708 = 16749
145. Benedicte Ingstad et al., “The Evil Circle of Poverty: A Qualitative Study of Malaria and Disability,” *Malaria Journal* 11, no. 1 (January 11, 2012): 1–6, https://doi.org/10.1186/1475-2875-11-15.
146. Richard Idro et al., “Severe Neurological Sequelae and Behaviour Problems After Cerebral Malaria in Ugandan Children,” *BMC Research Notes* 3, no. 104 (April 16, 2010): 1–6, https://doi.org/10.1186/1756-0500-3-104.
147. Ibid.
148. “President's Malaria Initiative,” *US President's Malaria Initiative,* April 22, 2022, https://www.pmi.gov/.
149. “About Us,” *US President's Malaria Initiative,* October 14, 2022, https://www.pmi.gov/about-us/.
150. “What We Do,” *US President's Malaria Initiative,* January 19, 2022, https://www.pmi.gov/what-we-do/.
151. “Insecticide-Treated Mosquito Nets (ITNS),” *US President's Malaria Initiative,* December 20, 2021, https://www.pmi.gov/what-we-do/insecticide-treated-mosquito-nets-itns-2/.
152. Sydney Sterling, “Crossing Mountains and Forging Rivers to Get Mosquito Nets to Remote Communities in Angola,” *US President's Malaria Initiative,* October 5, 2022, https://www.pmi.gov/crossing-mountains-and-forging-rivers-to-get-mosquito-nets-to-remote-communities-in-angola/.
153. Jessica Hoke, “NET Wins for Women and Children in Ghana,” *US President's Malaria Initiative,* August 8, 2022, https://www.pmi.gov/net-wins-for-women-and-children-in-ghana/.
154. “Taking Stock and Battling Malaria in Northwest Nigeria,” *US President's Malaria Initiative,* August 31, 2022, https://www.pmi.gov/taking-stock-and-battling-malaria-in-northwest-nigeria/.
155. “Impact,” *President's Malaria Initiative,* accessed February 8, 2023, https://www.pmi.gov/impact/#:~:text=Since%202006%2C%20PMI%20partner%20countries,illnesses%20and%20627%2C000%20deaths%20worldwide.
156. Ibid.
157. “In Tanzania's Refugee Camps, Local Health Teams Take the Lead in Fighting Malaria,” *US President's Malaria Initiative,* June 15, 2022, https://www.pmi.gov/in-tanzanias-refugee-camps-local-health-teams-take-the-lead-in-fighting-malaria/.

158. “Impact,” *President's Malaria Initiative,* accessed February 8, 2023, https://www.pmi.gov/impact/#:~:text=Since%202006%2C%20PMI%20partner%20countries,illnesses%20and%20627%2C000%20deaths%20worldwide.
159. Ibid.
160. “In Tanzania's Refugee Camps, Local Health Teams Take the Lead in Fighting Malaria,” *US President's Malaria Initiative,* June 15, 2022, https://www.pmi.gov/in-tanzanias-refugee-camps-local-health-teams-take-the-lead-in-fighting-malaria/.
161. Ibid.