

Peer-reviewed Journal Publications

170. Adel Alatawi and Abba B. Gumel. Mathematical assessment of control strategies against the spread of MERS-CoV in humans and camels in Saudi Arabia. *Mathematical Biosciences and Engineering*. 21(7)(2024): 6425–6470.
169. Binod Pant, Salman Safdar, Mauricio Santillana and Abba B. Gumel. Mathematical assessment of the role of human behavior changes on SARS-CoV-2 transmission dynamics in the United States. *Bulletin of Mathematical Biology*. 86(92)(2024): 1–53.
168. Queen Tollett, Salman Safdar and Abba B. Gumel. Dynamics of a two-group model for assessing the impacts of pre-exposure prophylaxis, testing and risk behaviour change on the spread and control of HIV/AIDS in an MSM population. *Infectious Disease Modelling*. 9(2024) 103e127.
167. Binod Pant and Abba B. Gumel. Mathematical assessment of the roles of age heterogeneity and vaccination on the dynamics and control of SARS-CoV-2. *Infectious Disease Modelling*. 9(2024): 828-874.
166. Jemal Mohammed-Awel and Abba B. Gumel. Can insecticide resistance increase malaria transmission? A genetics-epidemiology mathematical modeling approach. *Journal of Mathematical Biology*. 87(2): 28(2023). <https://doi.org/10.1007/s00285-023-01949-x>
165. Salman Safdar, Calistus N. Ngonghala and Abba B. Gumel. Mathematical assessment of the role of waning and boosting immunity against the BA.1 Omicron variant in the United States. *Mathematical Biosciences and Engineering*. 20(1)(2023): 179-212.
164. Calistus N. Ngonghala, Hemaho B. Taboe, Salman Safdar and Abba B. Gumel. Unraveling the dynamics of Omicron and Delta variants of the 2019 coronavirus in the presence of vaccination, mask usage and antiviral treatment. *Applied Mathematical Modeling*. 114 (2023): 447-465.
163. SJ Brozak, J Mohammed-Awel and AB Gumel. Mathematics of a single-locus model for assessing the impacts of pyrethroid resistance and temperature on population abundance of malaria mosquitoes. *Infectious Disease Modeling*, 7(3)(2022): 277-316.
162. Elamin H. Elbasha and Abba B. Gumel. Vaccination and herd immunity thresholds in heterogeneous populations. *Journal of Mathematical Biology*. 83, 73 (2021). <https://doi.org/10.1007/s00285-021-01686-z>
161. Samantha J. Brozak, Binod Pant, Salman Safdar and Abba B. Gumel. Dynamics of COVID-19 pandemic in India and Pakistan: A metapopulation modelling approach. *Infectious Disease Modeling*. 6(2021): 1173e1201
160. Marina Mancuso, Steffen Eikenberry and Abba B. Gumel. Will Vaccine-derived Protective Immunity Curtail COVID-19 Variants in the US? *Infectious Disease Modelling*. 6(2021): 1110-1134.
159. Calistus N. Ngonghala, James R. Knitter, Lucas Marinacci, Matthew H. Bonds and Abba B. Gumel. Assessing the impact of widespread respirator use in curtailing COVID-19 transmission in the United States. *Royal Society Open Science*. 8(2021): 210699. <https://doi.org/10.1098/rsos.210699>
158. Abba B. Gumel, Enahoro A. Iboi, Calistus N. Ngonghala and Elamin H. Elbasha. A primer on using mathematics to understand COVID-19 dynamics: Modeling, analysis and simulations. *Infectious Disease Modeling*. 6(2021): 1-21.

157. Tufail M. Malik, Jemal Mohammed-Awel, Abba B. Gumel and Elamin H. Elbasha. Mathematical assessment of the impact of cohort vaccination on pneumococcal carriage and serotype replacement. *Journal of Biological Dynamics*. Vol. 15, No S1, S214-S247, 2021. DOI: <https://doi.org/10.1080/17513758.2021.1884760>.
156. Abba B. Gumel, Enahoro Iboi, Calistus Ngonghala and Gideon Ngwa. Towards achieving a vaccine-derived herd immunity threshold for COVID-19 in the U.S. *Frontiers in Public Health*. 9:709369. doi: 10.3389/fpubh.2021.709369.
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154. Calistus N. Ngonghala, Enahoro Iboi and Abba B. Gumel. Could masks curtail the post-lockdown resurgence of COVID-19 in the US? *Mathematical Biosciences*. 329(2020), 108452. **This paper is listed among the most-downloaded for the journal.**
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152. Rahim Taghikhani, Oluwaseun Sharomi and Abba B. Gumel. Dynamics of a two-sex model for the population ecology of dengue mosquitoes in the presence of *Wolbachia*. *Mathematical Biosciences*. 328(2020): 108426
151. Iboi Enahoro, Steffen Eikenberry, Abba B. Gumel, Silvie Huijben and Krijn Paaijmans. Long-lasting insecticidal nets and the quest for malaria eradication: A mathematical modeling approach. *Journal of Mathematical Biology*. 81(2020): 113-158.
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146. Antonella Lupica, Abba B. Gumel and Annunziata Palumbo. Type reproduction numbers and the environment-host-environment cholera transmission dynamics. *Journal of Biological Systems*. 28(2)(2020): 183-231.
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(i): Edited volumes

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(ii): Book chapters (representative)

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