Vector-borne diseases have the highest morbidity and mortality rates (particularly in children and young people) compared with other communicable diseases. Vector-borne zoonoses can cause a huge number of deaths and abortions among livestock which can bring on significant economic costs. Vector-borne diseases and zoonoses (VBDZs) are common in tropical and subtropical regions, but have a potential risk of recurrence in the rest of the world. In this talk, I will report on some of my recent results on transmission and spread dynamics of some VBDZs, such as Malaria, Dengue Fever and Rift Valley Fever. I will also explore how socioeconomic factors in conjunction with other well-known factors, i.e., disease latency and seasonality, will impact the transmission and spatial spread of disease pathogens.