1155-34-73 **Abdul-Aziz Yakubu** and **Eric Ngang Che Fnu***, 10203 Birdie Ln, Upper Marlboro, MD 20774, and **Yeona Kang**. *Risk Structured Model of Cholera Infections in Cameroon.*

Since 1991, Cameroon, a cholera endemic African country, has been experiencing large cholera outbreaks and cholera related deaths. In this talk, we use a "fitted" demographic equation (disease-free equation) to capture the total population of Cameroon, and then use a fitted low-high risk structured cholera differential equation model to study reported cholera cases in Cameroon from 1987-2004. For simplicity, our model has no spatial structure. The basic reproduction number of our fitted cholera model, $\mathcal{R}_0$, is bigger than 1 and our model predicted cholera endemicity in Cameroon. In addition, the fitted risk structured model predicted a decreasing trend from 1987 to 1994 and an increasing trend from 1995 to 2004 in the pre-intervention reported number of cholera cases in Cameroon from 1987 to 2004. Using the fitted risk structured cholera model, we study the impact of vaccination, treatment and improved sanitation on the number of cholera infections in Cameroon from 2004 to 2022. Finally, using sensitivity analysis, we study the impact of our model parameters on the demographic threshold, basic reproduction number, effective reproduction number and on the total number of our model's predicted cholera cases. (Received December 18, 2019)