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# The mathematical analysis of transmission dynamics of varicella

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Varicella is a very contagious disease occurring mostly among children. As a childhood disease it is reasonable to use age structure to model the transmission dynamics. Since the school year plays an important role in the contact rates among children, our aim is to build this effect in our model. That is, we use a realistic age structured model, which means that the transmission dynamics of the infection is handled as a continuous process during the school year, but students age into the next group at the end of the school year.

In my presentation I will show how to define the basic reproduction number for such models and give a method to its practical calculation. Finally, the method will be illustrated on a simple SIR system, and also applied for varicella including different vaccination strategies.

Joint work with Gergely Röst.