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On an age- and stage-dependent epidemic model.

A very general epidemic model will be introduced in which the disease spreads by contact among a population which is age-dependent. A stage structure is introduced in the disease, to describe its progression. The model formulation thus hinges on a system of highly nonlinear hyperbolic partial differential equations. The well-posedness is discussed. Numerical simulations reveal the occurrence of recurrent epidemic outbreaks, under suitable circumstances.