1014-39-479   **Dorian Wilkerson*** (`rohrs@math.gatech.edu`), Clark Atlanta University, Mathematics Department, Atlanta, GA 30314, and **Ronald Mickens** (`rohrs@math.gatech.edu`), Clark Atlanta University, Physics Department, Atlanta, GA 30314. *Integer-Valued Population Models.*

We present several preliminary results on how to construct discrete-time, integer-valued population models for the spread of disease. Such models are of particular interest for the case where small population numbers occur and gives a possible solution to the small numbers problem [1]. The focus is on the construction and analysis of various generalizations of the Anderson-May model [2]. In particular, we compare several modifications for which the positivity condition is satisfied [3].

1. B. Shulgin et al., Bulletin of Mathematical Biology 60, 1123-1148 (1998).
2. R. Anderson and R. May, New Scientist, November 18 (1982), 410-415.
3. R. E. Mickens, Journal of Difference Equations and Application 11, 645-653 (2005). (Received September 17, 2005)