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**Title:** Assessing the accuracy of predictions of eventual rural practice using different definitions to classify medical school applicants as having a rural upbringing

**Abstract:** Many rural areas are medically underserved so that efforts have been made to increase the number of health care providers practicing in these areas. A “rural upbringing” has been positively associated with physicians’ practicing in rural areas, but this positive association has been difficult to operationalize because the word “rural” has multiple and sometimes conflicting definitions. A number of classification systems recently have been developed by the Office of Management and Budget and by the Economic Research Service to refine the definition of “rural.” It is unclear which of these new systems may be the most accurate in identifying future physicians whose rural upbringing may predispose them to eventual practice in a rural area. This study will determine whether the likelihood of eventual rural practice will differ according to the definition of “rural” used to categorize the geographic upbringing of each applicant who entered the University of Virginia School of Medicine in 1990-95 and graduated in 1994-99. Each applicant’s upbringing will be examined using four different addresses: (1) the high school from which the applicant graduated, (2) the college or university from which the applicant received his/her bachelor’s degree, (3) the applicant’s permanent mailing address at the time of applying to medical school, and (4) the applicant’s preferred mailing address at the time of applying to medical school. Five different definitions of “rural” will be used as follows: (1) Non-metropolitan-Metropolitan Codes, (2) Rural-Urban Codes, (3) Rural-Urban Continuum Codes, (4) Urban Influence Codes, and (5) Rural-Urban Commuting Areas. The study will also examine if applicants from Virginia and/or contiguous states who have rural upbringings are favorably inclined to practice medicine in rural Virginia. Finally, the study will explore the relationship between eventual rural practice and the students’ gender, rural upbringing, and stated career preferences at matriculation. For the first and second study questions, univariate analysis will be conducted on each of the five definitions of “rural” as applied to each of the four applicant addresses. In the third analysis, univariate analysis will be conducted on the students' career plans at matriculation and gender. Relationships between the independent variables that are univariately correlated with eventual rural practice will be analyzed using logistic regression. The results of this study should be helpful in efforts to identify and admit applicants who are more likely to practice in a rural area.