Mutans streptococci (MS) are key organisms associated with the etiology of dental caries. Using probabilities that were tested by oversampling, we designed this study to determine the minimal number of MS isolates from an individual required to evaluate diversity of genotypes. MS isolates were genotyped by repetitive extragenic palindromic-polymerase chain-reaction (rep-PCR). Analysis of 20 isolates from individuals resulted in a mean of 1.6 and 2.4 genotypes in children (N = 12) and adults (N = 10), respectively. In a follow-up study, reducing the number of isolates to 7-10 resulted in a theoretical probability of up to 78% for detecting up to 4 genotypes. A mean of 1.5 genotypes was found in 35 children and 10 adults. These findings provide evidence for the design of studies of MS genotyping that can serve as a model for the analysis of genotypes within individuals.