In the last two decades applied topologists have developed numerous methods for ‘measuring’ and building combinatorial representations of the shape of the data. The most famous example of the former is persistent homology. This adaptation of classical homology assigns a barcode, i.e. a collection of intervals with endpoints on the real line, to a finite metric space. I will talk about tropical functions that can be used as coordinates on the space of barcode and show that an embedding in Euclidean space with these functions generates a stable sufficient statistics for barcodes. The sufficiency result allows for the assumption of classical probability distributions on Euclidean representations of barcodes. To demonstrate sufficiency and illustrate its utility in persistent homology dimensions 0 and 1 I will discuss applications to HIV and avian influenza data. This is joint work with Anthea Monod, Lorin Crawford and Juan Ángel Patiño-Galindo.