Currently, radiation therapy departments are actively implementing intensity modulated radiotherapy using a variety of treatment planning and delivery optimization methods. The resultant tumor dose nonuniformity depends on the dose optimization algorithm, treatment delivery device, and the relation between critical structures and target. Optimization algorithms differ in the degree of dose nonuniformity by the scoring criteria used to select the radiation beams.[1] Most optimization systems minimize the sum of the squared tumor dose residuals which allows large dose nonuniformities.[2] To exacerbate this, treatment delivery devices like the Peacock modulated intensity multileaf collimator induce dose inhomogeneity due to field matching within the tumor.[3] To estimate the biological impact from nonuniform dose distributions, Niermerko used the equivalent uniform dose (EUD) concept to evaluate plans associated with tumor boosts[4]. As an extension of Niemerko's work, we used the Linear Quadratic based EUD model to analyze Peacock patient plans and discovered that our data is different than considered by Niemerko. From our analysis, we find that EUD is sensitive to the LQ parameters, making it necessary to calculate several EUD values for each dose distribution. We show that EUD and the minimum dose are important for dose analysis and reporting. Dose-volume effects are neglected in the minimim dose parameter but included in EUD. Together, the minimum dose and several EUD values are required to adequately retain brevity for reporting and increase the dimensionality of the information for analysis.