Background: Silicone oil is used in retinal detachment repair by most retina specialists on an occasional basis. It is not immediately considered for first-time retinal detachment repair without proliferative vitreoretinopathy. It is, however, a critically important entity for complex, recurrent, and PVR involving tractional retinal detachments. With all types of detachments and repair techniques considered the overall success of retinal detachment repair falls between 70 to 90 percent. Objective: To discuss the relevance of silicone oil use for retinal detachment repair towards a goal of one hundred percent success. Methods: A list of factors governing contemporary retinal detachment repair is presented. A decision-making rationale beyond macula-on or macula-off and inferior or superior detachment is discussed. Results: Data is presented on the rate of re-attachment of one hundred consecutive retinal detachments by a single surgeon. Discussion: A discussion is presented of the rationale behind various methods and particularly the use of silicone oil when used, the consequences of its use, and the eventual outcome after a follow up period of three to six months. Conclusions: Silicone oil should be used towards the goal of achieving a hundred percent first-time retinal re-attachment rate when there is a question of less than ideal conditions for retinal re-attachment. It is not without subjective perception issues, but these will have to be weighed against a recurrent or failed retinal detachment surgery.