In this talk I will consider the problem of constructing confidence regions for functions of model parameters. Both parametric and semiparametric models will be examined, but with particular focus on semiparametric models. Of particular interest are those models which remain invariant under appropriate groups of transformations and the issue of the existence of optimal confidence regions will be addressed. Optimality is with respect to minimizing a measure of the content of the confidence region. The construction of confidence regions for functions of model parameters is an important problem with applications in many different scientific fields such as biostatistics, engineering, and reliability. The ultimate goal is to construct optimal multiple confidence regions for several parameters which satisfy a global confidence level. This will extend results dealing with multiple testing but in the context of multiple confidence regions.