

**Methods Seminar Six:
Hierarchical Modeling**
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Speakers:
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Hierarchical models (also known as multilevel models) are an increasingly popular method for analysis of clustered data (e.g. patients grouped by doctors who are grouped by hospitals) and longitudinal data (multiple observations on a subject over time). Like other methods for analyzing grouped data such as analysis of covariance, hierarchical models assess variation at both individual and group levels in explaining outcomes and detecting whether group level characteristics are significant. Additionally, hierarchical analyses provide quantitative measures of the independent contribution of contextual characteristics in explaining outcomes. Hierarchical models also account directly for similarities among individuals within a grouping unit. In health services research, hierarchical models have been used for estimation of individual and contextual effects, profiling of health care units, meta-analysis, and attributing variation in outcomes to levels of a multilevel system.

The objectives of the seminar are to:

1. Introduce the rationale for and potential uses of hierarchical modeling in health services research,
2. Use a data set with intrinsic hierarchies to complete a simple analysis,
3. Highlight unique aspects of model interpretation, and
4. Discuss future directions in the application of hierarchical modeling.