# JPSM Distinguished Lecture Series



## Accounting for Measurement Error in Physical Activity Data

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Distributions of usual physical activity and dietary intake are useful in monitoring the health of population groups. The term "usual" is generally interpreted as a long-run average for an individual (e.g., a person's average daily energy expenditure over a year). Data used to estimate distributions of usual behavior often come from short-term recalls that are subject to measurement error. Although methods to collect and adjust for measurement error have been carefully developed for dietary intake recalls, until recently, methodologies appropriate for physical activity recall data have received limited attention. To address this gap, we explored the measurement error characteristics of physical activity data and developed statistical approaches for estimating usual activity distributions. We began by conducting the Iowa Physical Activity Measurement Survey (PAMS) to obtain data that could be used for statistical modeling. The survey collected concurrent recall and benchmark measures of activity on a sample of adult Iowans, with replicate observations on the respondents. The data were used to investigate models to characterize measurement error in energy expenditure data and estimate distributions of usual daily energy expenditure. In this talk, we will provide an overview of measurement issues in physical activity recall data and the survey methods we used to surmount some of those problems. We will describe our models for energy expenditure and review estimates of parameters from these models that offer insight into usual daily energy expenditure and measurement error as a function of individual characteristics. As time permits, we will offer a brief overview of interesting research by other groups to improve activity recall measurement and benchmark data for physical activity behaviors.

## Friday, April 25 at 3:00 PM via video from

## University of Maryland in <u>368 ISR, University of Michigan</u>

*Discussant:* **Peter Miller**, US Census Bureau and **Jill Montaquila**, Westat