1114-62-198 **Jun Li*** (jun.li@ucr.edu), Department of Statistics, University of California, Riverside, Riverside, CA 92521, and **Peihua Qiu**. *Nonparametric Dynamic Screening System for Monitoring Correlated Longitudinal Data.*

In many applications, including disease early detection and prevention, and performance evaluation of airplanes and other durable products, we need to sequentially monitor the longitudinal pattern of certain performance variables of a subject. A signal should be given as soon as possible once the pattern becomes abnormal. Recently, a new statistical method called dynamic screening system (DySS) has been proposed to solve this problem. It is a combination of longitudinal data analysis and statistical process control. However, the current DySS method can only handle cases when observations are normally distributed and within-subject observations are independent or follow a specific time series model (e.g., AR(1) model). In this paper, we propose a new nonparametric DySS method which can handle cases when the observation distribution and the correlation among within-subject observations are arbitrary. Therefore, it broadens the application of the DySS method greatly. Numerical studies show that the new method works well in practice. (Received August 27, 2015)