

DEPARTMENT OF STATISTICS COLLOQUIUM SERIES  
Texas A&M University

**MAURO GASPARINI**

Professor of Statistics, Department of Mathematics  
Politecnico di Torino, Italy

**STATISTICAL ISSUES IN THE ANALYSIS OF COUNT EMG DATA  
FROM A STUDY ON OBSTETRIC TRAUMA DURING DELIVERY**

**ABSTRACT:**

This talk is about a statistical consulting project with a group of Biomedical Engineers specialized in electromyography (EMG). The objective was to study the possible decrease in the number of Innervation Zones (IZs) of the anal sphincter due to an obstetric surgical intervention. Such a controversial intervention, called episiotomy, is often performed during vaginal child delivery and may affect the innervation of the sphincter. The decrease in the number of IZs may result in some level of anal incontinence, which sometimes occurs even several years after delivery.

The multi-center study (TASI-2) was coordinated by Politecnico di Torino and funded by local bank foundations. Nine hospitals from five European countries were involved in the study conducted on around five hundred women.

From a design point of view, this is an observational study with time, intervention and body site as crossed factors affecting a count response variable, together with patient random effects. Critical unresolved points are the different habits and procedures in the different hospitals across Europe and the presence of missing data.

From a consulting point of view, recognizing the presence of random effects and using statistical methods that account for them is an important issue, which will be further illustrated with another example from the public domain.

Joint work with Corrado Cescon, Roberto Merletti and the TASI-2 team.

**DATE:** Thursday, February 9, 2012  
**TIME:** 3: 45 p.m. – 4:45 p.m.  
**PLACE:** Room 113, Blocker