

広島統計談話会  
Hiroshima Statistics Study Group

第 279 回談話会を下記のように開催致しますので  
御参集下さいますようお願い申し上げます。

You are cordially invited to the 279<sup>th</sup> meeting as scheduled below.

日 時 : 2013 年 9 月 27 日 (金) 15:00 –  
Date : September 27th, 2013 (Fri) 15:00 –  
場 所 : 放射線影響研究所 講堂  
Place : RERF Auditorium  
演 者 : ジョン B. コローン (放射線影響研究所 統計部 主任研究員)  
Speaker : John B. Cologne, Ph.D.  
Senior Scientist  
Department of Statistics, RERF  
演 題 : 「コホート追跡調査の Cox 回帰分析での基礎時間尺度」  
Title : “Primary Time Scale for Cox Regression in Cohort Follow-up Studies”

要 約 :

**Summary:**

In epidemiologic cohort studies, confounding by age (unmeasured factors related to age) can bias the estimated effects of risk factors. With Cox proportional-hazards regression modeling, it is therefore generally recommended that chronological age be used as the primary time scale in such studies. However, studies involving baseline measurements of biomarkers or other factors frequently use, without explanation, follow-up time since measurement as the primary time scale. In that case, the effects of age are usually adjusted by modeling age at entry parametrically as a covariate. Parametric adjustment assumes that the functional relationship between age and disease is known and may suffer from model misspecification, whereas using age as the primary time scale does not. We demonstrate that the parametric approach to age adjustment using follow-up time as the primary time scale may result in a poor approximation to age-specific incidence and illustrate why. Furthermore, the underlying hazard with follow-up time based on arbitrary timing of study initiation may have no meaning in terms of risk estimation. Given the potential for biased risk estimates using follow-up time as the primary time scale, and the simplicity of using age as the primary time scale without need for parametric modeling of the age-specific hazard, age should generally be considered as the primary time scale for proportional-hazards regression with epidemiologic follow-up data when confounding by age is a concern. An obvious exception is when follow-up time has a meaningful interpretation in terms of the study parameters to be estimated, such as with intervention studies.