



Channing Methods Seminar September 13th (Tuesday), 2022, 11AM (ET)

MCP 5th-floor large conference room

<https://us02web.zoom.us/j/579497999?pwd=cHNIWHMzWUJFUUVJTG1EeVJmY05aQT09>

Meeting ID: 579 497 999

Passcode: 844168



Bernard A. Rosner, PhD

Professor, Medicine, Harvard Medical School

Professor, Biostatistics, Harvard T.H. Chan School of Public Health

Biostatistician, Department of Medicine, Brigham and Women's Hospital

Two-stage model for time to breast cancer mortality among a cohort of initially disease-free women

Background: Identifying risk factors for the most aggressive forms of breast cancer is important. Tumor factors (e.g., stage, grade) are important predictors of prognosis, but may be intermediates between pre-diagnosis risk factors and mortality. Typically, separate models are fit for incidence and mortality post-diagnosis; how to integrate these models to predict lethal breast cancer in a cancer-free woman is unknown.

Methods: We combined models for breast cancer incidence and breast cancer-specific mortality among cases into a two-stage model for lethal breast cancer among cancer-free women. We derived the model from cancer-free postmenopausal Nurses' Health Study women in 1990 based on fixed baseline risk factors. 4391 invasive breast cancer cases were diagnosed from 1990 to 2014 of which 549 resulted in death due to breast cancer over the same period.

Results: Some established risk factors (e.g., family history, E&P use) were not risk factors for lethal breast cancer. Controlling for age, the strongest risk factors for lethal breast cancer were

weight gain since age 18: > 30 kg. vs. ± 5 kg, RR = 1.94 (95% CI = 1.38, 2.74), nulliparity vs. AAFB < 25 , RR = 1.60 (95% CI = 1.16, 2.22), and current smoking : ≥ 15 cigs/day vs. never, RR = 1.42 (95% CI = 1.07, 1.89).

Conclusion: Risk factors associated with breast cancer incidence are not necessarily associated with lethal breast cancer, and in reverse, some factors associated with lethal breast cancer are not associated with overall incidence of disease.

Impact: This two-stage model may be useful for identifying pre-diagnosis factors that lead to more aggressive and ultimately lethal breast cancer.