Chapman, J.-A., J. Sun, R. Gordon, R. Sivaramakrishna, M. Link & E.B. Fish (1999). Improved survival from primary breast cancer with mammographically detectable tumour sizes. In: Anon., *Reasons for Hope, Breast Cancer Research, Presentations at Scientific Meetings*, Toronto: Canadian Breast Cancer Research Initiative, p. 102.

# IMPROVED SURVIVAL FROM PRIMARY BREAST CANCER WITH MAMMOGRAPHICALLY DETECTABLE TUMOUR SIZES

Judy-Anne Chapman, PhD[1], Jiaming Sun, PhD[1], Richard Gordon, PhD[2], Radhika Sivaramakrishna, PhD[3], Marilyn Link[1], Edward Fish, MD[1]

1 Henrietta Banting Breast Centre, Women's College Hospital, Toronto
2 University of Manitoba, Winnipeg
3 Cleveland Clinic Foundation, Cleveland, Ohio

Mammography permits the detection of smaller sized tumours to provide survival benefit. Currently, there are different screening recommendations by age group for women <40, 40-49, 50-69, ≥70 years of age. Mammography has been used routinely at Women's College Hospital for more than three decades; we investigate here the effects of tumour size on survival from breast cancer for these four age groups. We studied data for 678 stage 1-3 primary invasive breast cancer patients accrued 1971-1990, and followed to 1996. Factors available for multivariate investigations were age (years), tumour size (cms), nodal status (N-,Nx,N+), ER (fmol/mg protein), and PgR (fmol/mg protein). Forward step-wise multivariate regression with log-normal survival analysis was used to examine the effects of these factors on disease-specific survival, for each of the four age groups. Ten-year survival is reported for patients with tumours of sizes corresponding to clinical stage cut-points: T1A at 0.5cm, T1B at 1.0cm, T1C at 2 cms, and T2 at 5 cms. For women <40 years of age, the survival estimates at these tumour sizes are respectively 0.77, 0.74, 0.67, 0.44; for 40-49, it is 0.92, 0.90, 0.85, 0.62; for 50-69, it is 0.81, 0.79, 0.75, 0.62; for ≥70, it is 0.84, 0.81, 0.73, 0.44. Survival is significantly better ($p \leq 0.05$) in all instances for women with smaller tumour sizes, including those <40 and 40-49 years of age. Survival from breast cancer was significantly better with tumour sizes usually only detectable with mammography, for each of the four age groups. The wide-spread regular use of screening mammography should continue to reduce breast cancer mortality. Future research should be directed towards developing all promising breast imaging modalities so that tumours at these small sizes can be detected routinely.