invasive disease rather than a true precursor lesion and no treatment is offered, other than standard breast screening, following its diagnosis.

Material and Methods: We have collected blood and tumour samples from patients 60 years of age or younger with LCIS (with and without invasive disease) as part of the GLACIER study, from hospitals throughout the UK, supported by Cancer Research UK. Clinico-pathological data and data on known risk factors (menopausal status, oral contraceptive and HRT use, parity, breast feeding and family history) have been collected by questionnaire. Here we present the clinico-pathological data on 1266 cases of LCIS (490 without invasive disease, 776 associated with invasive disease).

Results: Of the 490 cases of LCIS without invasion 279 (57%) were found to also have synchronous DCIS. Women who presented with pure LCIS were more likely to be premenopausal than those who presented with both LCIS and DCIS ($p = 0.04$ χ^2 test), but mean age was similar (50.5 and 51 years respectively, $p = 0.5$, t-test).

Of the 776 cases of LCIS with invasion, 575 (74%) were associated with ILC and 201 (26%) with invasive ductal carcinoma, including 63 mixed ductal-lobular and 13 tubulo-lobular. There was no difference in the above risk factors between these two groups.

Comparing the LCIS with no invasion to LCIS with invasion, the former were more likely to be premenopausal ($p = 0.03$) and nulliparous ($p = 0.05$) see table. There were 35 cases with bilateral disease and these cases were more likely to have a family history of breast cancer ($p = 0.002$).

Conclusions: In conclusion LCIS commonly presents with DCIS and this may explain the finding that LCIS can predispose to either ILC or IDC. It is unknown whether these two lesions come from a common precursor. Cases of LCIS without invasion are more likely to be premenopausal (but not younger) and nulliparous. It is possible that a change in hormonal levels associated with the menopause or pregnancy may influence the progression of LCIS to ILC.

Risk Factor	LCIS No invasion ($n = 490$)	LCIS With invasion ($n = 776$)	P value χ^2 test
Mean age at diagnosis	50.5yrs	51yrs	0.38 (t-test)
Premenopausal	47% (229)	40% (313)	0.03
Positive Family history	49% (239)	45% (346)	0.15
Used oral contraceptive	76% (374)	79% (610)	0.37
Nulliparous	21% (105)	17% (131)	0.046
Breast fed	71% (275/385)	75% (485/645)	0.19
Used HRT	28% (137)	28% (217)	1

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Effects of Education Based on the Health Belief Model (HBM) on Screening Behaviors in High Risk Women for Breast Cancer, Tehran, Iran

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Background: Breast cancer is the most common malignancy in women. Early diagnosis allows efficient treatment and increases survival, but the efficacy of breast self examination (BSE) is not sufficiently well established. With the Health Belief Model, people's health perceptions and attitudes influence their practices, for example with screening.

The purpose of this randomized controlled clinical trial was to determine the effect of education based on this model on breast cancer screening in high risk Iranian women.

Material and Methods: Upon receipt of ethical approval from an institutional Ethics Committee of Reproductive Health Research Center of Shahid Beheshti University of Medical Sciences, the main researchers commenced to recruit the eligible subjects and data collection. Participants were 100 women with a family history of breast cancer (mother, sister, and daughter). After explanation of the study objectives to participants, they were recruited on obtaining oral consent and each filled out the study questionnaire based on the Health Belief Model.

Allocation was into two groups by computerized randomization, control and intervention, (50 participants in each arm of study) receiving education on breast cancer screening. Women in experiment group were educated for breast screening methods in sessions concluded 10−15 participants located in the radiation ward of a central teaching hospital in the north of Tehran. Participants in control group did not instruct such an education based on HBM. All of the participants were assured that their responses to the questionnaires would be kept confidential, that their participation was entirely voluntary and they could withdraw at any time.

The registration code is: IRCT201101015525N1.

Perceived susceptibility to and seriousness of breast cancer, perceived usefulness of and barriers to Breast Self Examination (BSE), clinical breast examination, and mammography, and self-efficacy in the ability to perform these, were assessed, with comparison of scores for BSE practice before and after education and doing mammography and clinical examination by a physician in intervention and control group.

Results: The mean age was 37.8 ± 11.7 (range 19−60). The mean rank of the main variables scores as 'knowledge, perceived severity, perceived barriers, perceived susceptibility, BSE and clinical examination practice' in the intervention group significantly differed before and after the education, but variables 'perceived threat 'and 'perceived usefulness of breast self examination', did not differ statistically. However, we did not find any significant differences for the main variables amongst participants of the control group.

Conclusion: According to the improvement of the variable scores of participants in the intervention group, health education based on well known psychological theories for breast cancer screening should be extended to the entire population in developing countries. In addition, we should pay more attention to barriers to women undergoing mammography, such as costs, shame and accessibility, and increase the target population awareness and positive attitudes towards benefits of early breast cancer screening.

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Inequalities in Health: Not the Case for Breast Cancer in South-East Wales?

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Background: There has always been an implied association between poor health and social deprivation. Aneurin Bevan, the founder of the National Health Service (NHS) in the United Kingdom understood this inequality and stated that one of the fundamental principles of the new NHS was to divorce the care of health from questions of personal means or other factors irrelevant to it. Our study aimed to see whether a gap in service provision and patient outcome for breast cancer truly existed between different strata of society within a specific geographical region in Wales.

Materials and Methods: A cohort of 745 patients for this retrospective study was derived from a combination of hospital admission data, operative theatre lists and cancer registry data from a single Health Board in Wales over a 37-month period from January 2008 to February 2011. Patients from both the Breast Test Wales (BTW) screening programme and symptomatic clinics were eligible. The ACORN classification and Welsh Deprivation Index were used as markers of the level of social deprivation for each patient. This census-derived data divides patients, from their postcode into one of 5 possible categories of social deprivation. Our dataset only had 4 subdivisions. The Nottingham Prognostic Index (NPI) was used as a marker of patient outcome. Statistical analysis of the data was performed using the Mann-Whitney and Spearman Rank tests.

Results: The incidence of breast cancer was highest (30%) in the least deprived category of patients (vs. 22%, 26% and 20% for the remaining categories). The mean NPI score was 3.1 for the least socially deprived patients and 3.2 for all other groups. 38% of the least socially deprived patients had an excellent prognostic outcome score (vs. 32%, 34% and 32% for the remaining categories). 11% of the least socially deprived patients had a poor prognostic outcome score (vs. 9%, 11% and 9%) for the remaining categories). When all the individual results were compared using the Welsh Deprivation Index, no correlation was demonstrated (coefficient 0.042, $p = 0.255$).

Conclusions: Our results show no statistically significant difference in either the incidence of breast cancer or outcome from treatment of the disease between different strata of society. This information can be extrapolated to infer that no patients are being left behind by the NHS in the treatment of breast cancer and that the NHS, in Wales, remains true to its founding principles.