

# Radiological findings in prior screening mammograms and subsequent risk of breast cancer: results from a cohort of screened women in Spain

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## Background

The purpose was to compare rates of women who developed a breast cancer in mammography screening between those with and without previous radiological findings, and to assess the relative risk of cancer detection in subsequent screenings associated to each radiological pattern.

## Material and methods

Retrospective cohort of 555,285 women aged 50-69 years screened in Spain during 1994 to 2011. Population based screening in Spain is offered every two years. At each screening episode, information of radiological patterns was recorded as, negative, tumour-like mass, distortion, calcification, asymmetry, or other. Rates of women who developed a breast cancer were defined as breast cancers detected among 1000 mammograms in successive screenings, or during screening interval (tumours diagnosed after a negative screening mammogram and before the following screening). Cancer rates and 95% confidence intervals (95%CI) were calculated. The relative risk (RR) and 95%CI of cancer detection associated to each radiological pattern were calculated. The referent group was women without previous radiological patterns in screening mammograms.

## Results

An overall of 6,652 breast tumours were detected in successive screenings. Of them 4,284 presented radiological patterns in previous screening mammograms.

**Table 1. Frequency of breast cancer with radiological findings in prior rounds**

	Mammograms		Overall breast cancer		Rate	
	n	%	n	%	‰	CI95%
Without previous radiological findings	1,024,666		4,287		4.2	(4.1-4.3)
With previous radiological findings	282,504	100.0	2,365	100.0	8.4	(8.0-8.7)
Mass	140,229	49.6	1,151	48.7	8.2	(7.7-8.7)
Distortion	7,793	2.8	104	4.4	13.3	(10.8-15.9)
Calcification	111,023	39.3	1,12	47.4	10.1	(9.5-10.7)
Asymmetry	44,285	15.7	347	14.7	7.8	(7.0-8.7)
Others	17,393	6.2	95	4.0	5.5	(4.4-6.6)

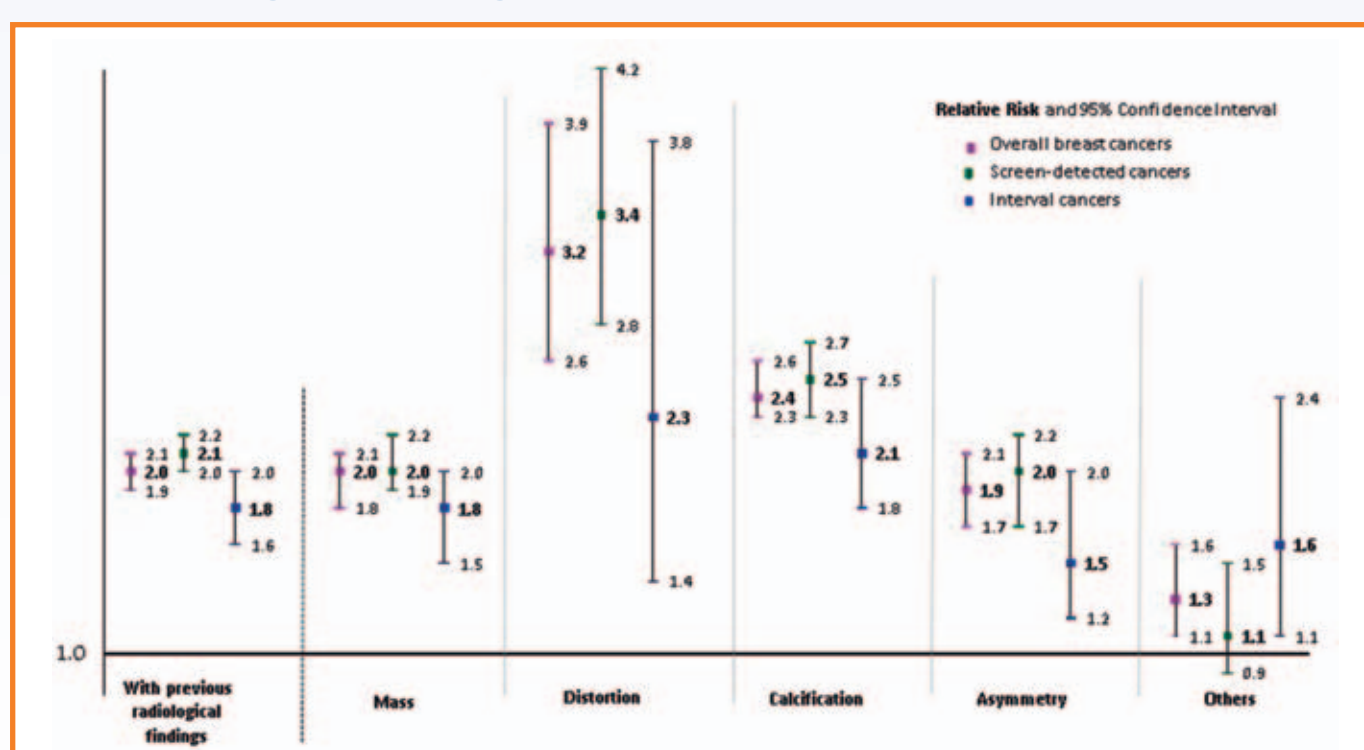
**Figure 2. Distortion found in a screening mammogram, biopsy showed a benign result**



**Table 2. Frequency of breast cancer with radiological findings in prior rounds for both screen-detected and interval cancers**

	Screen-detected cancers			Interval		
	n	Rate ‰	CI95%	n	Rate ‰	CI95%
Without previous radiological findings	3,382	3.3	(3.2-3.4)	911	0.9	(0.8-0.9)
With previous radiological findings	1,924	6.8	(6.5-7.1)	446	1.6	(1.4-1.7)
Mass	945	6.7	(6.3-7.2)	219	1.6	(1.4-1.8)
Distortion	88	11.3	(8.9-13.6)	16	2.1	(1.0-3.1)
Calcification	914	8.2	(7.7-8.8)	210	1.9	(1.6-2.1)
Asymmetry	286	6.5	(5.7-7.2)	61	1.4	(1.0-1.7)
Others	66	3.8	(2.9-4.7)	25	1.4	(0.9-2.0)

**Figure 1. Frequency of breast cancer, screen-detected cancers and interval cancers, radiological findings in prior rounds**



## Conclusions

Women with previous radiological findings were more likely to be diagnosed of breast cancer in subsequent screenings, both for screen-detected and interval cancer.

Distortion presented the highest risk of subsequent cancer detection followed by microcalcifications. Further studies are needed to explore these differences considering the additional assessments performed after a radiological suspicious.

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