Arbitration of discrepant BI-RADS 0 recalls by a third reader at screening mammography lowers recall rate but not the cancer detection rate and sensitivity at blinded and non-blinded double reading

**Purpose**
To evaluate the characteristics of low suspicion lesions (BI-RADS 0) at blinded and non-blinded double reading of screening mammograms and to determine the potential effect of arbitration of discrepant BI-RADS 0 recalls by a third reader on screening outcome.

**Methods**
We included a series of 84,927 consecutive digital screening mammograms, double read in a blinded (43,184 screens) or non-blinded (41,743 screens) fashion, between July 2009 and July 2011. Discrepant readings were routinely recalled for further evaluation. During 2 years of follow-up, radiology, surgical and pathology reports were collected of all recalled women. Arbitration of discrepant BI-RADS 0 recalls (only one radiologist assigning a BI-RADS 0 score) was retrospectively performed by a third screening radiologist.

**Results**
At blinded and non-blinded double reading, 32.0% and 32.5% of recalls were assigned BI-RADS 0 with a positive predictive value (PPV) of 7.2% and 6.8%, respectively. Compared to non-blinded double reading, BI-RADS 0 recalls at blinded double reading showed a higher discrepancy rate (9.0 versus 4.3 per 1,000 screens, *p*<0.001) and false positive recall rate (10.1 versus 8.4 per 1,000 screens, *p*=0.012). Arbitration of discrepant BI-RADS 0 recalls would have significantly lowered recall rate (from 3.4% to 2.8% at blinded double reading, *p*<0.001, and from 2.8% to 2.5% at non-blinded double reading, *p*=0.008), without a decrease in cancer detection rate (from 7.5‰ to 7.3‰, *p*=0.751, and from 6.6‰ to 6.5‰, *p*=0.832, respectively) and program sensitivity (from 83.2% to 81.2%, *p*=0.453, and from 76.0% to 74.6%, *p*=0.667, respectively). Arbitration would have significantly increased the PPV at blinded double reading (from 22.3% to 26.3%, *p*=0.015).

**Conclusion**
We advise arbitration of discrepant BI-RADS 0 recalls, at (non-)blinded double reading of screening mammograms, to reduce recall rates and improve the PPV of recall at blinded double reading.