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Call-Back Laterality and Bilaterality: Possible Screening Mammography Quality Metrics

Authors : Samson Munn, Virginia H. Kim, Huija Chen, Sean Maldonado, Michelle Kim, Paul Koscheski, Babak N. Kalantari, Gregory Eckel, Albert Lee

Abstract : In terms of screening mammography quality, neither the portion of reports that advise call-back imaging that should be bilateral versus unilateral nor how much the unilateral call-backs may appropriately diverge from 50–50 (left versus right) is known. Many factors may affect detection laterality: display arrangement, reflections preferentially striking one display location, hanging protocols, seating positions with respect to others and displays, visual field cuts, health, etc. The call-back bilateral fraction may reflect radiologist experience (not in our data) or confidence level. Thus, laterality and bilaterality of call-backs advised in screening mammography reports could be worthy quality metrics. Here, laterality data did not reveal a concern until drilling down to individuals. Bilateral screening mammogram report recommendations by five breast imaging, attending radiologists at Harbor-UCLA Medical Center (Torrance, California) 9/1/15--8/31/16 and 9/1/16--8/31/17 were retrospectively reviewed. Recommended call-backs for bilateral versus unilateral, and for left versus right, findings were counted. Chi-square (χ^2) statistic was applied. Year 1: of 2,665 bilateral screening mammograms, reports of 556 (20.9%) recommended call-back, of which 99 (17.8% of the 556) were for bilateral findings. Of the 457 unilateral recommendations, 222 (48.6%) regarded the left breast. Year 2: of 2,106 bilateral screening mammograms, reports of 439 (20.8%) recommended call-back, of which 65 (14.8% of the 439) were for bilateral findings. Of the 374 unilateral recommendations, 182 (48.7%) regarded the left breast. Individual ranges of call-backs that were bilateral were 13.2–23.3%, 10.2–22.5%, and 13.6–17.9%, by year(s) 1, 2, and 1+2, respectively; these ranges were unrelated to experience level; the two-year mean was 15.8% (SD=1.9%). The lowest χ^2 p value of the group's sidedness disparities years 1, 2, and 1+2 was > 0.4. Regarding four individual radiologists, the lowest p value was 0.42. However, the fifth radiologist disfavored the left, with p values of 0.21, 0.19, and 0.07, respectively; that radiologist had the greatest number of years of experience. There was a concerning, 93% likelihood that bias against left breast findings evidenced by one of our radiologists was not random. Notably, very soon after the period under review, he retired, presented with leukemia, and died. We call for research to be done, particularly by large departments with many radiologists, of two possible, new, quality metrics in screening mammography: laterality and bilaterality. (Images, patient outcomes, report validity, and radiologist psychological confidence levels were not assessed. No intervention nor subsequent data collection was conducted. This uncomplicated collection of data and simple appraisal were not designed, nor had there been any intention to develop or contribute, to generalizable knowledge (per U.S. DHHS 45 CFR, part 46)).

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