Volumetric Breast Density Software Improves the Accuracy in Calculation of Patient-Specific Mean Glandular Dose (MGD) in Breast Screening

Research presented at AAPM demonstrates that use of Volpara Imaging Software from Matakina May improve the accuracy of radiation dose estimates during breast screening in mammography.

Indianapolis, IN (PRWEB) August 07, 2013 -- The role of volumetric breast density assessment software to more accurately estimate the radiation dose received during breast screening was the focus of two landmark research papers presentation at the 55th American Association of Physicists in Medicine (AAPM) Annual Meeting, August 4-8, 2013 in Indianapolis. According to Matakina International, the papers both took advantage of the volumetric breast density numbers generated by the Volpara Imaging Software to calculate personalized or patient-specific dose estimates.

Currently, mammography systems generate a Mean Glandular Dose (MGD) based on an assumption of a homogeneous mixture of fat and fibroglandular tissue in standard proportions.

Ralph Highnam, CEO of Matakina International, the inventors of Volpara said, “We all know it’s critical to keep radiation dose as low as possible whilst retaining high image quality, and yet the current dose estimates in mammography may significantly under or over-estimate the actual patient dose because they generate calculations based on assumption of a homogeneous mixture of fat and fibroglandular tissue in standard, non-personalized proportions. These talks show that it is possible to improve the accuracy and personalization of radiation dose estimation, which may, in turn, allow for better optimization of radiation dose in breast screening, both in mammography and tomosynthesis.”

The first study, “Patient Specific Average Glandular Dose in Mammography,” demonstrated the differences in radiation dose estimation when researchers adjusted the estimation according to the actual volumetric breast density. According to Dr Vikas Patel from Upstate Medical Physics (A Landauer Medical Physics Partner), the results showed that accounting for the patient specific breast composition led to estimated radiation doses which were significantly higher than given out by the mammography machines. “Our initial results suggest that current dose estimations may underestimate the actual patient MGD significantly as they do not account for the specific breast tissue composition. Patient-specific dose estimates may give a better indication of the actual dose delivered, and therefore the risk to the patient.”

The second study, “Retrospective Determination of Personalized Mean Glandular Dose Coefficients for Conventional Mammography Using Heterogeneously-layered Breast Models,” by Mariela Porras-Chaverri (Dept of Medical Physics, University of Wisconsin-Madison), took the personalization one stage further by not only using the patient-specific volumetric breast density, but also considering how the tissue might be dispersed within the breast. “The glandular and adipose breast tissues are distributed heterogeneously within the breast. Depending on the individual distribution with respect to the beam entrance surface, the mean dose delivered to the glandular tissue may be higher or lower than estimated by the current methods. Our on-going study aims to provide a means to account for the heterogeneous distribution of the glandular tissue in estimates of mean glandular dose.”

Cleared by the FDA, HealthCanada, the TGA and CE-marked, Volpara is in use at sites across the globe helping radiologists assess breast density more objectively and helping them better consider who might benefit from personalized treatment options.
from additional screening. Volpara is a reliable tool which generates objective, automatic measurement of volumetric breast density and a FDA cleared BI-RADS breast density category. Volpara supports most of the major digital mammography systems, can be displayed on digital mammography and PACS workstations and be integrated into mammography reporting systems.

About Matakina

Founded to enable radiologists to give women the most accurate information possible regarding their breast health, Matakina International, Limited is the wholly owned sales and marketing arm of Matakina Technology Limited of New Zealand. Volpara’s founders and Board of Directors includes John Hood, PhD, former Vice Chancellor of the University of Oxford, UK; Ralph Highnam, PhD, former CEO of Mirada Solutions, one of the University of Oxford’s most successful spin-outs of recent times and co-author of the seminal book Mammographic Image Analysis; and Professor Sir Michael Brady, a serial entrepreneur who recently retired from the University of Oxford where he was Professor of Information Technology for 25 years.

# # #

Media Contact:
Chris K. Joseph
510/435-4031
chris(at)ckjcomm(dot)com
Contact Information
David Mezzoprete
Matakina
585-737-0587

Online Web 2.0 Version
You can read the online version of this press release here.