Technologist experience implementing a mammographic image quality improvement program using automated artificial intelligence-based software

Ariane Chan¹, Linda Martis¹, Roxanne Baer², Melissa Marx³, Lisa R. Johnston¹, Kristin Bravo¹, Melissa L. Hill¹, Julia K. Harms¹, and Sally Grady²

¹ Volpara Health  ² Kettering Health  ³ OIA Outpatient Imaging Affiliates, LLC
Breast positioning a key aspect of mammography image quality (IQ)

Bassett et al., 1993; Taplin et al., 2002; Bae et al., 2014

Targeted initiatives improve image quality

Pal et al., 2018; Santner et al., 2021; Kozlov et al., 2023

Artificial Intelligence (AI)-based software available to automate IQ assessment, but user experience unknown

Purpose: To evaluate technologist experience with, and attitudes toward, the use of an automated IQ assessment system following individualized hands-on mammography positioning training, tailored by AI-derived metrics
Methods

Study Timeline

• Volpara Analytics™ in use >2 years at all sites prior to study
• Technologist (‘Tech’) inclusion criteria: completed training & all surveys
  – Survey 1 = baseline; Survey 2 = immediately post-training; Surveys 3, 4, & 5 = post-training (identical)
Methods

Surveys & Intervention

- Surveys distributed using SurveyMonkey®
- Hands-on positioning training by Mammography Educators®, individualized by Volpara® Analytics™ objective breast positioning assessment
Results

Training satisfaction

Immediately post-training (Survey 2)

- 87% reported being satisfied or very satisfied with the targeted training profile (TTP) consultation

- 91.3% reported being satisfied or very satisfied with the individualized, hands-on training
Results

AI software engagement

Immediately post-training:
- 71.8% anticipated their software engagement would increase slightly or significantly

Immediately post-training (Eval 3):
- 76.1% Techs logging in, up from 54.3% (p<0.05)

Post-training:
- A trend (p<0.05) for persistence of logins
Results

Post-training, software use for quality improvement

- 67%+ Techs using AI software more or much more frequently to improve breast positioning

- 73%+ Techs using AI software more or much more frequently to improve breast positioning
Results

Post-training skill development

- 45%+ Techs reported feeling confident in communicating with patients more or much more frequently

- Pre-training: 52.2% reported physical discomfort associated with acquiring mammograms
- Post-training: 87%+ responded they implemented changes that improved ergonomics more or much more frequently
Summary

After hands-on, individualized training, the majority of participating Techs:

• were satisfied with the training
• increased their software engagement
• actively used the software to improve positioning & compression
• noted improvements in ergonomics & patient communication
THANK YOU