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'Compression behaviours' - An exploration of the beliefs and values influencing the application of breast compression during screening mammography.

Lay summary of the project

Compression of the breast during mammography screening is essential to reduce radiation dose to the patient and improve image quality, yet limited guidance exists with regards to how to apply compression, for how long, and to what pressure. Recent pilot work identified surprising variability between practitioners in the amount of compression applied for similar breast types.

This qualitative project investigates 'compression behaviours' – it explores individual and collective beliefs and values that influence mammographers' compression practice. It will gain an insight into existing knowledge and understanding, and practical approaches adopted across the range of clients encountered in clinical practice. Ultimately it will seek to identify the 'why' and 'how' of breast compression.

To establish current education and training approaches, documentary evidence of UK education, training and practice guidelines regarding compression will be collated. This information will inform h semi-structured interviews with mammography programme leaders associated with each of the five English breast screening regional programmes.

Practitioner focus groups will be conducted at six different sites, selected to represent different regional training programmes across England, and different practice environments (3 'training centres' and 3 'local screening centres' will be selected). Each focus group of between 5-8 staff of different grades will be facilitated by two researchers who will invite discussion following a pre-determined set of questions.

The data will be digitally recorded, transcribed and analysed into categories and themes. Dissemination via peer reviewed conference and journal articles will be supplemented by presentations direct to staff within participating screening centres.

a) Principal Aim of the study

This project investigates one aspect of compression behaviour, with the primary aim to 'scope the beliefs and values of mammographers that influence their application of compression force in current clinical practice'.

This project sits under the umbrella of a larger project related to breast compression, with several inter-related but distinct research questions yielding findings which will eventually converge to give an in-depth understanding of this topic. The project presented here is a qualitative study aiming to investigate 'compression behaviours' - exploring the individual and collective beliefs and values that influence compression practice. It will gain an insight into the underpinning knowledge of mammographers, and the practical approaches adopted across the range of clients that they encounter routinely in clinical practice. Ultimately it will seek to identify the 'why' and 'how' of breast compression.

b) Primary Research Question

What are the personal and professional beliefs and values that influence the application of compression during a mammography examination?

c) Secondary Research Questions

What formal guidance is currently available to practicing mammographers regarding breast compression?

What education and training do trainee mammographers receive within the university and clinical environments regarding breast compression?

d) Outcomes

Identification of the range of individual and collective values and beliefs of mammographers that may influence their application of compression.
Identification of the knowledge base and variation in educational approaches
Determine whether mammographers practice is at variance with current guidance and educational practice
Disseminate the findings to the wider mammography compression research team, to identify any links with other emerging research findings (quantitative approaches).
Disseminate the findings directly to centre participants, and more widely via peer reviewed conference and published journal articles.
Develop the research skills of two of the co-investigators (Doreen Seddon and Jackie Gallagher), and the research leadership skills of the Principal Investigator.

e) Review of Literature

Breast compression during routine screening mammography contributes to image quality by bringing the entire breast as close as possible to the image receptor, thereby decreasing the potential for motion blur and geometric unsharpness (Tucker and Ng, 2001). In addition, well applied compression decreases the overlap of breast tissues resulting in a reduction in breast thickness and radiation dose to the breast (NHSBSP, 2006).

The application of compression is an important skill (Kopans, 2007). Insufficient compression force may reduce image quality, with increased risk of missed pathology. There is an optimum level of compression beyond which additional forces cease to have any effect on image quality or significant reduction in image dose (Lee et al, 2003). However the additional force applied does have a marked effect on the woman's tolerance of the procedure and related discomfort or even pain (Lee et al, 2003), which may influence their decision to respond to future invitations for breast screening (Drossaert et al, 2002).

While there is overwhelming acknowledgement that compression is an essential component of the mammography examination, there is a large variability in applied compression force used (Myklebust et al, 2009), and there is sparse and conflicting guidance available for practitioners as to how to apply compression, for how long, and to what pressure. While authors agree on a slow and steadily increasing application of pressure to reduce pain, the traditional measures of checking

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