Musculoskeletal Disorders in Mammography

A Guide to Tackling the Issues in the Workplace

MUSCULOSKELETAL DISORDERS IN MAMMOGRAPHY

A GUIDE TO TACKLING THE ISSUES IN THE WORKPLACE

Society of Radiographers' Health and Safety Policy Officer
Lyn Wigley:

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Message from the Chief Executive Officer

The radiographic speciality of mammography is at the centre of health services for women. The NHS Breast Screening Programme owes its world-renowned success to the radiographic workforce. Symptomatic breast care services are also built around the skills, commitment and team working of those who provide diagnostic imaging and intervention. The whole radiographic profession has good reasons to be proud of the achievements of those who specialise in mammography.

Much of this achievement has been made under pressure. Pressure to provide services within very tight cost constraints. Pressure to meet targets. Pressure to do more. Time and again, SoR members have risen to the challenge and women throughout the UK have benefitted beyond measure.

However, sometimes there has been a hidden cost behind all of the achievement. Work-related injury to members of the radiographic workforce is a threat to the health of our members, a threat to their careers and a threat to the services that they have worked so hard to establish.

The causes, risks and control measures are complex and challenging. But everyone in the mammography speciality needs to be aware of the problem and work together to make sure that the risks are minimal.

This guidance from The SoR is a resource for all members and particularly managers and accredited representatives. I hope that mammography teams will use it to assess and manage the risks in their particular units and as a tool to campaign for resources and appropriate priority to be given to workplace health and safety.

Richard Evans
CEO

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Chapter 1:
Introduction

Introduction

Work related musculoskeletal disorders (MSDs), how to prevent them and how to halt their spread, have been on meeting agendas for years, but unfortunately for the members of the SoR the prevention plans which have been instigated have not stopped the epidemic growing and invading all health care sectors.

A recently written report by Ann Keen, Parliamentary Under-Secretary for health (NHS BSP Annual Review 2007) claims that all of the promises made in the National Health Service Cancer Plan (DH 2000) to improve breast cancer detection through the NHS Breast Screening Programme have been delivered.

Ann acknowledged "that whilst this is clearly a testament to all the hard work of those delivering such a valuable service we must remain committed to ensuring continued improvements to breast screening services and underlining our reputation as a world leader".

But what has this continued success already cost the members of the Society of Radiographers in terms of their health, safety and welfare whilst they continue to work under pressure to achieve these targets?

MSD may be seen as the cause of pain and suffering by some, or lost efficiency and productivity by others, but the general consensus – of workers, employers and authorities – is that something must be done about this worrying increase.

Whilst equipment and technology continues to ensure that equipment is user friendly for the staff who operate it, there still are a number of other contributory factors that have the potential to cause musculoskeletal problems; below are a few examples:

- NHS targets
- Workforce pressures
- Ergonomic issues
- Increase of BMI

Technology continues to advance, not least with the implementation of digital imaging equipment, which will remove some problem issues associated with analogue imaging systems such as inserting/releasing film cassettes, which causes stress to the thumbs through continued use. But we must ensure that whilst these

changes are taking place, managers are mindful that the DSE regulations are complied with, so that our members don't suffer further injuries.

This publication has been designed to raise awareness of issues that may contribute to work-related MSDs in mammographers, and offers advice to minimise the potential risks affecting SoR members.

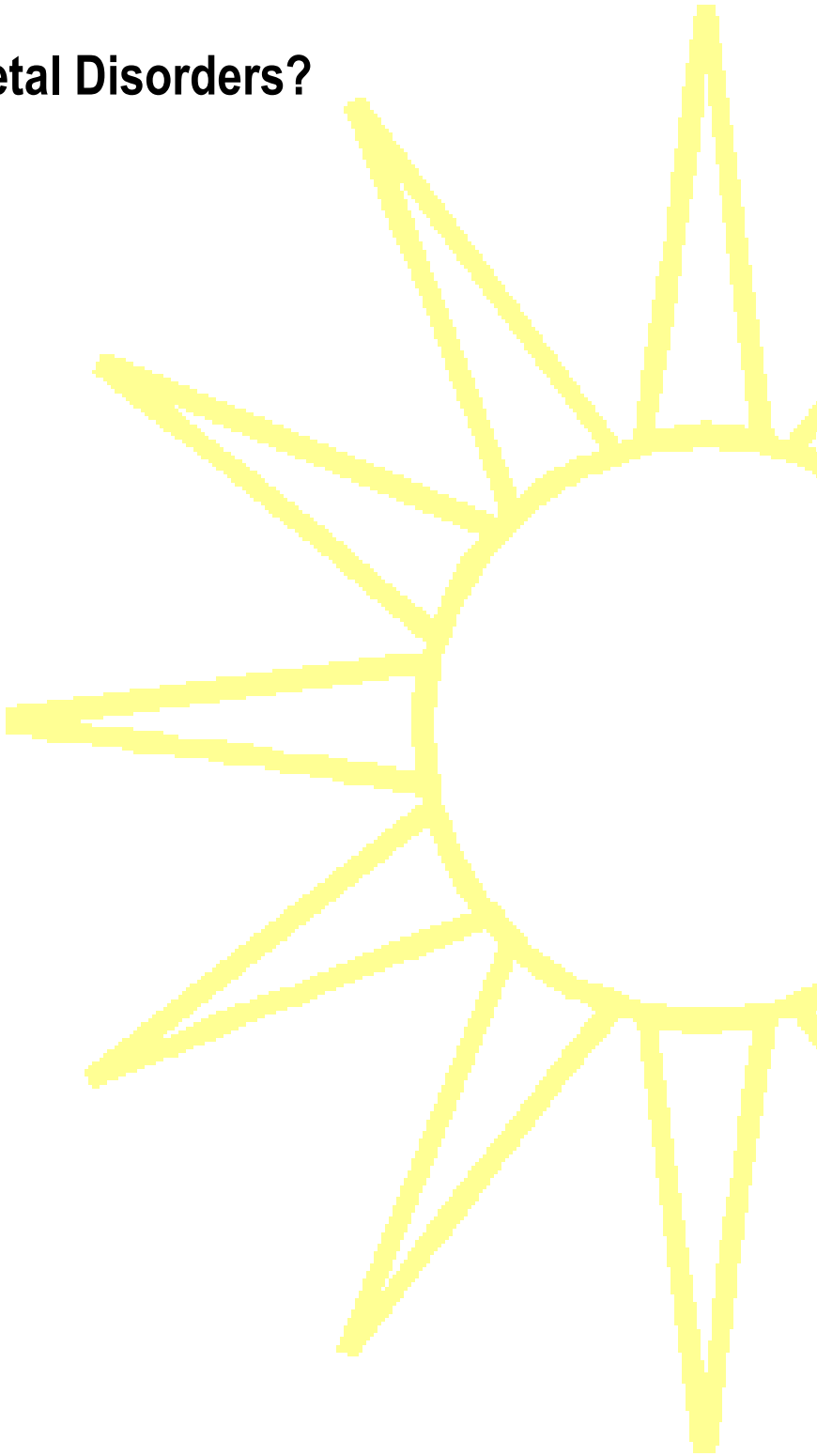
The Society has recently conducted a survey amongst mammography staff[1], the results of which are presented in Chapter 3

I would like to thank Anne-Marie Dixon (University of Leeds) and Luisa Corrina-Bowen, Caroline Enever and Alison Helms (Pennine Integrated Breast Services, Bradford) for their valuable help in producing this publication, additional contributions are acknowledged in Chapter 13.

Lyn Wigley
Health and Safety Officer.

[1] We use the term mammography staff in this document to incorporate both support workers and radiographers who work in mammography.

Chapter 2:
What are Musculoskeletal Disorders?



Musculoskeletal Disorders

The musculoskeletal (MSK) system consists of muscles, bones, tendons and ligaments, and can also be considered to include the nerves connecting these structures to the brain. Bones are held together by ligaments; muscles are attached to bones by tendons. Body movements are produced by the contraction and relaxation of muscles. Tendons do not stretch or contract but transfer force from the muscles to the bones. When a muscle contracts it becomes shorter, pulling on the tendons and allowing the joints and limbs to move. Tendons are smooth and slippery, so that they can glide easily inside a joint's surrounding synovial sheath. Synovial sheaths contain a lubricating fluid, synovial fluid, which enables the tendon to move within its sheath and without friction. Where a ligament may be subject to particular frictional forces, for example at the shoulder, elbow or knee, a small, fluid-filled sac called a bursa helps reduce the friction.

Although the musculoskeletal system can withstand many of the stresses and strains placed upon it, it is not invulnerable. Damage can occur to any part of the system and cause pain. Although our bodies can repair themselves, they need time to do this. When people suffer sports injuries, they usually rest the injured part and allow time to recover. However if an injury is work-related, people often feel under pressure to carry on. Not only do they not give the injured part the chance to recover, but they often continue to perform the work activities which cause the injury in the first place.

Musculoskeletal disorder (MSD) is a term covering a wide range of phenomena and experiences (discomfort, disorders and pain). MSDs are not 'accidents', but injuries (diminished range of movement, swelling, numbness or tingling, loss of sensitivity) to joints, muscles, ligaments, tendons, peripheral vessels or nerves.

MSD injuries are mainly associated with effort, movement, posture and vibration, but are also influenced by work organisation and psychosocial factors. Musculoskeletal disorders bear different names according to the parts of the body affected or the presumed pathomechanics of the injury mechanism.

A wide range of acronyms and terms are used to give a unified name to syndromes that are work-related, and appear at different sites of the human MSK system. This terminology relates either to the presumed cause of the syndrome (repetition, build up) or the location of the injury.

Repetitive strain injury (RSI) is an umbrella term used to describe a range of painful conditions which affect the MSK system. To add confusion, there are a number of alternative umbrella terms in common usage, such as work-related upper limb disorder (WRULD), occupational overuse syndrome (OOS), cumulative trauma disorder (CTD) and occupational cervi**c**obrachial disorder (OCD). None describes the disorder fully or perfectly and the proliferation of terminology reflects the difficulty our members experience in finding a satisfactory explanation of the condition. WRULD and RSI are the terms that are most popularly used within the United Kingdom; even though they actually describe only one risk factor, these terms are often incorrectly used as umbrella terms for all work-related MSDs.

Localised and diffuse musculoskeletal injuries

There are two broad types of musculoskeletal injury: localised or diffuse.

A localised injury is confined to one particular part of the body, such as the wrist, and the site of injury is usually apparent, for example a tendon. The sufferer will experience symptoms usually in that area only. Examples of localised conditions include inflammation of a specific tendon (tendonitis) or at a tendon insertion (e.g. lateral epicondylitis or 'tennis elbow'), nerve entrapment syndromes (e.g. carpal tunnel syndrome) and inflammation of a specific tendon sheath (tenosynovitis).

Diffuse conditions are much less well understood and are characterised by muscle discomfort, pain, burning and/or tingling. Although identifiable areas of tenderness are usually present in the muscles, it may not be apparent exactly where the injury has occurred due to the diffuse nature of the symptoms.

Diffuse injuries are more common than localized ones, and, whereas localized conditions can be treated using methods such as steroid injection, ultrasound, acupuncture or a carpal tunnel release surgery, diffuse conditions may need a multifactorial approach to treatment, including looking at work processes, the social environment, ergonomics and relaxation and stress reduction techniques.

The two categories of injury often overlap and diffuse conditions can often mimic localized ones, for example, diffuse muscle discomfort in the shoulder area may present itself as discomfort in the arms due to the way nerves and muscles in the shoulder, neck and upper arms are organized (TUC 1994).

It is important to realize that symptoms do not necessarily follow a specific pattern or take the same length of time to become severe. The development of musculoskeletal injury usually involves a variety of factors, rather than just one.

This leads to some confusion when trying to diagnose an individual's condition in the early stages, as there are several symptoms and factors common to musculoskeletal injury and to muscle fatigue, as both:

- **are related to work intensity and duration;**
- **increase with the intensity and duration of work;**
- **result in pain and impair work performance;**
- **often are left unreported;**
- **involve mechanical and physiological processes, and possibly stress at work;**
- **may be caused by several factors.**

However, there are also significant differences between musculoskeletal injury and muscle fatigue, which enable the conditions to be correctly diagnosed.

Musculoskeletal injury takes much longer to recover from, while muscle fatigue should cease within minutes of stopping the activity that has caused it or, in extreme cases, after a night's rest. When symptoms continue through to the next day, it may be a sign that the condition is not merely muscle fatigue, but something more serious.

The posture adopted by mammography staff whilst working causes significant stress on the joints, the upper limbs and surrounding soft tissues. Mammographers will adopt a number of uncomfortable postures / positions during the working day; these may include:

- stooping;
- bending;
- twisting;
- extending and flexing the neck;
- holding arms stretched away from the body (whilst weight bearing);
- deviation and hypertension of the joints.

The frequency, speed and acceleration of movements, external forces (clients / patients / equipment) and extreme postures are risk factors classically associated

with MSD; the terms RSI (repetitive strain injury) and WRULD (work related upper limb disorders) aptly describing their causative aetiology.

RSI

RSI classically has the following symptoms:

- pain
- tenderness
- burning sensation
- pins and needles
- crepitus
- loss of sensation (numbness)
- sensation of cold
- swelling
- ganglion
- muscle weakness
- muscle spasm
- joint restriction / loss of movement
- loss of grip.

Not all sufferers experience all symptoms and symptoms do not necessarily appear in any particular order. The symptoms can occur at any stage in development of RSI, and there may be a delay between doing an activity and experiencing the symptoms. Often there are no visible signs at all.

RSI is a progressive condition which can be divided into three broad stages, although the symptoms experienced by sufferers do not always fit into this tidy scheme.

STAGE 1 (MILD):
The first symptoms are a dull pain or a tingling sensation in the affected area, which gets better when rested. At this stage, the condition is reversible and is known as 'threatened over-use injury'.

STAGE 2 (MODERATE):
If the condition is left unchecked at the mild stage, recurrent pain, aching and tiredness will occur earlier in the working day and will persist at night, possibly disturbing sleep. There may be a visible swelling. The condition may be reversible at this stage, but only by complete rest from the task that has brought on the injury in the first place.

STAGE 3 (SEVERE):
The pain, along with weakness and fatigue, can be felt even when resting completely. Sleep can be disturbed and it may not be possible to carry out even the most mundane tasks at home or work. This stage may result in permanent disability.

A detailed list below describes the nature of the conditions, and their symptoms more fully. Localized conditions have a specific medical name, are better understood and can be diagnosed relatively easily on examination. They are usually confined to one part of the body and the symptoms experienced in that area only.

Conditions	Symptoms	Typical Causes
Bursitis: Inflammation of soft tissue between skin and bone, or bone and tendon at knee, elbow or shoulder	Pain and swelling at site of injury	Kneeling, pressure at elbow, forceful movement, repetitive movement
Carpal tunnel syndrome Pressure on the nerves passing though wrist	Tingling, pain, numbness in fingers and thumb, especially at night, weakness in hand	Repetitive work with a bent wrist, use of vibrating tools
Cellulitis Inflammation of palm of hand following repeated bruising	Pain and swelling of palm	Use of hand tools
Cervical Spondylitis Inflammation of discs and synovial joints in neck and shoulder	Extreme pain in neck, possible referred pain in other parts of body if nerve trapped	Awkward postures, repetitive twisting of neck and shoulder
Dupuytren's Contracture Thickening of tissue under palm of hand causing fingers to curl up	Occasional burning pain and development of palmar nodules, gradual inability to extend fourth and fifth fingers	Vibration and manual handling – may also be hereditary
Epicondylitis Inflammation of area where bone and tendon join, may be called 'tennis elbow' when it occurs at elbow	Pain and swelling at site of injury	Repetitive, often forceful work
Ganglion A cyst at a joint or in tendon sheath, usually on back of hand or wrist	Hard, small swelling, usually painless	Repetitive hand movement
Osteoarthritis Damage to joints, resulting in scarring at joint and the growth of excess bone	Stiffness and aching in the spine, neck and other related joints	Long term overloading of spine and other joints

Peritendonitis Inflammation of muscle tendon junction and surrounding tissue	Swelling, pain in wrist and forearm	Repetitive movement plus force to move heavy weights
Rotator Cuff syndrome Inflammation of muscles and tendons in shoulder	Pain, loss of mobility in shoulder, with referred pain further down arm if nerves trapped	Repetitive use of shoulder
Tendonitis Inflammation of tendon, May lead to tendons locking in the sheaths so that fingers, hands or arms cannot move easily	Pain, swelling, tenderness and redness of hand, wrist or forearm, difficulty in using hand	Repetitive movements
Tension neck or shoulder Inflammation of muscles	Localized pain in neck or shoulder	Maintaining rigid, awkward posture
Tenosynovitis Inflammation of tendon sheath	Aching, tenderness, sometimes with a crackling sound in wrist (crepitus), developing into extreme pain spreading in neck or shoulder	Repetitive movement of wrist may be associated with sudden increase in workload
Trigger finger or thumb Inflammation of tendons and/or tendon sheaths or fingers or thumb	inability to move fingers or thumb smoothly, locking of affected digit, with or without pain	Repetitive movements with repeated or prolonged gripping or pinching

How can we support our members?

At work:

If you are experiencing MSD symptoms you should first contact your SoR Health and Safety Representative (H&S Rep).[2] The H&S Rep has legal rights to take up health and safety problems with the employer, and can press for changes to be made to reduce the risk of RSI. They can also provide you with other helpful advice about what to do.

You should make sure that you record the full details of your symptoms in your employer's incident / accident book. Employers are required by law to have one so do not be "fobbed" off and don't let anyone tell you that you should not record it because it's not really an accident. If it is a work-related injury it should go in the book and the entry will be vital evidence in any future claim.

You should also report your symptoms in writing to your supervisor / line manager, and ask for changes to be made to your work or workstation that will help minimise the problem. Ask to be allowed to take regular breaks, to rotate jobs or to be given alternative work if necessary.

Ask whether your employer has carried out a risk assessment for the work you do and check whether RSI risk factors have been identified and any necessary remedial action taken. Your employer has a legal duty to carry out risk assessments, and you should insist on this. You should also ensure that the risk assessment is revised in the light of your problems.

At the doctor's

You should report your symptoms to your GP as soon as possible, describing the work that you do:

- any repetitive tasks
- awkward postures
- how long you spend at the work
- symptoms
- any treatment you have had – successful or otherwise
- give as much detail as you can.

[2] If you do not have a local H&S Rep, contact the SoR Trade Union & Industrial Relations section on 020 7740 7200.

Do not feel guilty about taking up their time; it is important to give as much information as possible. It can be helpful to write out the detail beforehand, or get someone else to do it for you. This will allow more time for you to ask the questions you want. A written record could also be important in later proceedings.

If your GP is unsympathetic, and thinks you are being 'neurotic' or 'it's in your mind', do not accept this; doctors sometimes struggle with the diagnosis and put it down to a patient's normal aches and pains.

Insist on being referred to a specialist, you should ask to be referred to a physiotherapist, preferably one that has been trained in specialist RSI techniques.

Be cautious of any diagnosis which suggests that your condition is arthritis. This is a common misdiagnosis amongst GPs, who are not very well informed about RSI and you may be prescribed completely inappropriate treatment. A blood test can confirm rheumatoid arthritis, so ask for one if this is your GP's diagnosis. RSI does not show in such tests.

Remember that drug treatments only relieve the pain, and do not treat the cause of the injury. You should not return to the same work whilst taking pain-killers as this may make your condition much worse. To be prescribed complete rest may not be helpful at all either, particularly if you return to the same work at the end of it. Most people probably need only a short period of complete rest to be followed by gentle exercises to keep the injured part mobile. Referral to a physiotherapist for assessment will help identify an appropriate treatment programme. The important thing is not to undertake the activities that caused the problem or any that are similar.

Occupational Health

Occupational Health Departments (OHDs) exist to ensure trusts and health boards protect employees and others (patients, visitors, contractors, students) from health hazards which arise from work activities or the work environment.

If there is an OHD at your place of work, report your symptoms to them. A good OHD should not only give you medical advice but should investigate your job to identify and remedy the risks. A respondent from the recent SoR 2008 survey stated "I have attended occupational health with regard to my repetitive strain injury of my wrists; the OHD referred me to a staff physiotherapist. I have changed my working practice

which has helped so only on occasions do I find it necessary to take anti-inflammatory tablets"

There are no significant statistics available to offer an insight into problems experienced by mammography staff, whilst reporting musculoskeletal disorders to OHDs.

When the same issue was highlighted amongst sonographers a number of occupational health staff members were reported as being perplexed and ignorant of the condition (Musculoskeletal disorders amongst sonographers 2002, SoR). In some cases, they merely told the member to go to their GP. One member said that occupational health "didn't do much; just concerned in getting me back to work and not interested in the injury". Another member said that the OHD told them that the injury came with the job, but they could come back in two months if it was still bothering them. A further OHD told one sufferer that they did not associate themselves with injuries or strains like this.

However, in a small number of cases, occupational health were very supportive and made positive recommendations as to how work practices could be modified to help the situation. For example, one member said her OHD had made a positive effort to talk to staff regarding posture and to look at the way in which staff performed their imaging examinations. In another example, the OHD was very supportive and talked about possible redeployment with protected salary. Some members were referred, either by their GP or OHD, for physiotherapy and in most cases this helped, especially when it was done on a regular basis.

Self referral

Access to occupational health staff must be available to employees on a self referral basis. This fact should be published by the employer and the confidential nature of the service should be stressed. In particular, staff should be encouraged to refer themselves if they are concerned about their own physical or mental occupational ill health. Early referral is likely to be of maximum benefit to employees.

Sick Leave

Twenty-two survey respondents (40% of those who answered the question) took sick leave (2008 SoR survey) this ranged from a few weeks through to medical retirement because of disability. Collated results show that SoR members almost without exception feel uncomfortable about taking sick leave because of staffing problems

within the department. In the case of one member, who had to take medical retirement in her thirties, the stress of the job, subsequently being off sick and ultimately of being medically retired, led to her being prescribed anti-depressants. Although she was lucky enough to get a place at university to study something different, she is classified as a disabled student and feels this may hamper her chances of employment in the future.

Many members have reported a lack of sympathy from the employer when they returned from sick leave. One member told the SoR "What I find most objectionable is that although occupational health and radiology managers agreed (in fact, stipulated) that I must re-integrate gradually up to full-time, I was expected to use annual leave for the time I was not at work".

In the case of one member who was medically retired, she said "I had to contact the employer to discuss the situation – I felt like a discarded machine."

At home

You will need as much support as possible from family and friends, especially if your condition has reached the chronic stage. Make sure that they understand the nature of MSDs and what to expect from you by showing them any information you have. Although they may be sympathetic to begin with, there may be times when tempers get frayed, particularly when you have no visible signs of injury and they can't understand why you are unable to do seemingly simple household tasks.

You may find it useful to get in touch with your local RSI support group. The RSI Association publishes an information pack which is full of advice for sufferers including suggestions for simple aids which can make everyday tasks easier to cope with. It has also produced an information sheet giving advice on setting up a support group if there isn't one in your area. http://rsiaction.org.uk/rsi-support-groups

Joining a support group can be a positive thing to do. Don't be put off by the idea that it is full of people comparing symptoms and feeling depressed. Most groups are extremely active in campaigning for better understanding of MSDs, for better health care provision and for improved benefits. Some run telephone help line and/or drop in centers. Many collect information about which local doctors are sympathetic to RSI, and whether there are specialist physiotherapists in the area, which they are able to pass on to members of the group

Chapter 3:
The SoR 2008 Survey

This was the first Society of Radiographers (SoR) survey conducted to determine the extent to which mammography staff are at risk and suffering whilst performing their daily jobs. The survey will help the SoR identify workplace risk factors associated with developing Musculoskeletal Disorders (MSDs) and help identify interventions that have the potential to eliminate or reduce these risks.

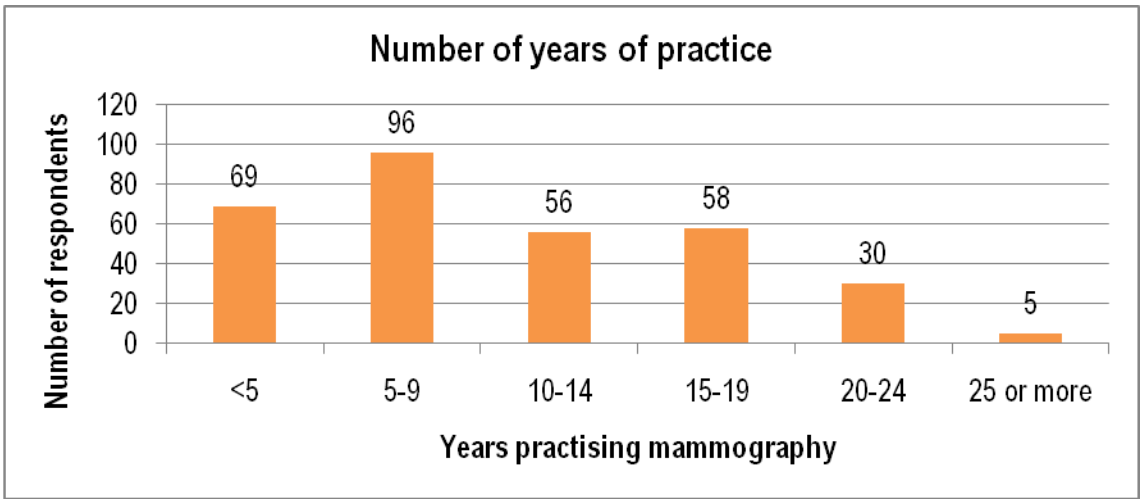
Nearly 1000 SoR members working in mammography were sent the questionnaire to complete. The survey was also publicised in Synergy News and members were encouraged to disseminate it locally to non-SoR colleagues. We received 325 responses: all females aged between 24 and 64 years, a third of respondents were aged between 45 and 59 years.

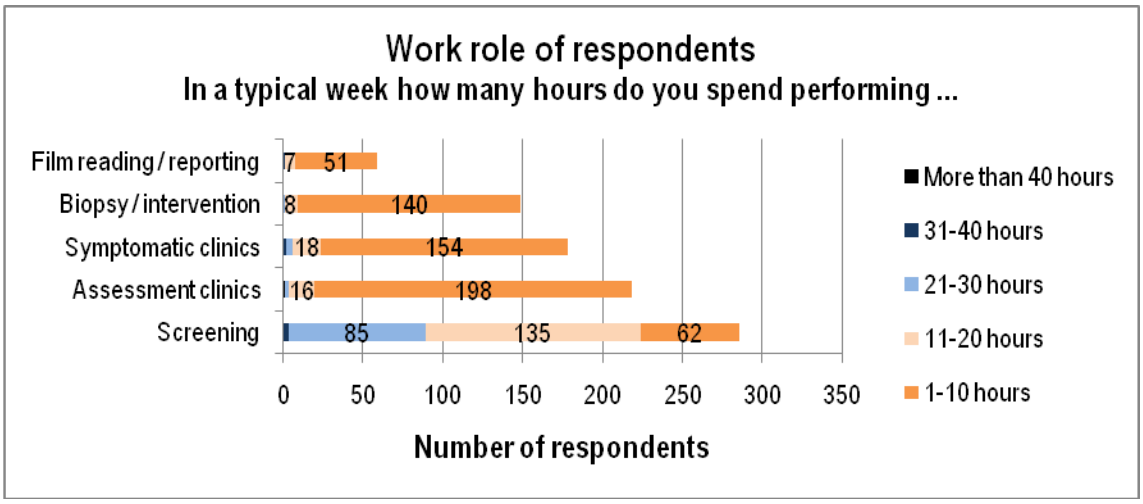
The results confirm SoR fears about the risks and prevalence of MSDs in mammographers) and highlight both the personal cost and potential for significant (and no doubt underestimated) cost to the health service, resulting from MSDs among mammography staff.

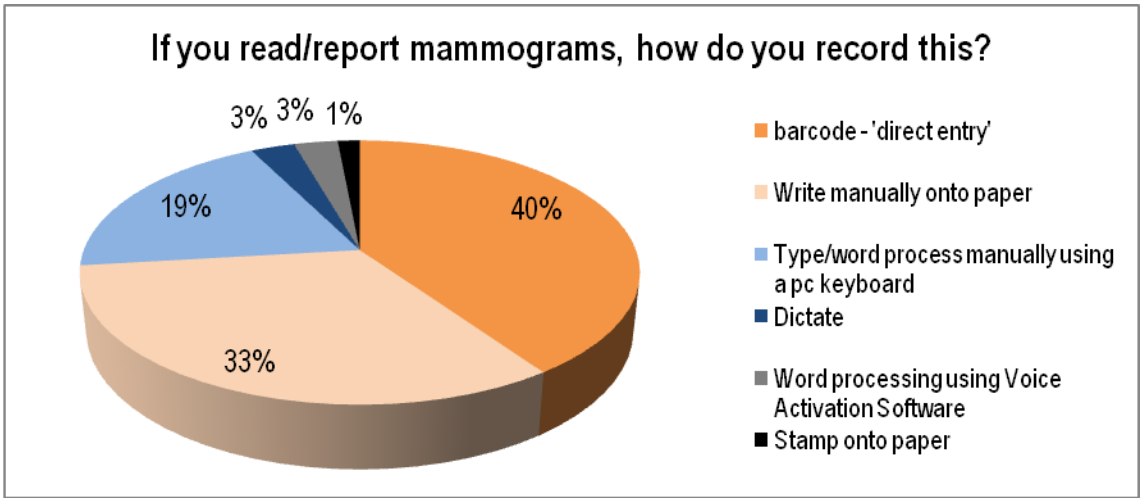
We have identified a number of factors that are known to lead to MSDs. We must communicate these to all staff, employers, and health and safety reps, trade union authorities to ensure that they can be minimized or eliminated. Change starts now; we cannot continue to brush this ticking time bomb under the carpet.

Chapter 11 details the questions asked in the survey, the following graphs highlight some of the significant results.

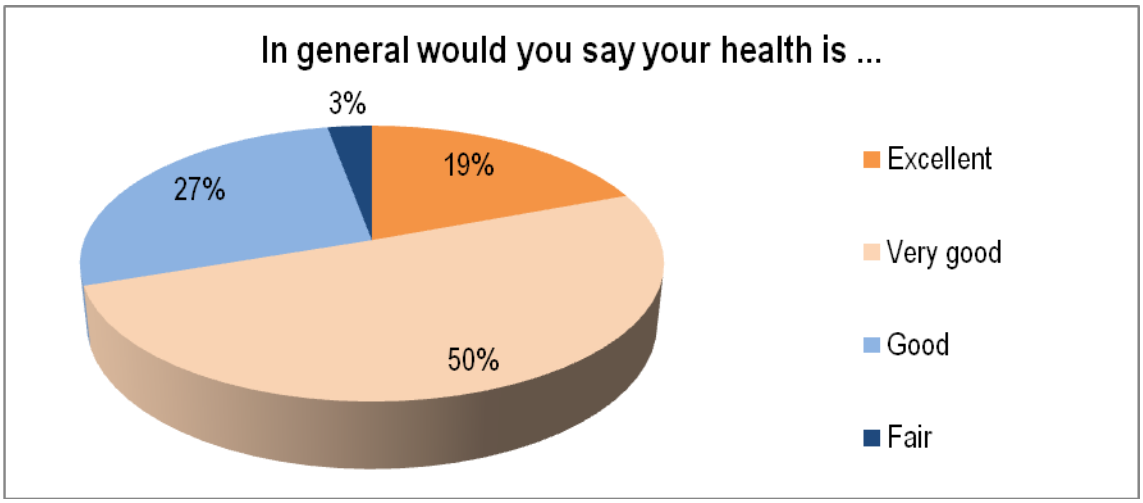
Profile of respondents

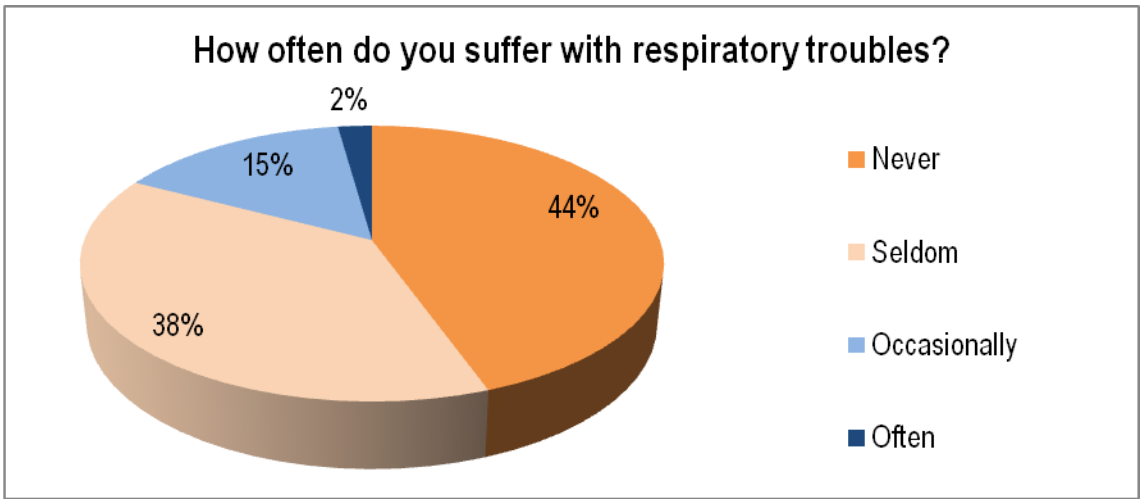


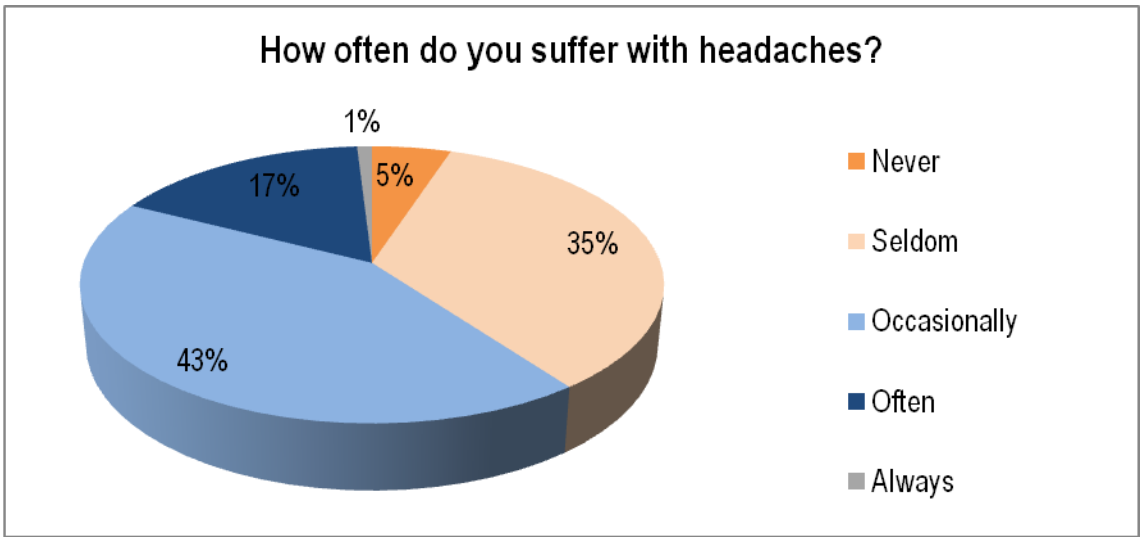




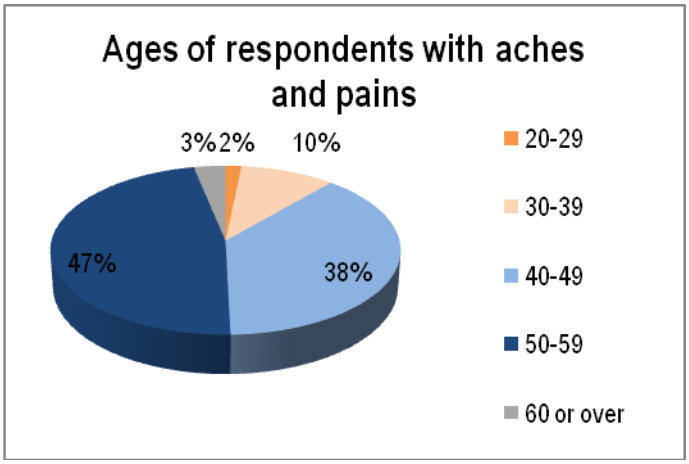
General health

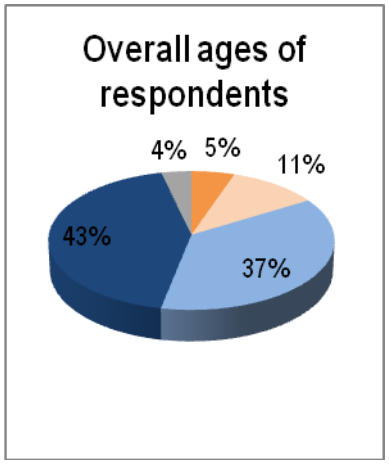


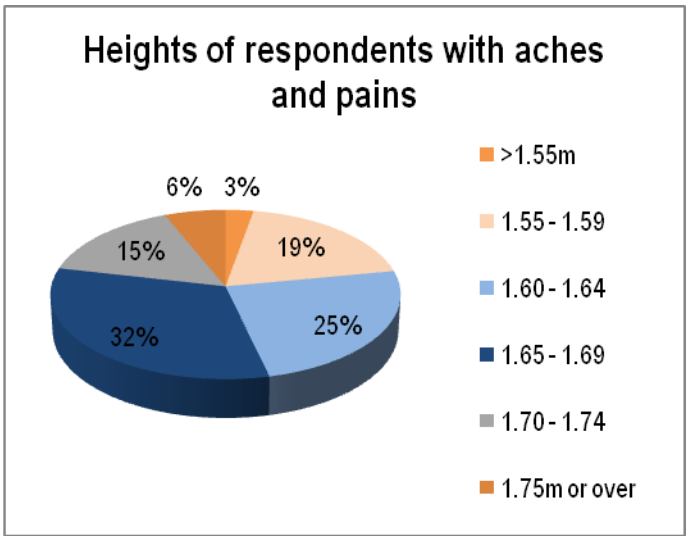


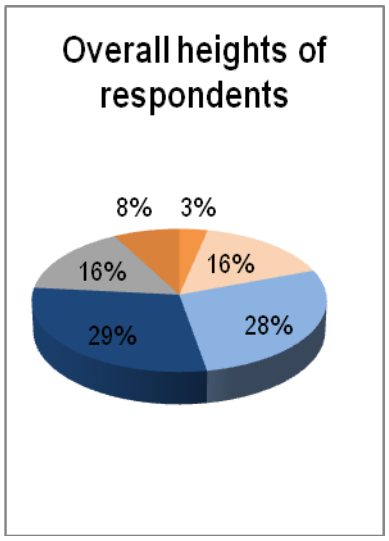


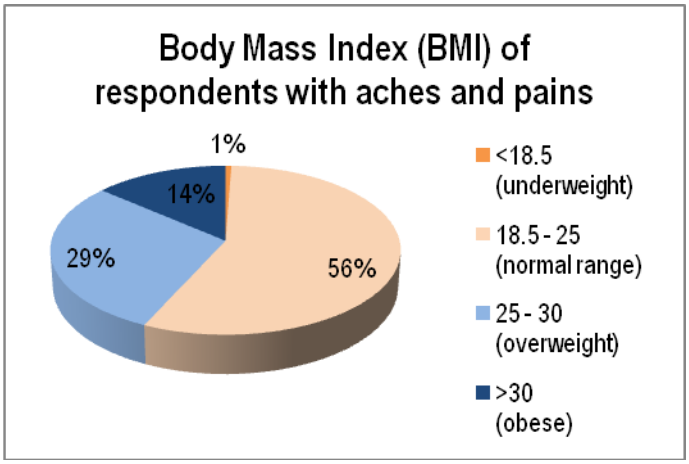
Profile of respondents with predisposing injuries or aches and pains

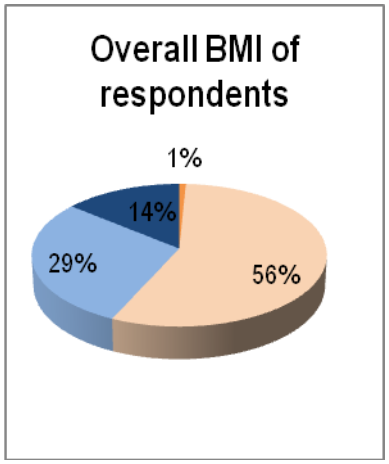




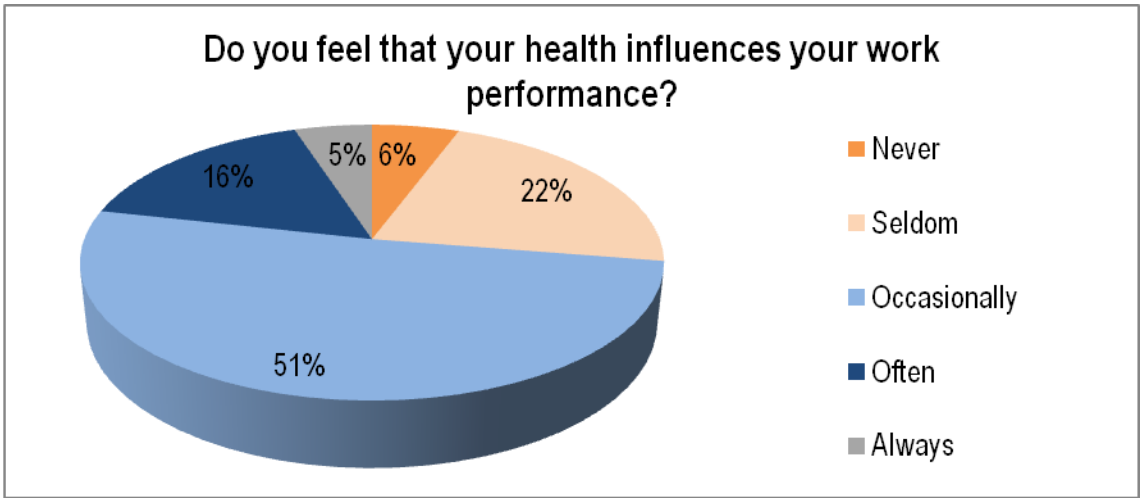


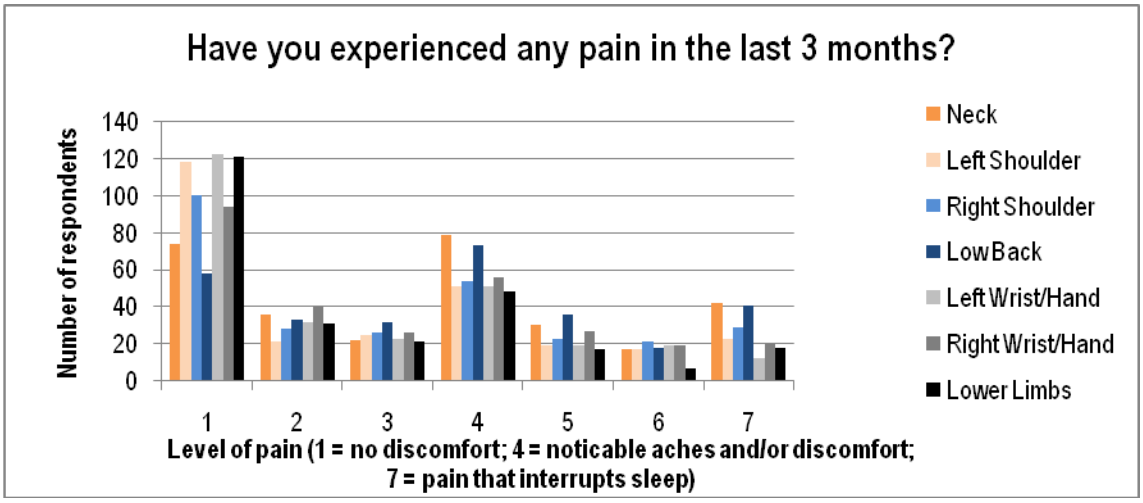


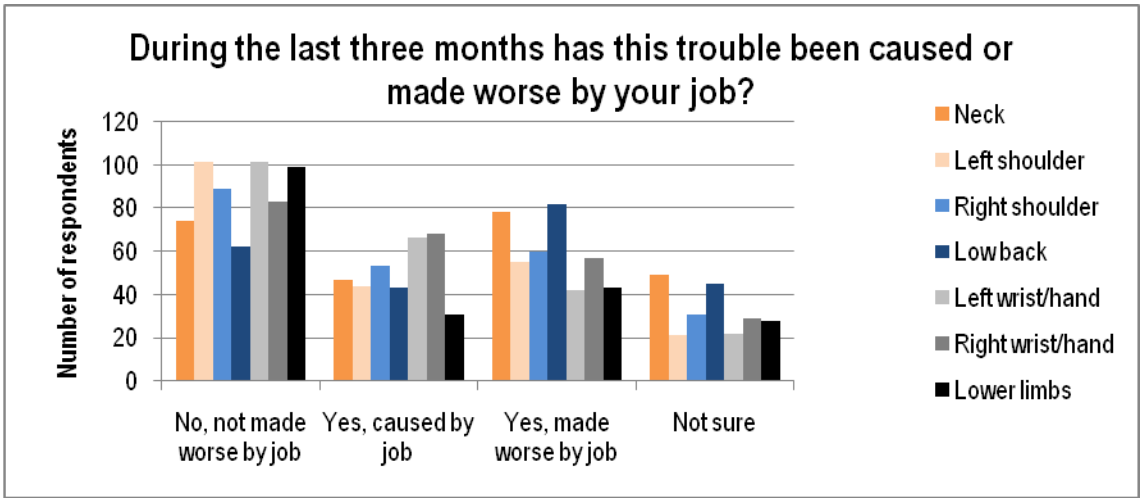




Health and work



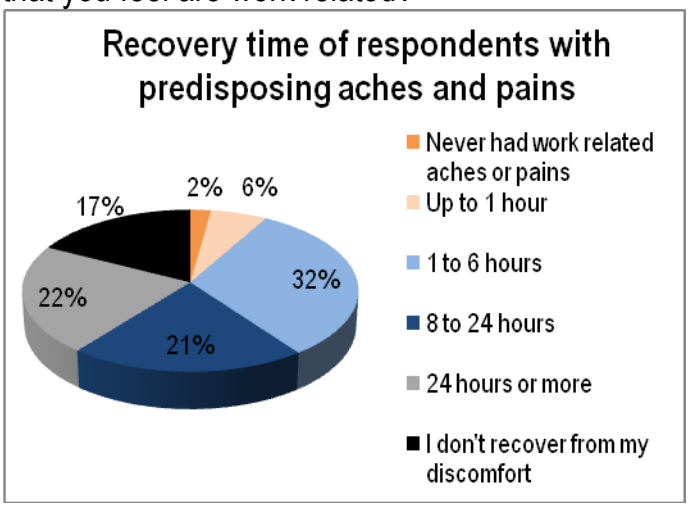


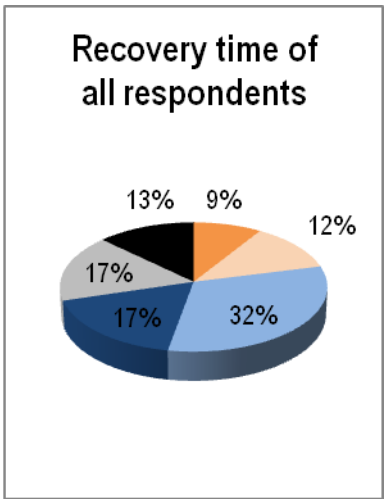


How often do you feel excessive tiredness / fatigue at the end of the shift or have trouble concentrating at work?

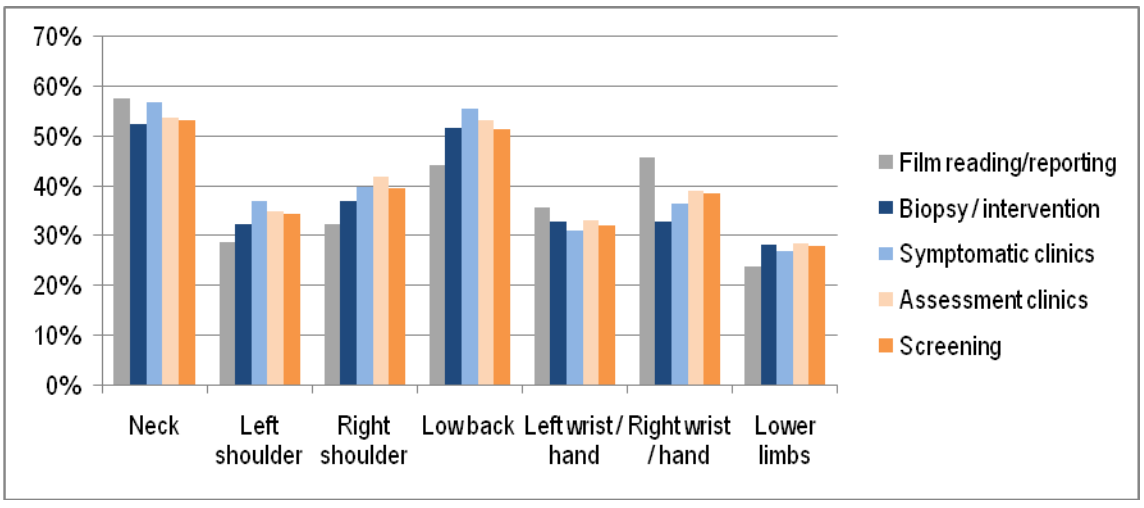
	Never	Seldom	Occasionally	Often	Always
Excess tiredness / fatigue	2%	8%	44%	39%	8%
Trouble concentrating	4%	39%	51%	7%	0%

After a shift, in general how long does it take you to recover from aches and/or pains that you feel are work related?

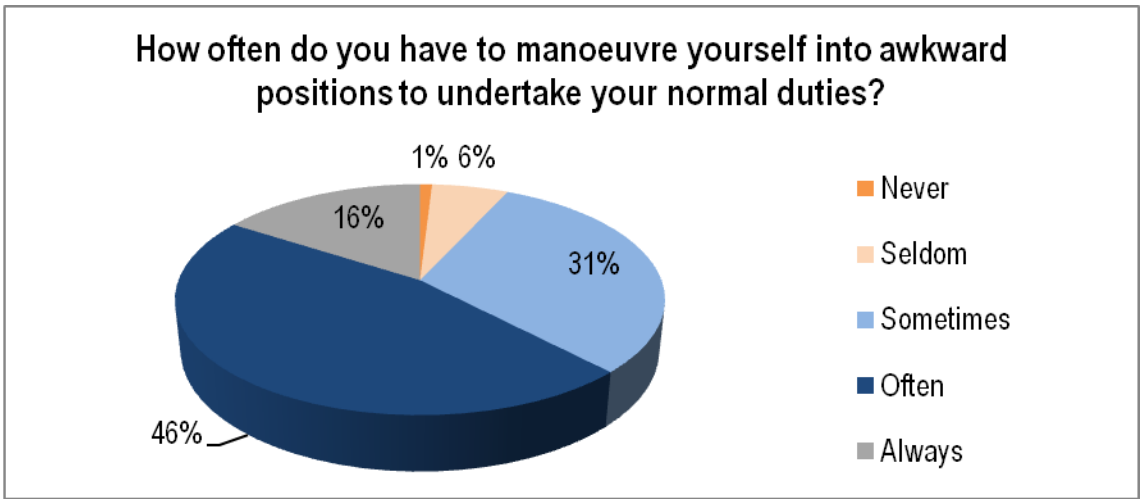


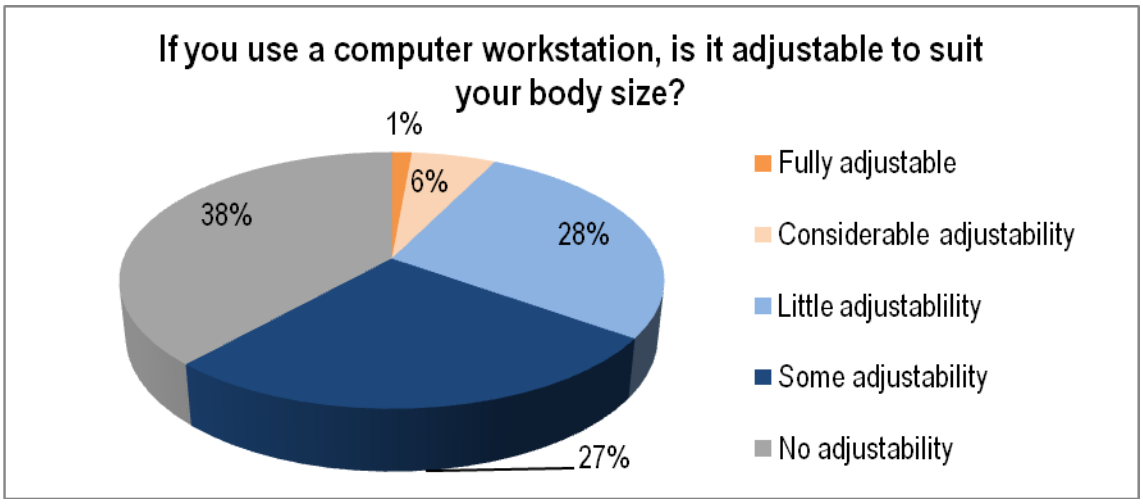


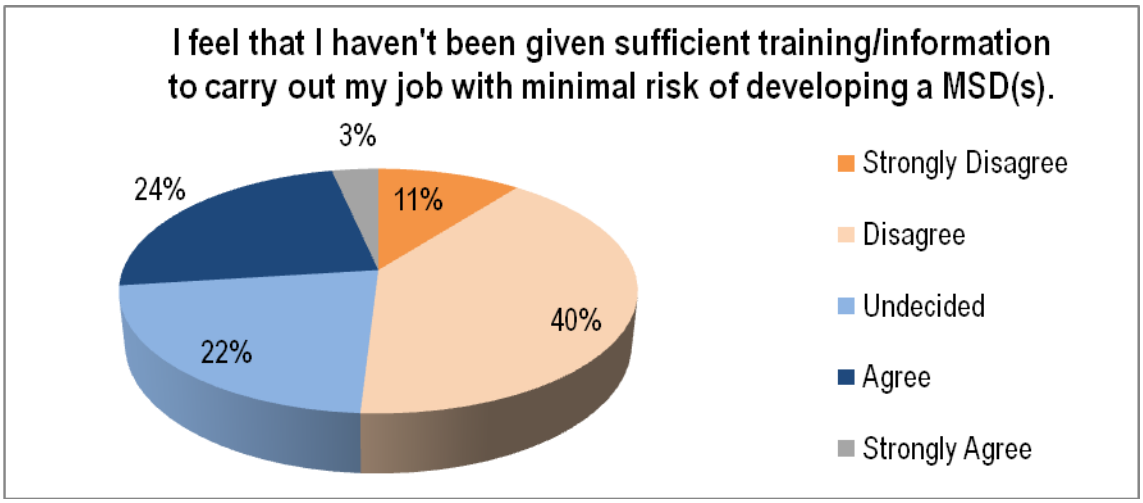
Task related symptoms: Percentage of respondents engaged in task who answered (4) noticeable aches and pains or more to:
On a scale of 1 to 7 (1 being no discomfort and 7 being pain that disturbs your sleep) have you at any time during the last three months had trouble with your …



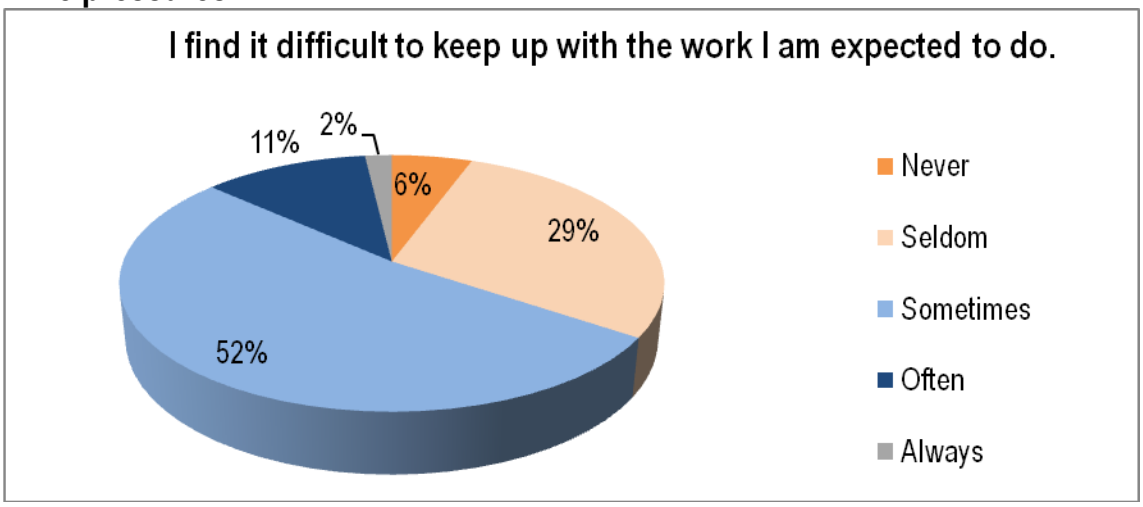
Workspace and training

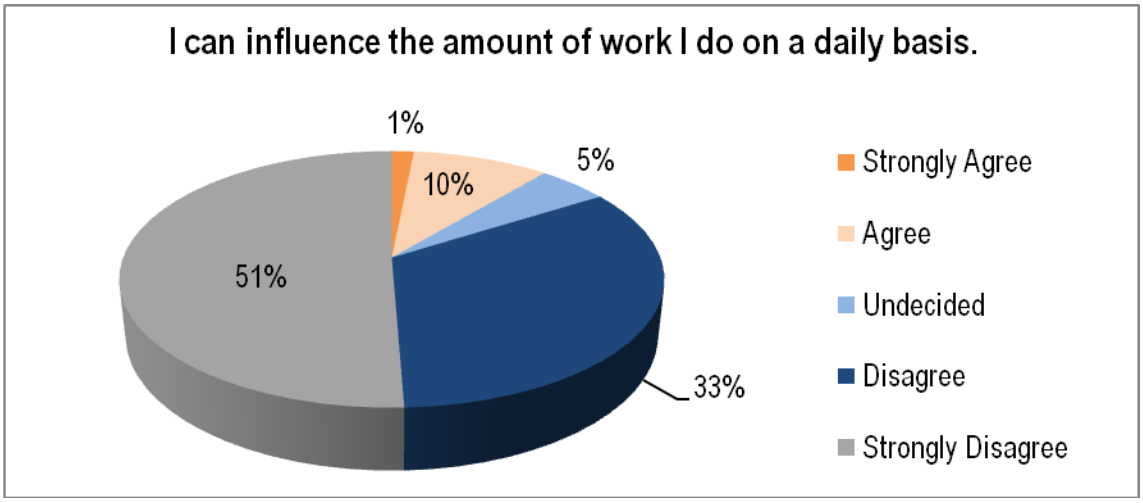


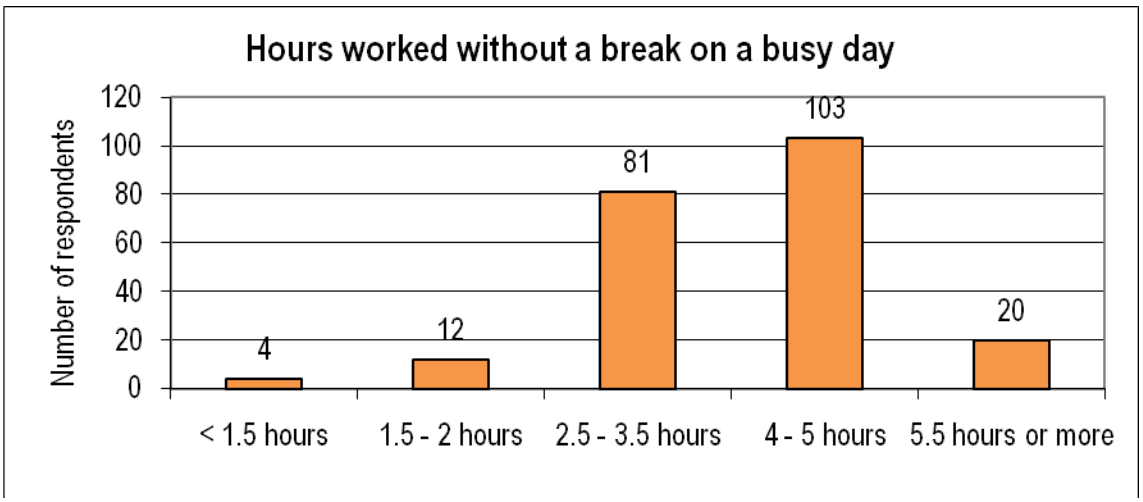




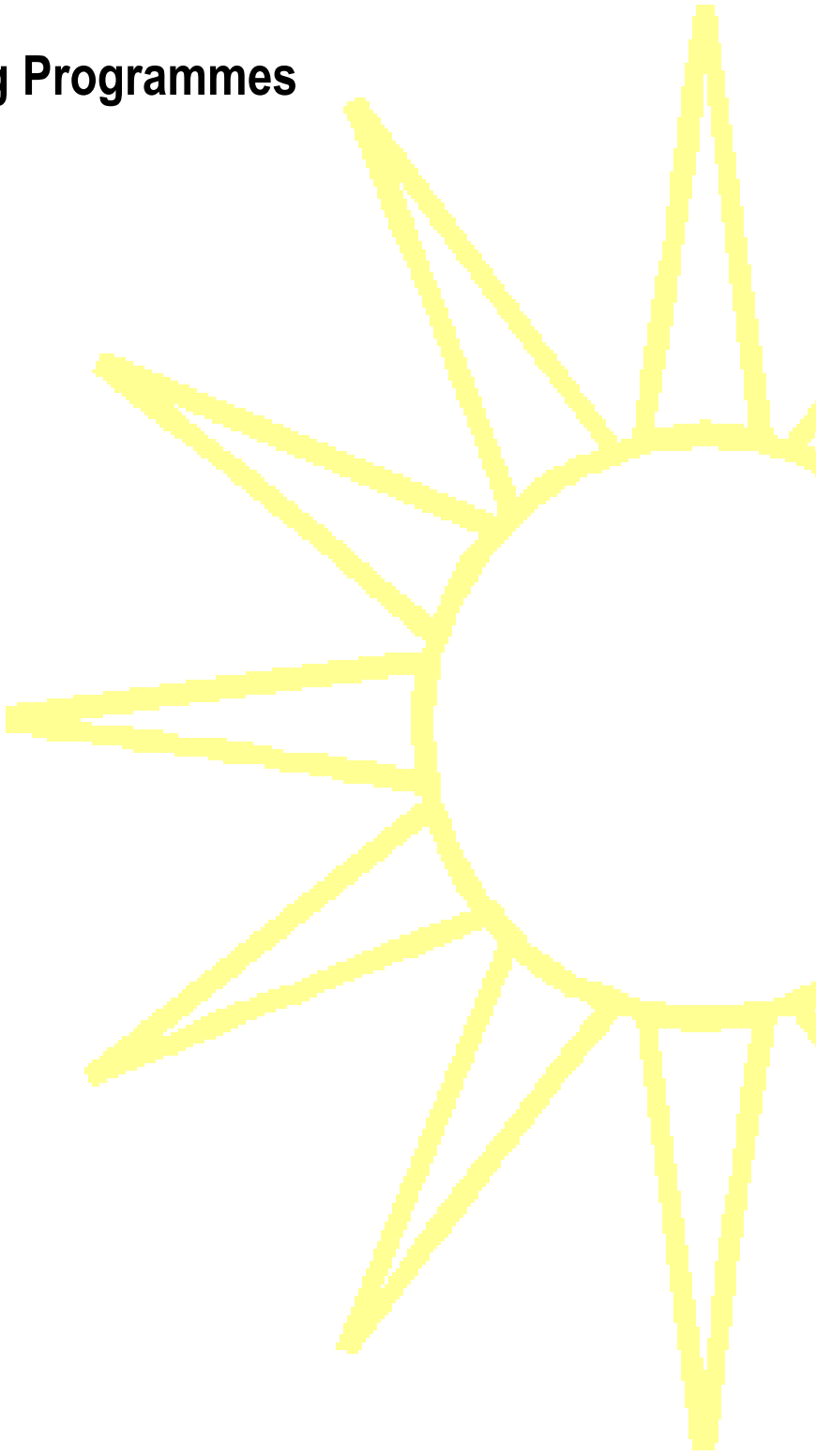
Time pressures







Chapter 4:
MSD issues: Screening Programmes



Most screening units will have a static (base) site and one or more mobile units. Because of the nature of breast screening, i.e. ever increasing numbers of women to be screened within a 3-year rotation, mobile (and static) screening sites are designed for rapid throughput. Mobile units in particular cater for this with their compact design, but have their own unique problems:

- travel to unfamiliar places can be stressful
- fresh drinking water must be obtained from on-site kitchen
- staff (and clients) must have access to toilet facilities
- compact trailer design and steep access steps are not suitable for those with limited mobility / disability

Whilst the NHS breast screening programme itself goes from strength the strength, there are still a number of issues that affect the health and wellbeing of our members. This chapter will consider the main issues related to MSD and what can be done to minimise the risk.

Problems	Solutions
Wrist/Hand Pain: • Altering height and angle of C-arm, controls located on tube head; • lifting and positioning breast onto imaging support table; especially a problem with large, heavy breasts; • Selecting AEC chamber • Pressing exposure button • Inserting/retrieving cassettes from 'Bucky' • Thumbs used for retrieving • Unloading, reloading and naming of cassettes • Constant handling of cassettes for rapid throughput (6 minutes per patient, 4 images minimum); • Turning piles of cassettes over for rotation of use • Mounting films on viewer	• Use controls on vertical column; • up-to-date manual handling (MH) training • Alternate use of thumb, heel of hand and knuckles; • Ensure maintained for smooth operation • Alternate fingers, avoid stretching of wrists; • Adapt with "Mickey mouse attachments" / regular maintenance program • Locally agreed task rotation (e.g. 3 on 3 off positioning/assisting) • Wall mounted cassette holders, using clock rotation; • Digital Imaging, task rotation, regular breaks.

Shoulder / neck / back pain • Difficulty positioning non-compliant (nervous, non-English speaking, disabled) women; • Taking the weight of patient's arm when stretching across into the MLO position; • Lifting and positioning heavy breasts	• Use of saddle seat where possible. • Clear communication, Use of interpreters, Use of 2 radiographers • Up-to-date MH training, operator to stand/sit to reduce their own arm abduction as appropriate. • Health promotion activity

Lifting/Manual Handling
 	
• Lifting full magazines, bags/boxes containing packets/paperwork down the mobile vans steps and to the car boot
• Transporting heavy magazines containing films & paperwork for a days screening back to base unit
  ○ empty film magazine weighs 2.5kg
  ○ case full of films is 9.0kg
• Transporting boxes of new film to mobile
 	
• Changing film loader magazine when empty
• Lifting heavy chemical bottles
• Lifting heavy processor rollers (at shoulder height) for cleaning
	• Separate films from paperwork
	• Share load between staff
	• Use of trolleys / carts
	• Digital Imaging
	
	• Up-to-date MH training.
	• Continued adoption of safe lifting practices
	• Individual assessments.

Repetition of work • 6 minute minimum appointment for each screened woman – approx. 60 women per day	• Adopt working pattern which allows recovery time between women, e.g. allocate 3 members of staff to mobile unit • Organise staff rotation to ensure variety of duties, e.g. mixture of screening and assessment clinics during the week • Ensure regular breaks wherever possible • Ensure cassettes are easily accessible – no higher than shoulder height
• 50 – 70 year age range, varying sizes and shapes, physical abilities and nationalities	• Identify women who need extra time for future appointments, e.g. larger women (multiple images per projection), disabled women – as shoulder, neck and back pain.
• Mounting and taking down of films on display viewers for sorting and film reading	• Digital imaging • Task rotation • As wrist and hand pain

Examples

Use the controls on the vertical column to avoid over-reaching when operating the C-arm

 x  √  √

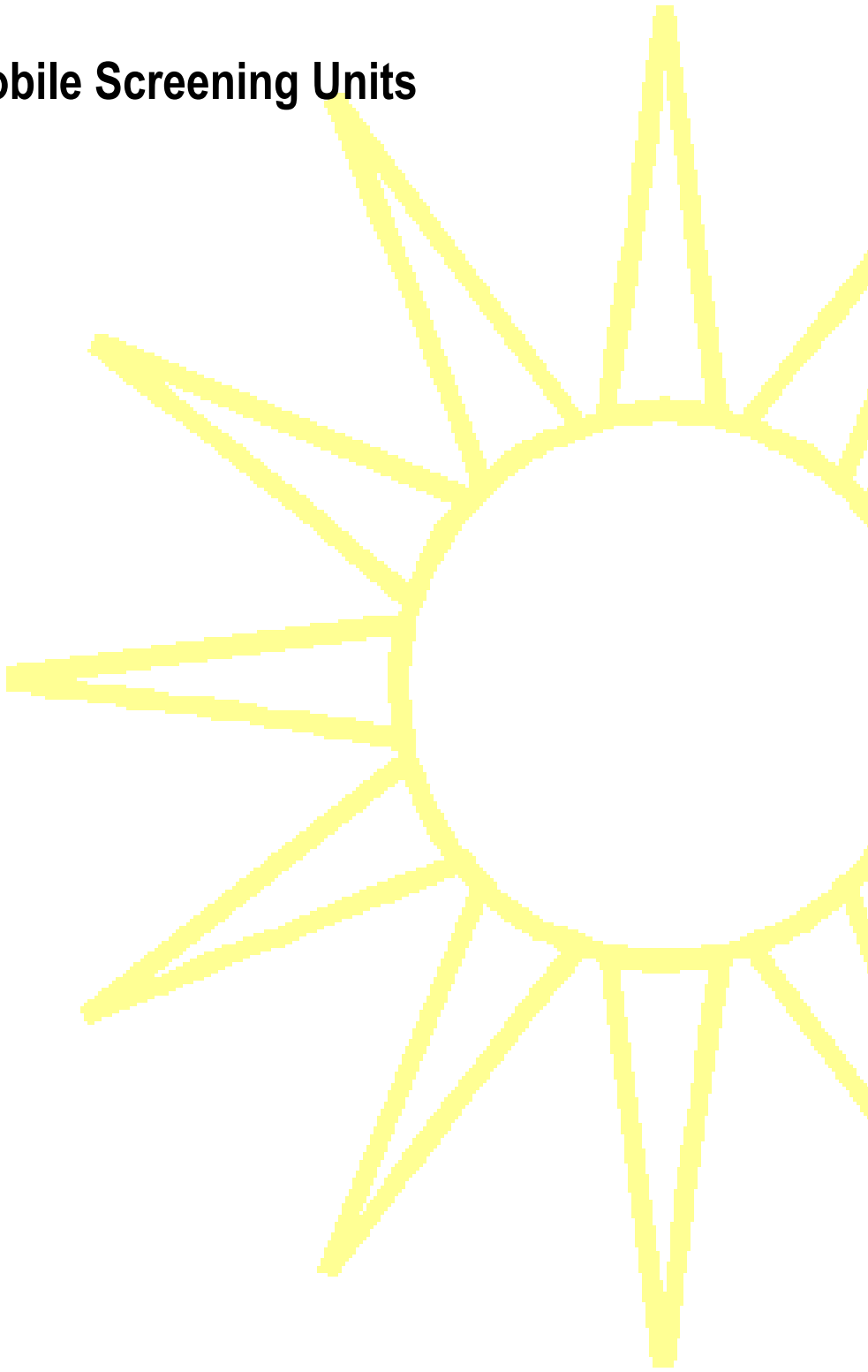
Consider using a saddle seat when positioning short stature / disabled ladies to avoid stretching, awkward bending or kneeling

 x  x  X  √

Alternate fingers and / or hand position when pressing the exposure button

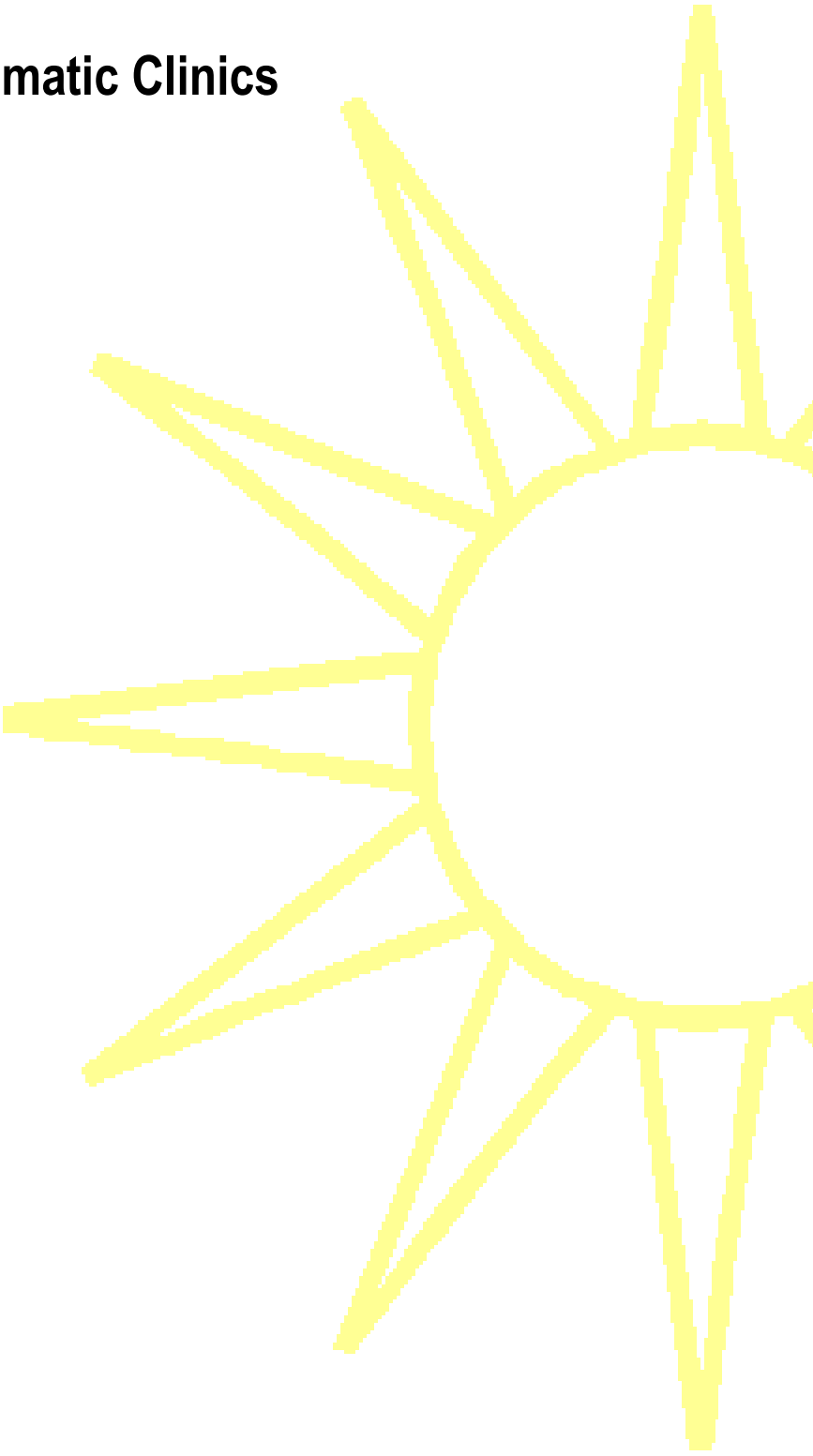
Chapter 5:
Issues arising: Mobile Screening Units



Problems	Solutions
• Stress of travelling to mobile location • Unfamiliar surroundings	• Orientation visit • Provision of 'satellite navigation system' • Use of satellite static sites
• Intense screening session • 6 Minutes per lady (10 ladies per hour) – not enough respite • Wide variety of client size and capabilities	• Currently 2 staff members allocated to mobile unit - good practice would be to have 3, to allow for rotation of tasks • Ensure staff team includes variety of stature and MSK capabilities.
• Cassettes stored high on shelves above workstations – excessive stretching of legs/arms • No steps to reach high areas • Constant leaning over chair, confined space so not able to move away, when not in use	• Use foot step, or lower shelves. • Avoid obstructing access to cassette racks.
• Pulling of sliding door, when screening, repetitive twisting	• Ensure effective maintenance programme in place • Up-to-date manual handling training.
• Staff repeatedly handling magazine cases with 80 films (full weight of each 9kg) empty magazine 2.25kg. Paper work, old films are also added to the	• Separate paperwork and films • Pack in smaller batches • Make more trips or task rotation.

Problems	Solutions
magazines weight whilst carrying • Constant transporting of new films to mobile vans. • Magazines, boxes of paperwork, old packets, removed from base to car, car to mobile, up the steps, lifted in and out of car boot	• Use of digital imaging • Continued safer work practices – adherence to manual handling training.

Chapter 6:
Issues arising: Symptomatic Clinics



When undertaking mammography examinations in symptomatic services a much wider age range of women (typically 18 – 80+ years), and sometimes men, will be encountered, than in the NHSBSP. Patients would typically be already undressed; examination times are often longer than in the breast screening programme and a greater variety of projections are performed. These factors reduce time constraints and increase variety of tasks.

Some NHSBSP units are integrated with symptomatic services and involve the same staff working across both services and using the same facilities – as such similar issues as described above for screening at 'static' sites may arise.

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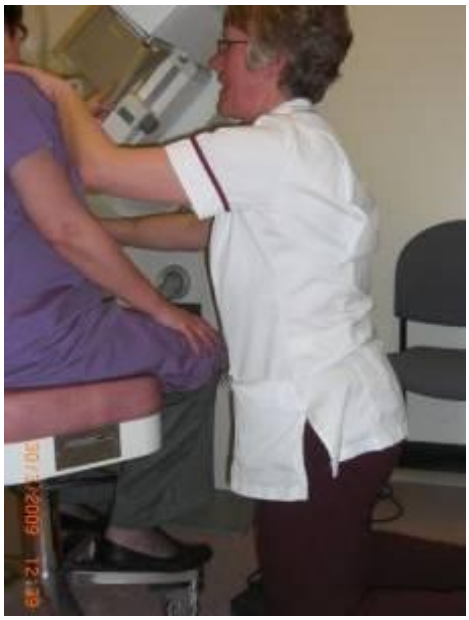
Problems	Solutions
Moving & handling • Issues for staff due to confined environment affecting posture • Some patients / elderly patients may have reduced mobility • Wider age range of clients/patients. • Carrying piles of cassettes to/from processor for developing	• Reduce unnecessary clutter around mammography machinery. • Use 2 mammographers for positioning / exposure • Use of saddle seat. • Use of height adjustable patient seat. • Match tasks and patients to individual staff capabilities. • Ensure staff team includes variety of stature and MSK capabilities. • Make multiple trips • Digital imaging
Wrist/Hand Pain: Computer input • Entering client information • Inserting/Retrieving cassettes • Thumbs used for ejecting • Control locations on handles • Changing exposure chamber settings	• Use of bar code readers, PACS system • Fully adjustable workstation. • As for screening use.

Problems	Solutions
• Film transportation from library to clinic	• Use of trolley and carts
Lifting/Manual Handling • Empty film magazine weighs 2.5kg • Case full of films is 9.0kg • Chemical replenishment ○ also note hazardous substance (developer / fixer / algicide) hazard	• Use of trolleys / carts • Digital Imaging • Up-to-date manual handling training and continued work practices. • Up-to-date COSHH training and adherence.

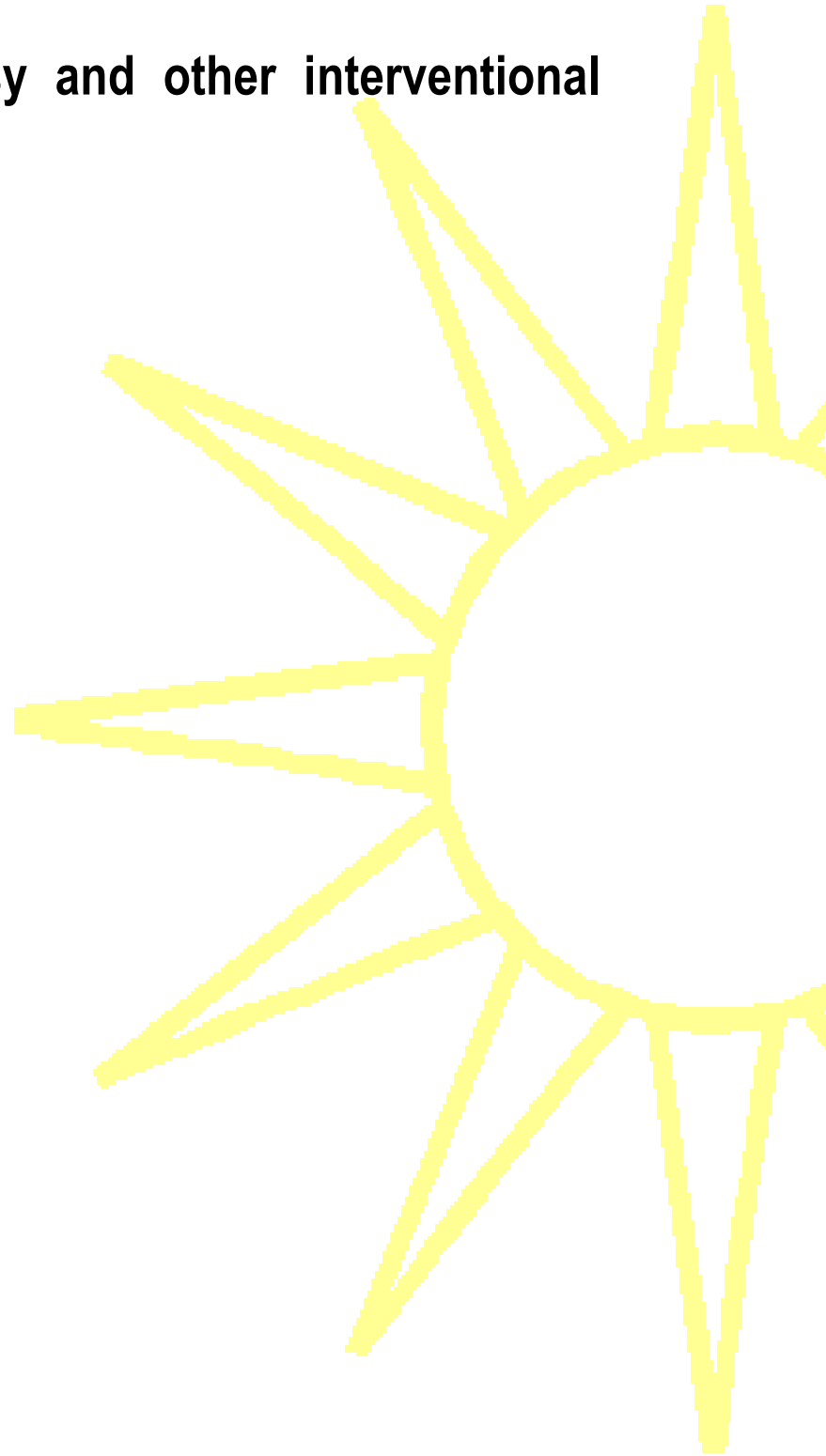
Example

Consider using saddle seat and adjustable height client seat when positioning patients who are elderly or have reduced mobility to avoid kneeling and awkward bending.


X


√

Chapter 7:
Issues arising: Biopsy and other interventional procedures



Interventional procedures in the breast may be undertaken using stereotactic (mammography) or ultrasound guidance. The range of procedures includes fine needle aspiration cytology / biopsy, cyst aspiration, large-bore (14g) needle core biopsy, vacuum assisted (11g / 8g) biopsy / excision and pre-operative hookwire localisation.

In general procedures performed under ultrasound control are undertaken with the client supine on a height adjustable examination couch. Stereotactic procedures may be undertaken with the client sitting upright, or lying in a lateral decubitus or prone position.

Workspace is often restricted by the need to have additional equipment and personnel in the room. An examination trolley, a sterile trolley and a vacuum biopsy device take up floor and room space and may restrict access to the client / patient. This may increase the tendency for mammographers to stretch, reach, bend, lean and twist to gain appropriate access to equipment controls and to the interventional puncture site. The need to maintain these positions, and sometimes the need to bear the weight of hand-held procedure equipment, exacerbates the risk of MSD.

Problems	Solutions
Environment • Small rooms • Cramped conditions	• Ergonomics of room should allow for all practices to be carried out without risk. • Practitioner should be able to access client from both sides of examination couch / chair.
• Additional personnel required	• Size of room should allow adequate space for extra staff who assist with sterile technique & specimen retrieval
Equipment • Additional equipment required – sterile trolley, vacuum device • Trolley for patients	• Size of room should allow adequate space for ergonomic operation
• Flexibility for positioning client in erect, decubitus or prone position	• Use chair that can be converted into a couch with adjustable height to suit individual practitioner. (Manual hydraulic operation rather than electric prevents risk of tripping over cables on floor). • Use of dedicated 'prone' table
• Lever to change chair into bed position quite stiff	• Bend knees to access controls with arms in biomechanically safe positions • Use two hands • Regular inspection and maintenance of equipment mechanics to ensure smooth, easy movement.

• Use of computer for digital stereotactic targeting.	• Should be integrated into dedicated ergonomic workstation to ensure correct desk & monitor height, correct desk shape, availability of operator adjustable chair.
Procedure • Leaning over patient to ensure breast is on imaging plate correctly ➢ risk of over-stretching ➢ unpleasant for client • Leaning over patient to adjust x, y, z co-ordinates • Extended procedure time for vacuum assisted excision • Mammographer standing for long periods of time	• Stand at side of machine not behind the patient leaning over • Remote control • Stool or saddle seating for operator – ensure wheels / castors compatible with floor covering

Examples

Use a dedicated chair that can be converted into a patient couch



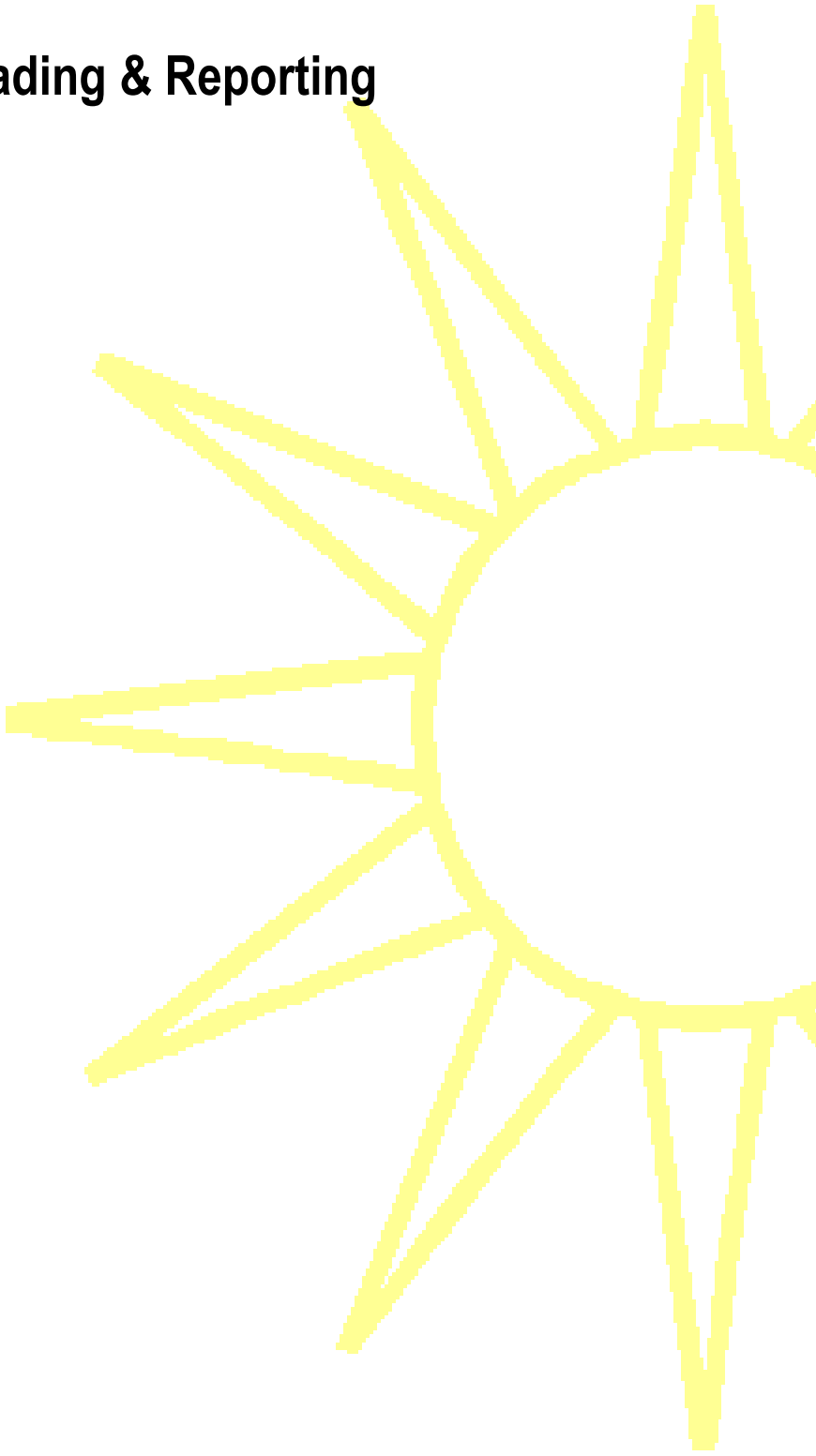
Consider using a saddle seat to avoid straining the back

X

√

Some equipment has a movable x, y, z co-ordinate display to allow flexible operator position when adjusting to avoid reaching & bending over the patient.


Chapter 8:
Issues arising: Film reading & Reporting



Film reading and reporting usually takes place at the static screening unit base or in hospital based symptomatic out-patient clinics. Dedicated film viewing & reporting facilities should be available and invariably these tasks involve sitting at a 'desk'. The 'desk' facility may be associated with a conventional film multiviewer station (screening film reading), conventional wall or desk mounted film viewing boxes (symptomatic and assessment clinics) or, as digital imaging and soft copy reporting is introduced, a PACS computer workstation.

MSD risks for film readers / reporters are associated with

- working environment design
- working environment conditions, e.g. lighting, heating, ventilation, seclusion
- posture
- working practices, e.g. screening programme targets, staffing levels, breaks, task rotation.

Problem	Solution
Film handing – mounting, displaying & taking down • Heavy loads of films & paperwork to manoeuvre in cramped conditions • Multiviewer not height adjustable - reaching top row of Multiviewer	• Use of wheeled trolleys • Adequate working space for transporting packets on trolleys • Adequate working space for resting & sorting packets and films and paperwork • Regular breaks between mounting / taking down of films to relieve strain on neck & upper arms
VDU use – inappropriate equipment film handling and reading • Fixed height desk • Fixed height chair • Staff do not always adjust chair • Computer screen height and location fixed • Inadequate space on desk for keyboard or wireless keyboard – stored on top of Multiviewer • Hand rests take up too much room on desk	**Relevant VDU regulations risk assessment must be in place** **Provide correct equipment as per VDU regulations** **VDU use training & compliance** • Adjustable working table height with curved front to allow closer position for image viewing • Adequate desk top area for large piles of paperwork, films & equipment – pen, magnifying glass, ruler, keyboard & mouse • Implement digital system to eliminate need for film handling, mounting and paperwork • Adjustable computer screen height and location – facility to position to right or left of image viewing screen / film viewing station

• Heavy handheld magnifying glass – holders do not allow adequate speed or flexibility of viewing position	• Easy access to wireless keyboard (for barcode direct entry) - provision of under-desk pullout shelf • Provision of hand & foot rests • Provide ergonomic adjustable chair – training and encouragement for correct use • Adjustable image / film viewing screen height or adjust chair • Provide lightweight magnifying glass • Digital imaging
Time Constraints • Average of one minute per patient four films. • Increased workload due to increased uptake and programme expansion • Reallocation of duties to busy screening / symptomatic clinics	• Adequate staffing • Realistic workload scheduling • Smaller batches to read. (Morning or afternoon clinics only – not full day) • Quiet, uninterrupted working conditions for maximum concentration • Short, regular breaks to maximise concentration
Heavy loads of paperwork / film packets	• Manoeuvre in smaller batches • Implementation of digital imaging
Use of similar muscle groups to those used for patient examinations	• Use of voice-activated word processing software • Direct entry - bar coding

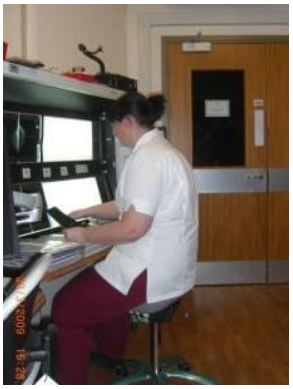
Working environment
 	
• Heat generation from film viewing & computer equipment and multiple sedentary bodies
• Cramped space for moving & handling large loads of films & paperwork
• Need for variable film viewer lighting
• Need for room blackout
• Reflection from opposing Multiviewer
• For every set of films – the reader is extending neck, back, looking up and down, side to side to compare past and current films for viewing.
	• Spacious airy work environment
	
	• Adjustable multiviewer lighting
	  o Dim whilst mounting films
	  o Maximum for interpretation
	• Room blackout facility with no light leakage
	• Avoid positioning multiviewers with lights facing each other

Examples

Consider making multiple trips with small batches or using a wheeled trolley to transport films

Saddle seats take up less room .....

..... and encourage a more upright posture



The DSE Regulations

The Display Screen Equipment (DSE) Regulations 1992 apply to any alphanumeric or graphic display screen, regardless of the display process involved. Accompanying guidance from the DSE Regulations 1992 explains this statement further, stating that the Regulations cover both conventional (cathode ray tube) visual display units (VDUs) and other processes such as liquid crystal displays (LCDs) and any other emerging technologies. The definition is not limited to typical office VDUs and can apply to display screens which show line drawings, graphs, charts, computer generated graphics, text and numbers, and this by implication thus includes digital image display screens.

Regulation 1 defines a user as "an employee who habitually uses DSE as a significant part of his/her normal work".

The Health and Safety Executive (HSE) guidance says it is generally appropriate to classify a person as a user if most of the following apply:-

- **the individual depends on a VDU to do the job, as alternative means are not readily available to achieve the same results;**
- **the individual has no discretion as to the use/non-use of the VDU;**
- **the individual needs significant training and/or particular skills in the use of DSE;**
- **the VDU is normally used by the individual for continuous spells of an hour or more at a time;**
- **the individual uses the VDU in this way more or less daily;**
- **fast transfer of information between the user and screen is an important requirement of the job;**
- **the performance requirements of the system demand high levels of attention and concentration by the user, for example where the consequences of error may be crucial.**

Based on the above criteria, the Society considers mammographers definitely to be DSE 'users', along with other radiographers who use computerised patient record systems, CR (computed radiography) and DR (digital radiography) systems, those working in MRI, CT, ultrasound, radiotherapy and in angiography.

At the time of the HSE's consultation on the DSE Regulations, there were strong misgivings among those consulted that employers would try to avoid the necessity to comply with the legislation by arguing that certain operators do not fall within the

HSE's remit of 'user'. This has happened within the NHS, where managers argue the point that the VDU is not normally used by the individual for continuous spells of an hour or more at a time. Their claim was therefore that as mammographers were not reporting continually they are not users, even so however, the position could be argued that they habitually use the VDU. **** It is clear that most of the other points apply to all mammographic practice and this managerial attitude has, been challenged in the past by Health and Safety reps and their views upheld by the HSE.

THE LAW SAYS:-

- **employers are required to carry out a suitable analysis of workstations to assess the health and safety risks to people using them and to make changes if risks are identified; guidance on workstation minimum requirements, as laid down by the HSE, should be complied with;**
- **the employer has to plan work activities of VDU users to incorporate frequent breaks;**
  regulation 5 requires employers to provide users, on request, with an appropriate eye and eyesight test (including a vision test and eye examination by a registered ophthalmic optician or a registered medical practitioner) before commencing VDU work and at regular intervals or if they experience visual difficulties attributable to the work. The provision of tests and of any corrective appliances prescribed specifically for VDU work must be paid for by the employer;
  employers must provide health and safety training and re-training when modifications are introduced such as changes to hardware, software, workstation, environment and job. Training should be aimed in particular at reducing or minimising musculoskeletal problems, visual fatigue and mental stress;
- **employers have to provide information on health and safety risks, which should include reminders and measures taken to reduce risks and how to make use of them**.

The importance of adequate information and training provision cannot be emphasised too highly, especially regarding health and safety aspects of operating VDUs. It is very much in an employer's interest to educate employees in how to avoid problems, as it can work out to be very expensive in terms of employee absence and claims for damages to compensate later for injuries resulting from operating the equipment.

Making adjustments to suit your needs

What can I do to help myself?

Make full use of the equipment provided, and adjust it to get the best from it and to avoid potential health problems. If the Regulations apply to you, your employer should cover these in induction training. If the Regulations don't apply, it is still worth setting up your workstation properly, to be as comfortable as possible.

Here are some practical tips:

Getting comfortable

- Adjust your chair and VDU to find the most comfortable position for your work. As a broad guide, your forearms should be approximately horizontal and your eyes at the same height as the top of the VDU.
- Make sure you have enough work space for whatever documents or other equipment you need.
- Try different arrangements of keyboard, screen, mouse and documents to find the best arrangement for you. A document holder may help you avoid awkward neck and eye movements. A wrist support will support the wrist effectively and ensure any possible damage is kept to a minimum.
- Arrange your desk and VDU to avoid glare, or bright reflections on the screen. This will be easiest if neither you nor the screen is directly facing windows or bright lights – where possible ensure multiviewers are not placed directly opposite each other. Adjust curtains or blinds to prevent unwanted light.
- Make sure there is space under your desk to move your legs freely. Move any obstacles such as boxes or equipment.
- Avoid excess pressure from the edge of your seat on the backs of your legs and knees. A footrest may be helpful, particularly for users with shorter legs.

Keying in

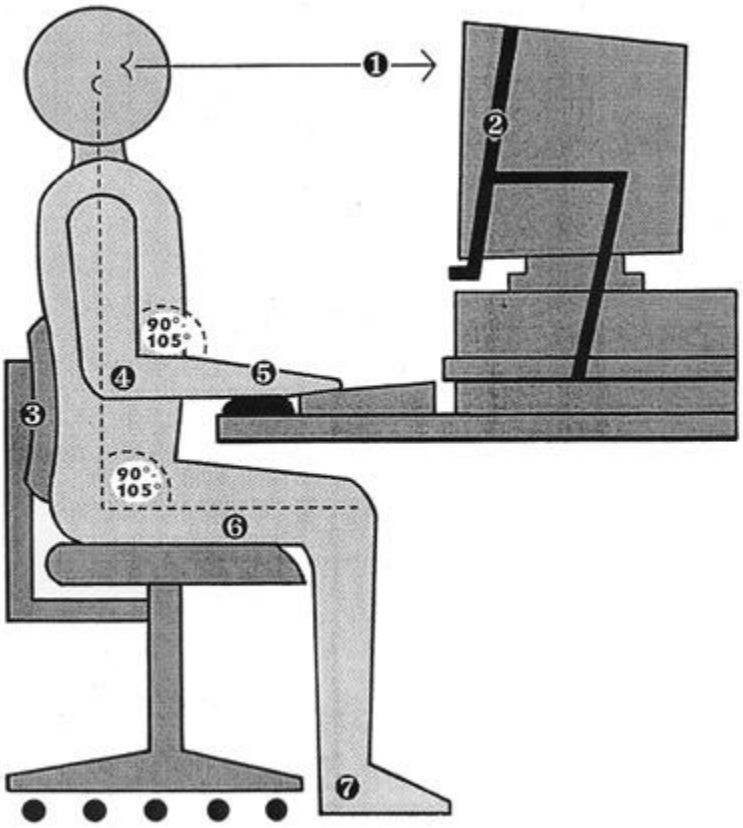
- Adjust your keyboard to get a good keying position. A space in front of the keyboard is sometimes helpful for resting the hands and wrists when not keying.
- Try to keep your wrists straight when keying. Keep a soft touch on the keys and don't overstretch your fingers. Good keyboard technique is important.

Using a mouse

- Position the mouse within easy reach, so it can be used with the wrist straight. Sit upright and close to the desk, so you don't have to work with your mouse arm stretched. Move the keyboard out of the way if it is not being used.
- Support your forearm on the desk, and don't grip the mouse too tightly.
- Rest your fingers lightly on the buttons and do not press them hard.

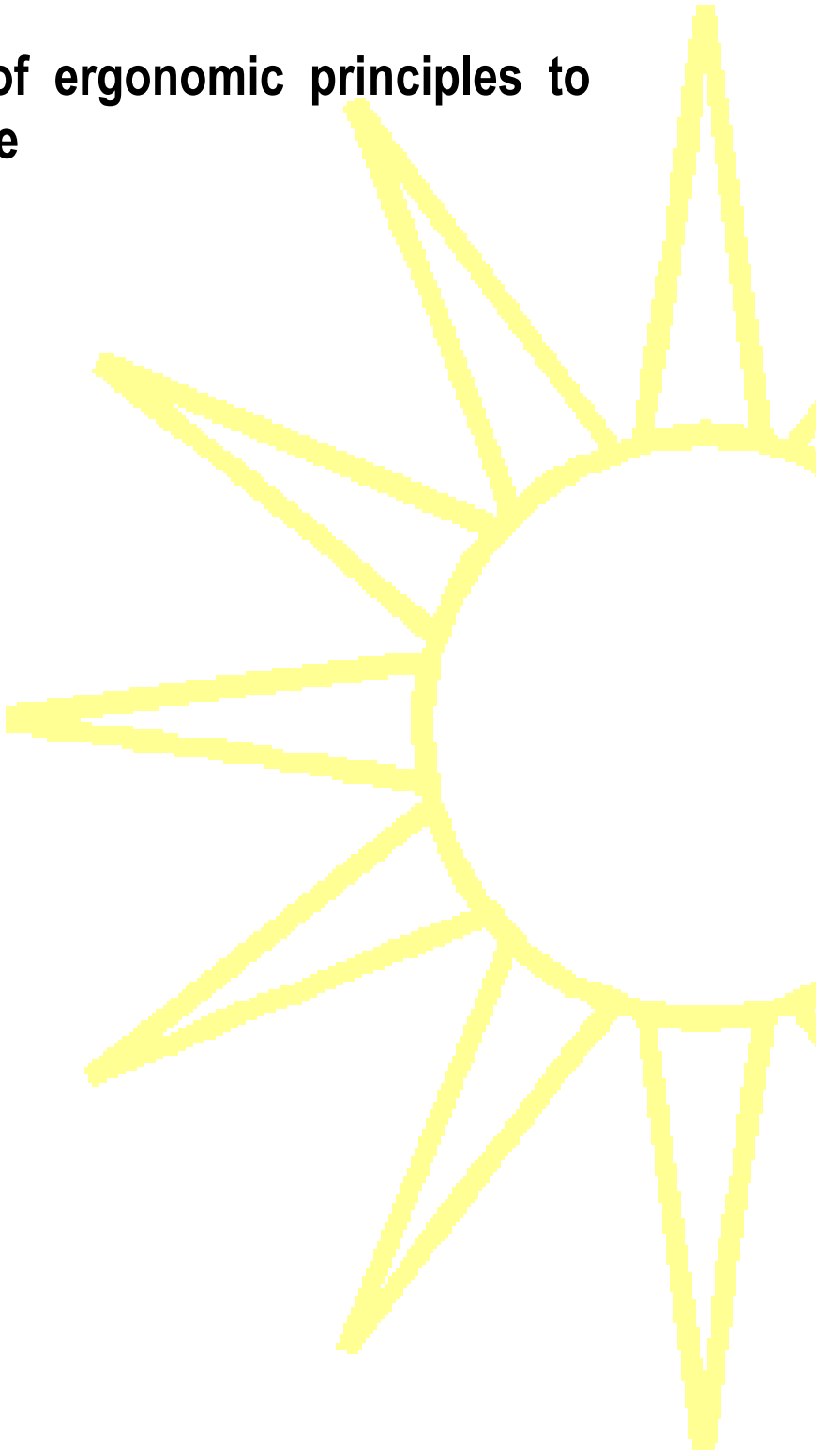
Reading the screen

- Adjust the brightness and contrast controls on the screen to suit lighting conditions in the room.
- Make sure the screen surface is clean.
- In setting up software, choose options giving text that is large enough to read easily on your screen, when you are sitting in a normal, comfortable working position. Select colours that are easy on the eye (avoid red text on a blue background, or vice-versa).
- Individual characters on the screen should be sharply focused and should not flicker or move. If they do, the VDU may need servicing or adjustment.



✓ ✓	❶	Top of screen at eye level; lower for bifocal wearers. Screen distance at arms' length (15-32").
✓	❷	Document holder adjustable to screen height.
✓ ✓	❸	Chair backrest provides firm lower back support. Chair back and seat easily adjustable for height and tilt by user.
✓	❹	Keyboard height promotes relaxed arms with forearms parallel to the floor.
✓	❺	Wrists straight (neutral). Padded, movable wrist rest, same height as keyboard home row, if needed.
✓	❻	Thighs parallel to floor. Ample legroom under work surface.
✓	❼	Feet rest firmly on floor or foot rest.

Chapter 9:
Practical application of ergonomic principles to mammography practice



Because of the repetitive nature of mammography, and in particular high throughput mammography undertaken during NHSBSP screening sessions, there is a risk to mammography practitioners of musculo-skeletal strain. It is the responsibility of all practitioners to take steps to reduce the likelihood of damage to themselves.

Positioning Tasks

Let us now look at various positions commonly adopted by practitioners which may put strain on their bodies and at possible solutions. It is also important to be aware of the position of the neck and to avoid extreme flexion or extension as far as possible. Another general rule is to use the largest muscle practicable for any task.

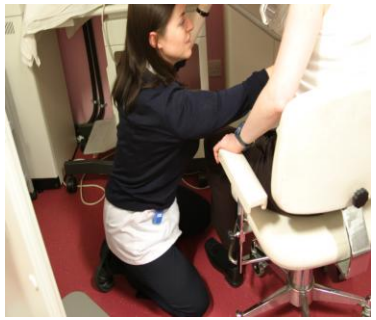
All mammography practitioners should be observed by colleagues and / or moving & handling key trainers regularly to look at their posture and technique to determine whether the stress placed on their bodies during screening could be minimized by some adaptation of technique. The ergonomic design of equipment should be considered when new equipment is purchased. Designs vary between machines and manufacturers.

General Tasks

Many mammography practitioners are required to carry boxes of films and chemicals to refill auto-mixers. All units should provide trolleys for the movement of the chemicals from store cupboards to the processing area. The mammographer will also be required to ensure that the film processor rollers are cleaned regularly. These rollers are heavy and need to be lifted higher than the mammographers shoulder, causing strain on the shoulder and back.

Heavy items should not be stored on the floor. They should be stored at an appropriate height so it is possible to transfer them easily from the shelf to a trolley. As the developer is so heavy, open the carton and remove the containers one at a time, **halving** the load immediately.

When undertaking tasks such as ‘loading and unloading’ the multi-viewers, try to vary the tasks you do. Do not load all day with only minimum breaks as this will leave you with aching shoulders. Adjust the height of your chair so that you are not over-extending your arms, and use the tilting mechanism properly if it is present. Sort films in between, and find other jobs which you can do to vary the pattern of work.

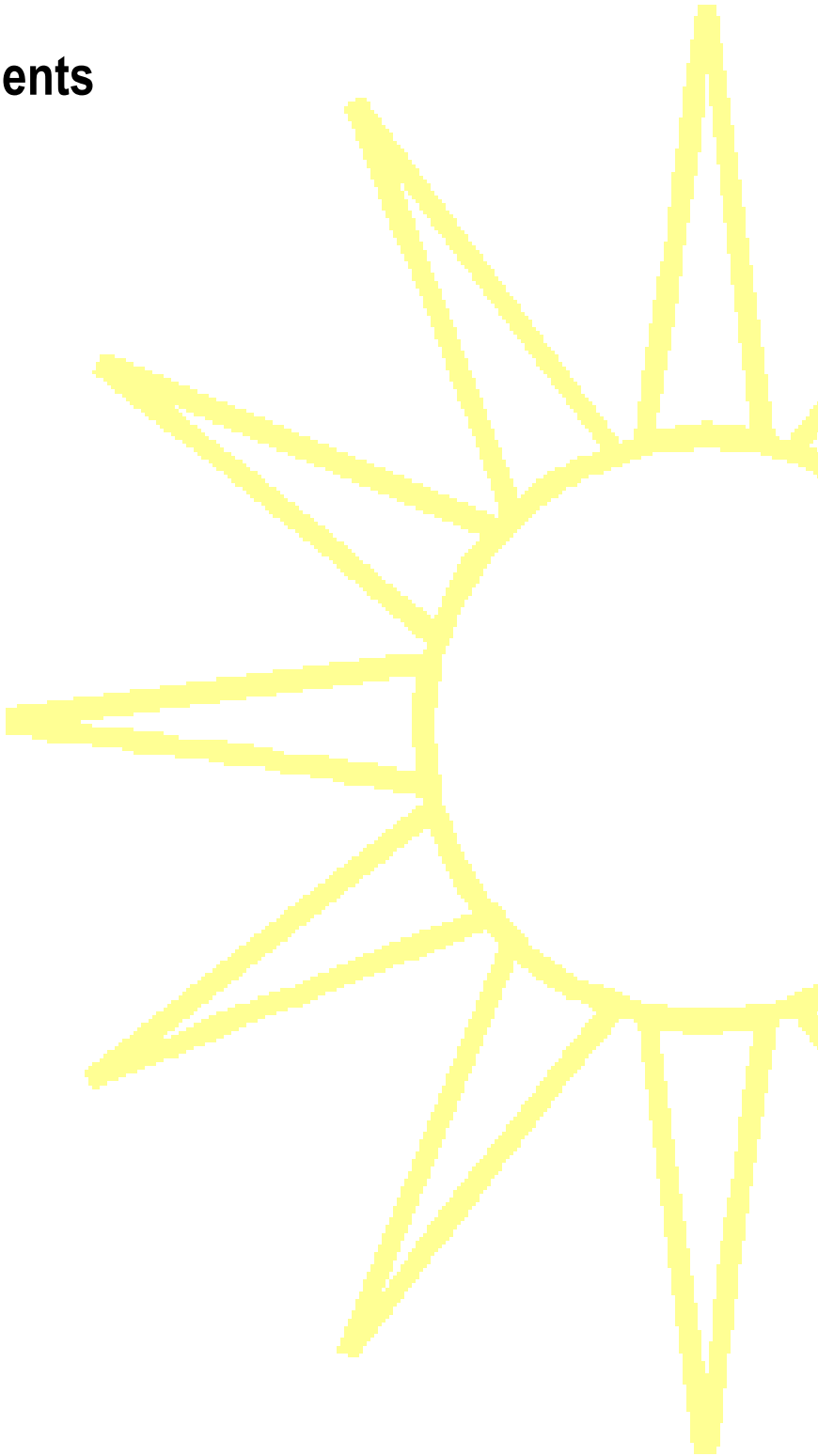
	Problems	Solutions	Good Practice
1.	Bending under the X-ray tube head to see and position the breast when carrying out the medio-lateral view causes stress on the spinal column, especially the lower back and neck.	Bend the knees more. Consider kneeling or sitting on a saddle seat – ensure seat wheels are compatible with floor covering and have appropriate locking mechanisms. Local agreement (where possible) that tall radiographers will examine tall women and short radiographers will examine shorter women.	
2.	Stretching to keep a finger on the rotational control button while rotating the C-arm away from oneself can cause over-stretching and leaning.	Use the most appropriate control buttons to position the C-arm. *Some units have two sets of controls on the C-arm, one set at the top and another set at the bottom. This enables the operator to reduce the amount of stretching, reaching or standing on their toes while rotating the C-arm.*	

3.	Operating the positioning light by hand while positioning the breast can cause awkward twisting and reaching.	Touch the compression foot pedal to switch on the light, *instead of using the hand switch*.	
4.	Stretching or twisting of the lower body can result from reaching for an inappropriately positioned foot pedal. In addition, most of the weight will be on the opposite leg which may be bent, putting strain on muscles and joints.	Before commencing positioning, bring the pedal close to where you will be standing.	
5.	Twisting to see or adjust the angle of the tube, or changing the height while holding the breast with the other hand can put undue strain on the body.	Select the angle and height while standing at the side of the machine, rather than while in the process of positioning the woman.	

6.	Holding one's arms extended away from the body while supporting the weight of the breast can place strain on the upper arms and the shoulders.	Stand as close as possible to the woman during positioning. Consider use of saddle seat to get closer to patient.	
7	Holding weight of patient's arm when stretching them across for MLO position, (at shoulder height)	Operator to position patient whilst standing beside them to reduce their own shoulder abduction.	
8.	Repeatedly pressing the exposure button(s) with the same finger or thumb can cause strain over time.	Vary the fingers you use to make exposures and/or keep wrist in neutral position, *to reduce the risk of repetitive strain injury (RSI)*. Some new digital units have foot pedal exposure controls.	

9.	Operating the cassette release mechanism can also cause strain on thumbs or fingers.	Use of direct digital systems eliminates this problem. Try not to use hands in same way every time - *consider removing cassette from opposite side.* Adapt cassette release mechanism by fitting larger 'Mickey Mouse' levers.	
10.	Holding the breast up with the thumb is very hard on the base of the thumb.	Try to use or alternate using the other fingers, the heel or flat of the hand and knuckles to support the weight of the breast.	  

Chapter 10:
Specific Risk Assessments



Risk Assessments

Risk assessment is the process of identifying what hazards exist in a workplace and how likely it is that these hazards will cause harm to employees and others, in order to determine what prevention or control measures are needed.

The Management of Health and Safety at Work Regulations 1999:

Set out the employer's main risk assessment duties as follows:

- Make a suitable and sufficient assessment of risks to the health and safety of employees and others who may be affected
- Identify any preventive and protective measures needed
- Introduce the preventive and protective measures needed to improve health and safety in the workplace
- Review assessments regularly or if there is reason to believe that they are no longer valid – for example, if the process has changed or the workplace has been refurbished a new risk assessment needs to be carried out.
- Keep a written record, where there are five or more employees, of the findings of the assessment and any groups of employees who are particularly at risk
- Have arrangements for effective planning, organization, control, monitoring and review of preventive and protective measures
- Provide any health surveillance identified in the risk assessment
- Appoint competent people to assist the employer
- Establish procedures to be followed in the event of serious and imminent danger
- Provide health and safety information, instruction and training for all employees
- Consult with health and safety reps.

This risk filter should be conducted; this will give a clear indication of any issues

RISK FILTER:

Task:

Assessor:

Date:

IF YOU ANSWER YES TO ANY OF THE STEPS, YOU SHOULD THEN MAKE A FULL RISK ASSESMENT OF THE JOB.
REMEMBER TO CONSIDER EACH OF THE BODY PARTS OF THE UPPER LIMBS
(FINGERS, HANDS, WRISTS, ARMS, SHOULDERS AND NECK)

Step One: Signs and symptoms

Are there any: • Medically diagnosed cases of ULD's in this work? • Complaints of aches and pains? • Improvised changes to work equipment, furniture or tools	Are any of these present?	Yes	No	Move on to step 2

Step two: Repetition

Are there any repetitive elements such as: • Repeating the same motions every few seconds • A sequence of movements repeated more than twice per minute • More than 50% of the cycle time involved in performing the same sequence of motions	For more than 2 hours per shift	Yes	No	Move on step 3

Step three: Working postures				
Are there any working postures such as:: • Large range of joint movements such as Side to side or up and down? • Awkward or extreme joint positions? • Joints held in fixed positions? • Stretching to reach items or controls • Twisting or rotating to reach items or controls • Working overhead	For more than 2 hours total per shift?	Yes	No	Move on to step 4

Step Four: Force				
Are there any forces applied such as: • Pushing, pulling, moving things (including with the fingers or thumbs)? • Grasping/Gripping • Pinch grips (i.e. holding or grasping objects between thumb and finger) • Steadying or supporting items or work pieces • Objects creating localised pressure on any part of the upper limb	Sustained or repeated application of force for more than 2 hours per total shift	Yes	No	

Below is an example of an in-depth risk assessment which can be adapted and used within your hospital/trust.

Examples of Risk Assessments for Different Locations in hospital/trust

Location/Area	Who/How Affected	Risk Factor	Recommended Actions	Action Plan
Mobile Unit Moving & Handling	*Staff repeatedly handling magazine cases with 80 films (full weight of each 9kg) empty magazine 2.25kg. Paper work is also added to the magazines. These are handled on a daily basis and carried across the mobile vans*	*High Risk*	***Action: Reduce weight of cases by not adding paper work. Place any paper work in separate bag. All staff by 1st August***	This is in place and had been previous to this assessment All staff should adhere to this working practice
Static Base Site Film Handling room Moving & handling	*Staff due to inappropriate storage, confined environment and volume of work*	*High Risk*	**Action: To change the room usage. Use for film viewing, staff refreshment facilities and audit. Provide a laptop with detachable keyboard & mouse for audit purposes – department manager** **Undertake film handling in main processing room – department manager** **Create suitable storage on outside wall – department manager** **Store overflow of films & notes in symptomatic room**	This had been agreed with General Manager prior to this assessment Estates are drawing up plans Would give rise to confidentiality issues Films and notes overflow are now stored in both QA areas and film handling

(Borg: Method of risk assessment**:** ratings of perceived exertion for each task performed. See risk score table – page 73)

Location/Area	Who/How Affected	Risk Factor	Recommended Actions	Action Plan
Static base site Main reporting room Moving & handling	*Staff due to confined environment affecting posture*	*High Risk*	**Action: Trial front supporting stools - Key trainers with ergonomic advisors** **Undertake Borg score on users when sat at cut out desks verses flat desks, depending on outcome standardise desk to one or the other - Key trainers & ergonomic advisors** **Reduce/eliminate storage on top of viewers - all staff** **Consider reducing number of reporting stations in room (possibly move 2 into training room) – department manager** **As reporting stations are replaced trial ergonomically designed ones with wrap around viewing prior to purchasing – department manager** **Timed release on door – key trainers**	There are special ergonomic stools in place already. Need key trainers to work with ergonomic advisers on this alongside Radiologists/Film Readers Reduced as much as possible Unable to do this due to practicalities of accessing training room and inappropriate viewing conditions Viewing stations will not be replaced due to change to digital screening in the future Estates advice sought
Static Site Small dark room Moving & handling	*Staff due to small confined area used for inappropriate storage*	*High Risk*	***Action move fluids to relocated clinical store room***	Not practical to move to store room but will have designated area once room usage changed

Location/Area	Who/How Affected	Risk Factor	Recommended Actions	Action Plan
Symptomatic Clinic Symptomatic viewing room ***Moving & handling***	*Staff due to confined environment affecting posture*	*High Risk*	**Action: Trial front supporting stools - Key trainers with ergonomic advisors** **Undertake Borg score (Chapter 14) on users when sat at cut out desks verses flat desks, depending on outcome standardise desk to one or the other - Key trainers & ergonomic advisors** **Reduce/eliminate storage on top of viewers - all staff** **As reporting stations are replaced trial ergonomically designed ones with wrap around viewing prior to purchasing – department manager** **Relocate symptomatic viewer into Radiologists room and utilize area to store over flow films for reporting & trolleys to go out to mobile units**	Need key trainers to liaise with ergonomic advisers and Radiologists/Film Readers Film reading should only take place on roller viewers to eliminate any risk As much as possible has been removed As comment on Unable to relocate viewer but now use store room for storing trolleys
Static Base Site Radiologists room **Moving & handling**	*Staff due to confined environment affecting posture & inappropriate chairs for work stations*	*High Risk*	**Action: Remove one of the desks & move the shaped desk against a wall to prevent staff catching themselves on the sharp edge – department manager** **Replace existing chairs with ones compliant with the DSE regulations – department** **Relocate symptomatic viewer to where shaped desk was - department manager**	Removal/relocation of desk needs discussion with Radiologists To replace with computer chairs - ordered This needs discussion with Radiologists – there would not be enough space for all Radiologists if viewer relocated

Location/Area	Who/How Affected	Risk Factor	Recommended Actions	Action Plan
Mobile Unit *Moving & Handling* *Stress at Work*	*Staff doing repeated X-Rays without a break.* *Each X-Ray takes about 6mins.*	*Moderate Risk*	**Action: Undertake Borg score with current system in place & 3 months after change of practice. Unless requested by client or deemed necessary by staff, have one Radiographer performing three X-Rays while other one has a break or does a different task. All staff on mobile units supported by key trainers & ergonomic advisors**	3 month trial on one mobile to assess feasibility of one member of staff performing mammography whilst the other is at reception – to assist with repetitiousness of task and security
Mobile Unit Moving & Handling	*Cassette holder too high for some staff*	*Moderate Risk*	***Action: Lower or re-locate Cassette Holder. Key trainers refer to Estates ASAP***	Estates requested to lower cassette holders on all mobiles
Mobile Unit *Moving & Handling*	*Staff reaching over chair to place cassettes in wall holder.*	*Moderate Risk*	***Action: Lower or re-locate Cassette Holder or move the chair – Key trainers refer to Estates ASAP***	Estates requested to lower cassette holders on all mobiles
Static Site Store room 1 Moving & handling	*Staff are carrying supplies and having to negotiate closed doors*	*Moderate Risk*	***Action: To relocate clinical store into current stationary store & vice versa. By Department staff – department manager*** ***Provide kick stool – department manager*** ***Store lighter items on top shelves – all staff*** ***Remove existing step as unsuitable – key trainers*** ***Eliminate clutter – all staff***	In place Ordered In place Removed 100% at last PEAT inspection of department

Location/Area	Who/How Affected	Risk Factor	Recommended Actions	Action Plan
Static Site X- ray room Moving & handling	*Cassette holder too high for some staff*	*Moderate Risk*	***Action: Lower or re-locate Cassette Holder. Key trainer to refer to Estates ASAP***	Unable to lower, nowhere suitable to relocate in room
Static Site X-ray room Moving & handling	*Staff reaching over chair to place cassettes in wall holder.*	*Moderate Risk*	***Action: Relocate chair – all staff***	Chair relocated to provide easier access Staff informed
Static Site Processing Room Moving & handling	*Staff due to confined areas affecting posture & refreshment facilities*	*Moderate Risk*	**Action: To relocate refreshment facilities into current film handling room - all staff** **Relocate staff pigeon holes into training room – all staff** **Relocate (QA) into film handling room - all staff** **Timed release on door - key trainers**	Once usage of room changed Done Once change of room usage in place Requested
Static Base Site Training Room *Moving & handling*	*Room currently used for; staff breaks, twice a week for departmental meetings, by other areas of Trust as a meeting room*		**Action department manager to consider better utilisation of large spacious area for department staff**	This area was never intended as a staff area - no staff room was ever provided. Plans underway to expand MDM use of this meeting room. Aim for purpose built unit for both symptomatic and screening breast services

Health and Safety – Risk Score for Divisional Risk Register =(Severity value ( ) X likelihood Value ( ) = Risk Score ( )						
Likelihood		**Severity**		**Risk Ranking / Colour code for Risk Register**		**Managerial Notification/Action**
Likely to occur once in 5 years or more	*1*	Minimal		**< 5**	**Acceptable / Low Risk**	Managed within ward/department. Maintain current controls
Likely to occur once in 3 years	2	Minor injury (first aid)		**6 – 11**	**Moderate Risk**	Group General Manager informed and ensures appropriate action taken
Likely to occur once in 12 months	3	Moderate Injury (first aid – minimal absence)		**12 – 19**	**High Risk**	Deputy Chief Executive/Chief Nurse informed and ensures appropriate action is taken
Likely to occur once in 6 months	4	Critical (Hospital treatment – 3 days or more absence)		**20 – 22**	**Very High Risk**	Chief Executive informed and ensures appropriate action is being taken
Likely to occur once in 4 weeks	5	Catastrophic		**23 – 25**	**Unacceptable Risk**	Chief Executive informed and ensures appropriate action is being taken

Chapter 11:
Sample Questionnaire

THE SOCIETY OF RADIOGRAPHERS

Musculoskeletal disorders amongst Mammographers

The Society of Radiographers is conducting a questionnaire survey to collect evidence about musculoskeletal disorders (MSD) affecting mammographers in order to determine the full extent of problem. Musculoskeletal disorders includes diffuse conditions affecting the back, shoulders, neck and arms and localized conditions affecting a specific area such as tendonitis, carpel tunnel syndrome.

The results of this survey will be published to coincide with the Society's publication ***"Musculoskeletal Disorders in Mammography: A Guide to Tackling the Issues in the Workplace"***

The questionnaire is enclosed: it is broken down into 7 sections;

Section 1: Covers individual demographic data such as age, left/right handedness.
Section 2: Will look at your health, and any aches and pains that you may suffer from.
Section 3: Looks at your job, how many hours you work and your duties at work.
Section 4: Contains questions about your posture whilst working.
Section 5: Asks about your work environment.
Section 6: Looks at how your workday is organised.
Section 7: Asks about any existing musculoskeletal disorders.
Section 8: Allows you to give us any additional comments: information you feel is relevant

Please be assured that all information given will be treated in the strictest confidence:
Could you please return your completed questionnaires back to me at Society headquarters**.** Should you have any questions, please do not hesitate to contact me.
Thank you for taking the time to complete this questionnaire, your participation is greatly appreciated

Lyn Wigley
Health and Safety Officer

Section 1 & 2:
Please circle to complete and fill in text boxes

1. about You		
Are you male or female?	Male	Female
Age		
What is your height What is your weight Are you: Right/left handed?		
Do you currently suffer with any predisposing injuries or aches and pains such as back/shoulder pain?	Yes Please provide details here (optional) No	

2. About Your Health				
In general, would you say your health is …				
Excellent	Very good	Good	Fair	Poor
In general, how often do you suffer with respiratory troubles?				
Never	Seldom	Occasionally	Often	Always
In general, how often do you suffer with headaches?				
Never	Seldom	Occasionally	Often	Always
On a typical day at work, how often do you feel excessive tiredness/fatigue at the end of the shift?				
Never	Seldom	Occasionally	Often	Always
In general, how often do you have trouble concentrating at work?				
Never	Seldom	Occasionally	Often	Always

After a shift, in general how long does it take you to recover from aches and/or pains that you feel are work related?					
Never had work related aches or pains	Up to 1 hour	1 to 6 hours	8 to 24 hours	24 hours or more	I don't recover from my discomfort

During a shift, do you feel that your health influences your work performance?				
Never	Seldom	Occasionally	Often	Always

Section 2 & 3
Please circle appropriate response and fill in text boxes.

3. about Your Job			
In a typical working week: how many hours do you spend performing: • Screening mammography sessions?, Hours per week • Mammography in assessment clinics Hours per week • Mammography in symptomatic clinics Hours per week • Biopsy or other interventional procedures Hours per week • Film reading/reporting Hours per week			
How many years have you been practising Mammography?			
What is the longest continuous screening session you have performed?			
What is the shortest continuous screening session you have performed?			
Have you ever attended any organised training to review and/or try to reduce the MSK disorder risk associated with your mammography work?		Yes No	
If you read/report mammograms, how do you record this?			
Type/ word process manually using a pc keyboard	Write manually onto paper	Dictate	Word process using Voice Activation software

4. Your Work Duties				
These questions are about the posture you adopt whilst scanning				
1. How often do you twist or bend your body during a typical working day (as a mammographer)?				
Never ☐	Seldom ☐	Sometimes ☐	Often ☐	Always ☐
2. On a busy day what is the maximum time you have worked without a break of 5-10 minutes, this may include tasks other than mammography? (This is to ascertain whether you have periods of rest, to allow your body to rest from positioning, stretching etc) **Please specify….**				

Section 5 & 6

Please circle appropriate response and fill in text boxes.

5. Your Work Environment				
These questions are about the environment in which you work/scan in				
How often do you work in uncomfortable room temperatures e.g. too warm or cold and/or humid?				
Never	Seldom	Sometimes	Often	Always
How often Is the lighting in the room(s) adequate?				
Never	Seldom	Sometimes	Often	Always
How often do you have to manoeuvre yourself in awkward positions to undertake your normal duties				
Never	Seldom	Sometimes	Often	Always
What is the make and model of the mammography machine you use most often				
Please state here…				
If you use a computer workstation, is it adjustable to suit your body size?				
No adjustability	Little adjustability	Some adjustability	Considerable adjustability	Fully Adjustable

6. How Your Work is Organised				
This section is about the design, management and organisation of your work				
Please rate the extent to which you agree or disagree with the statements below				
I find it difficult to keep up with the work I am expected to do				
Never	Seldom	Sometimes	Often	Always
I feel under pressure to do the amount of work that is expected of me				
Never	Seldom	Sometimes	Often	Always
I can influence the amount of work I do on a daily basis (i.e. can reduce the number of appointments)				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I feel unsupported by my manager				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I feel unsupported by my senior manager				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I feel unsupported by my colleagues				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

I feel that I haven't been given sufficient training/information to carry out my job with minimal risk of a developing a MSD(s)				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I am aware that my employer has a responsibility to provide me with information and training to enable me to carry out my role correctly				
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

Section 7
Please circle appropriate response and fill in text box

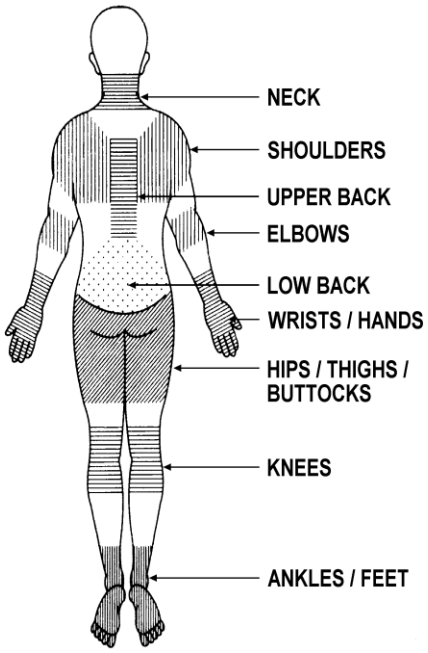
7. Musculoskeletal Disorders

These questions are about any aches or pains you have had recently

Please tick the boxes to indicate your current level of pain/discomfort for each part of the body shown in the picture on the right.

The picture shows how the body has been divided. The areas of the body are not sharply defined and some parts overlap. You should decide for yourself which part (if any) is or has been affected.

Please make sure you put one tick only for each area of the body.



On a scale of 1 to 7 (1 being no discomfort and 7 being pain that disturbs your sleep) have you at any time during the last three months **had trouble in your:**

Severity / Site of MSD	1 No Discomfort	2	3	4 Noticeable aches and/or discomfort	5	6	7 Pain that disturbs sleep
Neck							
Left Shoulder							
Right Shoulder							
Low Back							
Left Wrist/Hand							
Right Wrist/Hand							
Lower Limbs							

If you have had this trouble during the last seven days **please indicate where and severity?**

Severity / Site of MSD	1 No Discomfort	2	3	4 Noticeable aches and pains	5	6	7 Pain that disturbs sleep
Neck							
Left Shoulder							
Right Shoulder							
Low Back							
Left Wrist/Hand							
Right Wrist/Hand							
Lower Limbs							

During the last three months **has this trouble been caused or made worse by your job?**

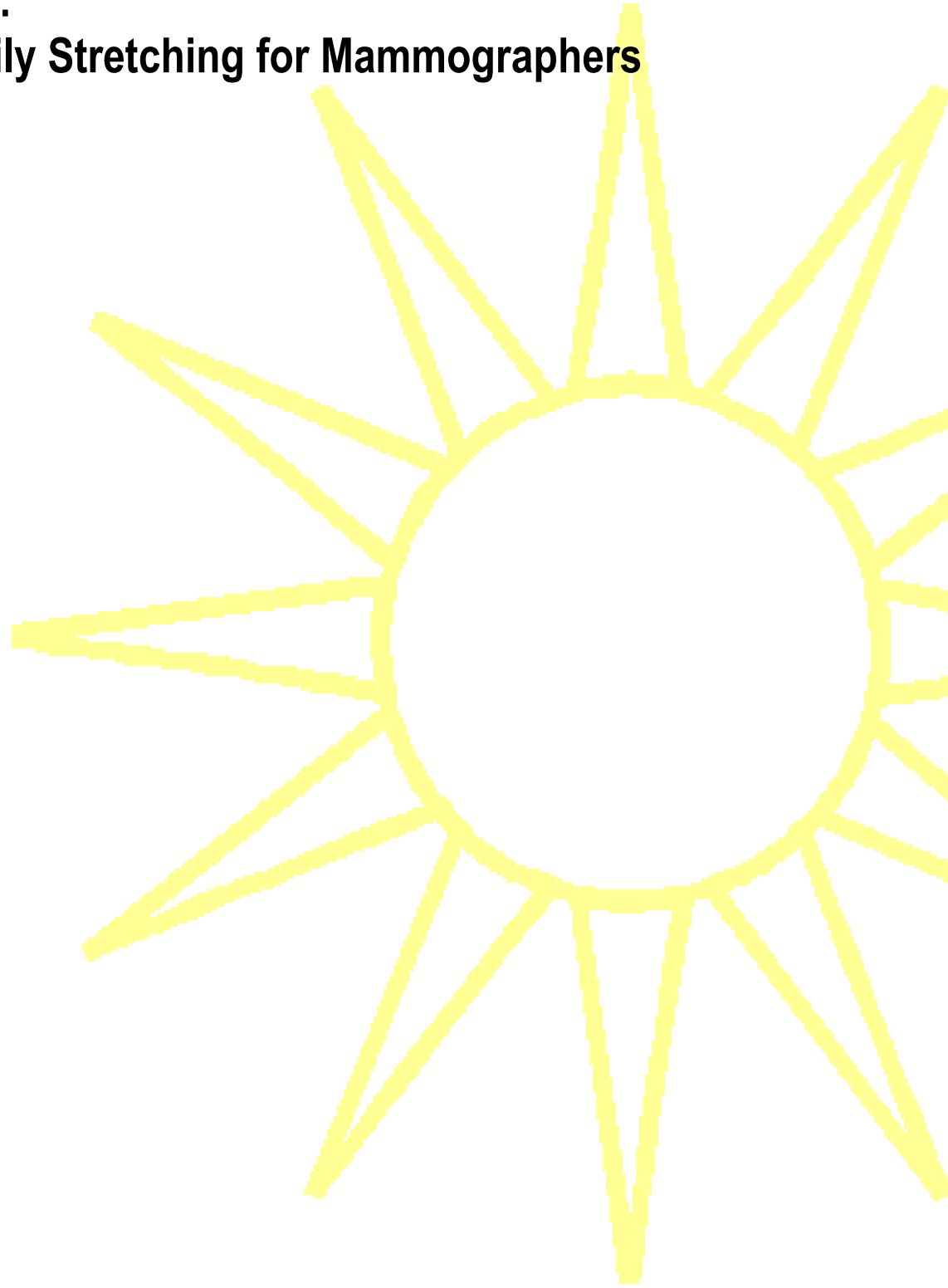
Prevented / Site of MSD	No	Yes Caused by job	Yes Made worse by job	Not Sure
Neck				
Left Shoulder				
Right Shoulder				
Low Back				
Left Wrist/Hand				
Right Wrist/Hand				
Lower Limbs				

During the last three months **has this trouble prevented you carrying out normal activities (e.g. job, housework)?**

Prevented / Site of MSD	No	Yes Caused by job	Yes Made worse by job	Not Sure
Neck				
Left Shoulder				
Right Shoulder				
Low Back				
Left Wrist/Hand				
Right Wrist/Hand				
Lower Limbs				

8. Additional Comments
Please use this space to provide any additional information

Chapter 12:
Poster: Daily Stretching for Mammographers



THE SOCIETY OF RADIOGRAPHERS

THE BAMBACH SADDLE SEAT™

prevent injury

DAILY STRETCHING FOR MAMMOGRAPHERS

These stretching exercises have been designed by a physiotherapist to relieve the negative musculoskeletal effects experienced by radiographers undertaking mammographic imaging.

Wherever possible

- Individuals should warm up by moving the body to promote good circulation before stretching
- Stretches should be performed whilst the individual is relaxed

General tips for safe stretching

- Make stretching a routine part of the day both at home and work, before, during and after activities
- Perform each stretch methodically and with purpose
- Gently move into each stretch only to the point of feeling a comfortable stretching sensation, hold for the suggested period then slowly release
- Always breathe normally when stretching; do not hold your breath

Remember

- Do not stretch an injured region without first consulting a physiotherapist or seeking medical opinion
- Stretching is more effective when combined with a strengthening exercise programme and regular aerobic activity. Consult a Physiotherapist or fitness instructor to form a programme tailored to your personal needs
- Stretching alone will not overcome chronic muscle stiffness caused by prolonged, sustained working postures. It is essential to take regular short breaks and be aware of sound ergonomic working postures in order to prevent this occurring

These stretches are a guide and a beginning. Experiment with them and find what works best for you.

APA Australian Physiotherapy Association — Endorsed by the Australian Physiotherapy Association to help prevent musculoskeletal disorders

For a FREE 30-day trial of The Bambach Saddle Seat, freephone 0800 581108, email info@bambach.co.uk or visit www.bambach.co.uk

Thumb stretch

- Extend the fingers on your right hand with your thumb facing upward, keeping your wrist straight
- Using your left hand, gently pull your thumb towards you
- Hold for 10 seconds
- Feel the stretch in the hand at the base of your thumb
- Slowly return to the initial position
- Repeat the stretch for your left hand
- Repeat 2-3 times on each hand

Wrist extensor stretch

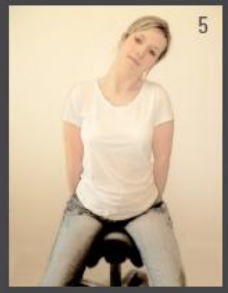
- Sit or stand with your back upright
- Keeping your shoulders low and relaxed, extend your right arm straight out in front of you with your fingers facing downward
- Place your left hand across the back of your right hand and gently pull it toward you
- Hold for 10 seconds
- Feel the stretch in the top of your wrist and forearm
- Slowly return to the initial position
- Repeat the stretch on your left wrist
- Repeat 2-3 times on each hand

Wrist flexor stretch

- Sit or stand with your back upright
- Keeping your shoulders low and relaxed, extend your right arm straight out in front of you with your fingers facing upward
- Place your left hand across the bottom of your right hand and gently pull it toward you
- Hold for 10 seconds
- Feel the stretch in the bottom of your wrist and forearm
- Slowly return to the initial position
- Repeat the stretch on your left wrist
- Repeat 2-3 times on each hand

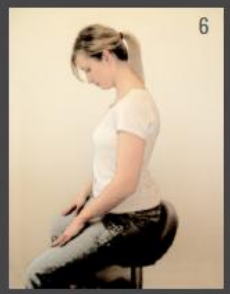
Cross shoulder stretch

- While standing or sitting with your back upright, reach your right arm across your chest
- Gently pull the right arm toward you with the left hand placed at the elbow
- You can also turn your head to look over the right shoulder for an extra stretch
- Hold for 10 seconds
- Feel the stretch in the shoulder and the neck
- Repeat this stretch with your left arm
- Repeat 2-3 times on each side



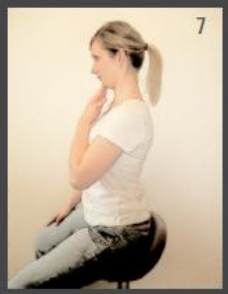
Side neck stretch

- Sit on your right hand directly below the hip joint, keeping the arm straight along your right side
- Continuing to look straight ahead, slowly tilt your head towards your left shoulder
- Hold for 10 seconds
- Feel the stretch along the right side of your neck
- Slowly raise your head back to its neutral position
- Repeat the stretch for the left side of your neck, sitting on your left hand and tilting your head to the right
- Repeat 2-3 times on each side



Neck flexion

- Sit or stand with your back upright
- Slowly lower your chin towards your chest
- Hold for 10 seconds
- Feel the stretch in the back of the neck and across the shoulders
- Slowly lift your head back to its neutral position
- Repeat this 5 times

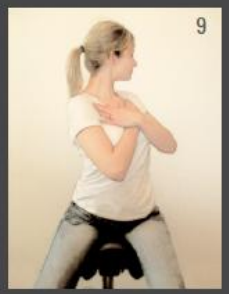


Chin tucks

- Sit or stand with your back upright
- Think of lifting the crown of your head to the ceiling and slowly pull your head straight back (this may be easier by pushing your chin with your finger)
- Without tipping your head in any direction, keep your jaw and eyes level
- Hold this position for 10 seconds
- Feel the stretch in the back of your neck
- Slowly return your head to its neutral position
- Repeat this 5 times

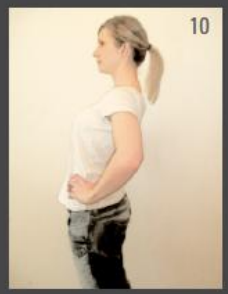
Upper back, wrist and forearm stretch

- Sit or stand with your back upright
- Interlock your fingers and twist your hands forward while extending your arms outward
- Hold for 10 seconds
- Feel the stretch in the upper back, mid-back, forearms, and wrists
- Lower the arms and relax the shoulders
- Repeat this 5 times



Lower back and abdominal stretch

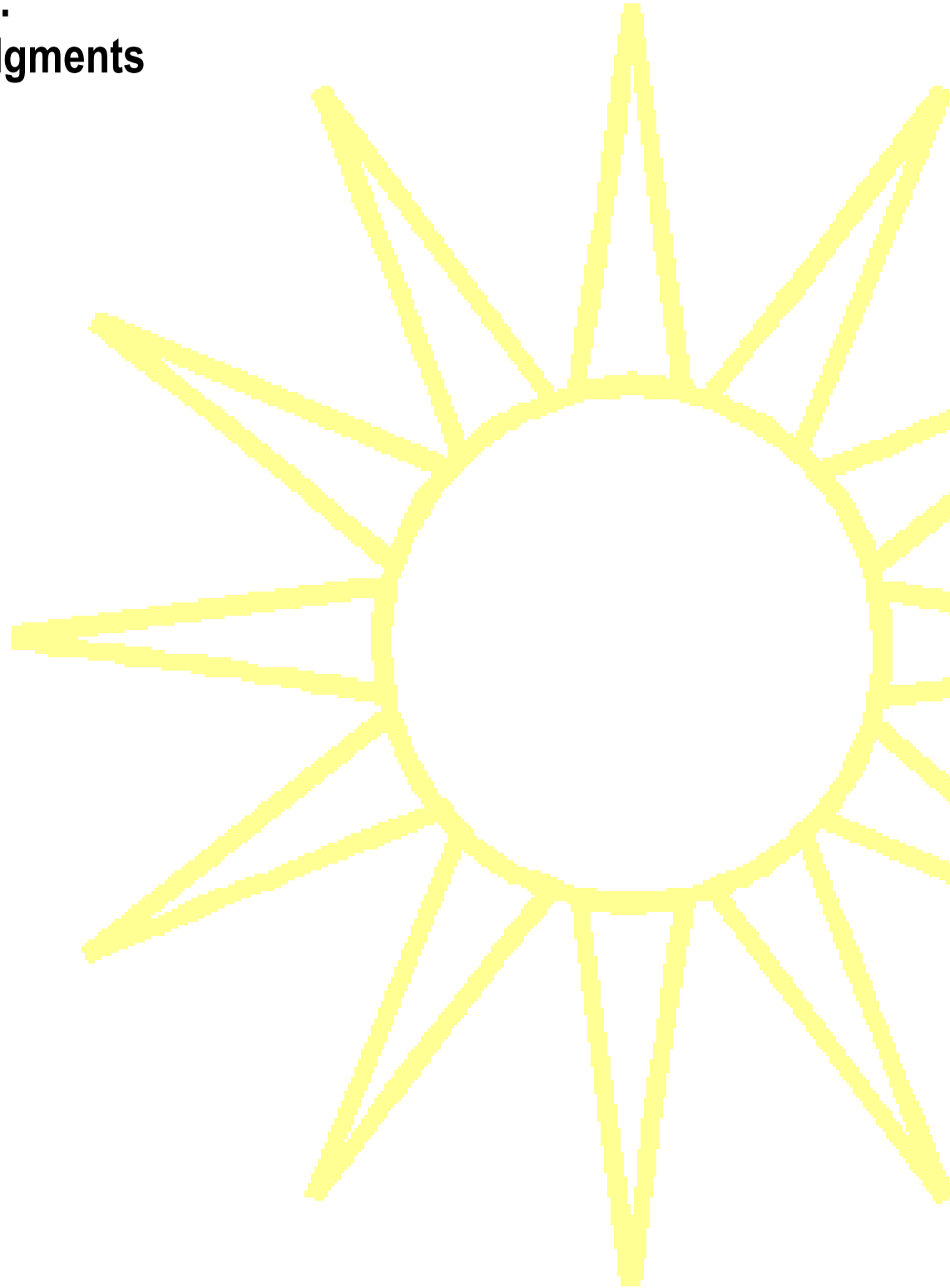
- Sit with your back upright or stand with your knees slightly bent
- Cross your arms as if you are hugging yourself
- Gently rotate your trunk from side to side 10 times
- Feel the stretch in the lower back and the sides
- Do not twist beyond comfort



Standing back arches

- Stand with your feet shoulder width apart
- Placing your palms on your lower back, gently lean back into extension and then slowly return back to a neutral position
- Do not stay in an extended position
- You will feel a stretch in your abdominal muscles
- Repeat this stretch 5 times

Chapter 13:
Acknowledgments



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