GUIDELINES FOR REDUCING INJURIES TO SONOGRAPHERS/SONOLOGISTS

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Reproduced by

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Occupation induced musculoskeletal injuries affect a large number of sonographers/ sonologists, particularly those with high workloads and those who have been in the profession for a long time. Sonologists who scan on a regular basis as do many O&G, musculoskeletal and vascular sonologists are not immune from work-induced injury.

The Room:

- Room configuration and design needs to be flexible and versatile.
- The room needs to be large enough to allow the ultrasound unit to be easily manoeuvred into position for different examinations and provide an adequate working space.
- Suitable flooring is required to allow easy movement of the ultrasound unit.
- Ventilation needs to be adequate for the unit, patient and staff.
- Lighting should be dimmable with accessible controls.
- Accessories such as support pads for the patient and the sonographer/sonologist, gel bottle holders, additional transducers and linen need to be nearby and easily accessible.
- Fittings - the room needs hand washing and transducer-cleaning facilities (2) with contaminated waste and sharps disposal containers provided in the room if required.
- A room set up for opposite (usually left handed scanning) is helpful so that the sonographer/sonologist can alternate scanning sides or set up for opposite (usually left handed scanning) is helpful so that the sonographer/sonologist can alternate scanning sides.

The Environment:

- The scanning room needs to be close to the waiting areas, patient facilities and processing areas.
- The sonographer/sonologist reporting area and the data entry systems need to be set up ergonomically to allow the sonographers/sonologists to vary their posture.
- If transducers are cleaned with glutaraldehyde, an approved fume cupboard or similar ventilated container needs to be provided outside of the scanning room. If an enclosed self-filtering system is used it may be located within the scanning room.
- If Glutaraldehyde is used as a cleaning agent then a documented emergency management policy needs to be in place to manage spills.

The Ultrasound Unit:

- State of the art equipment allows for better visualisation, which increases diagnostic accuracy and reduces sonographer/sonologist fatigue. Good ergonomic design needs to be a major part of the buying decision.
- Fully adjustable units, to suit the procedures undertaken and all sonographers/sonologists using the unit, are recommended.
- The unit needs to be manoeuvrable with accessible, lockable wheels.
- Recording devices need to be easily accessible.
- A footrest needs to be available.
- Depending on the equipment size and sonographer/sonologist build, when moving the ultrasound unit a distance, two people should be used to move the unit particularly in and out of lifts.

- Height adjustable handles are recommended, to enable sonographers/sonologists to push the unit at the correct height for their body habitus.

Keyboard:

- Height adjustable keyboards which area capable of being rotated are recommended.
- The set up of the keyboard needs to be user friendly with the most frequently used functions most accessible (2). Preset programs allow the keys to have multi functions depending on the examination.
- The keys need to be easy to use, to minimise abduction and flexion of the arm. LED screens are easy to use but may create problems due to the prolonged static position of the operating arm.
- Space underneath the keyboard needs to be available to allow room for the sonographers/sonologists' knees.

Monitors:

- Need to be high definition (7).
- Monitors which are height and tilt adjustable are recommended. Lateral movement of the monitor across the unit reduces the need for the sonographers/sonologists to twist their neck and trunk.
- Controls and locks need to be accessible.
- For examinations that the patient observes, a remote monitor should be fitted for patient viewing to ensure that the sonographer's/sonologist's monitor can remain ideally positioned for the sonographer/sonologist to view it.
- In a difficult procedure, such as some vascular procedures, a remote high definition monitor installed for the sonographer's/sonologist's use can further reduce the need for the sonographer/sonologist to reach and twist.

Transducers:

- Textured gloves.
- Transducers should be easy to change with lightweight cables and easy-to-access cable supports (2).
- Cables need to be long enough to permit unrestricted use.
- It is preferable that the transducers are large enough to allow a power (palmer) grip (most only allow a pinch grip).
- The transducers should be 'slip resistant' to assist grip. Handles can be fitted to some transducers to improve the grip.
- Cables that come out the end (not the centre of) the transducer allow an improved grip.

The Couch:

The following considerations should all be addressed and points 1-6 are considered mandatory when new or replacement couches are being purchased. It is recommended

that points 1-6 inclusive be implemented within 6 months of this standard being promulgated.

1. Needs to be height adjustable and tiltable (for vascular work) and be capable of going low enough to allow patients to get on and off easily and unassisted.
2. Needs to be movable, with wheels that are lockable and easy to release.
3. Needs to have 'uncluttered' sides and ends to allow the sonographers/sonologists to place their knees and feet underneath if needed.
4. The covering should be made of a material that allows easy cleaning.
5. Needs to be narrow enough so that the sonographer/sonologist does not have to reach any further than necessary.
6. Needs to have an adjustable headrest and if appropriate patient restraints (2).
7. For transvaginal scanning an adjustable footplate may facilitate comfortable positioning for both the patient and sonographer/sonologist.
8. Ideally the couch will have electronic foot pedal controls which are accessible and easy to use.
9. For cardiac work a cut out is needed to allow the transducer to be positioned for some views.

The Chair:

- Needs to be height and tilt adjustable with sufficient adjustability to suit all staff and procedures (2).
- Needs to have back and thigh support and a footrest. A flat, gas lift stool is an acceptable alternative.
- Needs to rotate so that the sonographer/sonologist can rotate from the patient to the ultrasound unit whilst keeping posture aligned.
- The chair needs to be mobile.

Accessories:

- Gel bottles should have large openings to reduce the strength needed to squeeze the bottle.
- Support cushion should be available to support the arm in abduction.
- The patient chair used for sitting procedures (eg shoulder ultrasound) needs to be fully adjustable, easy to rotate, lockable and armless.
- For other sitting procedures, such as hand ultrasound, a height adjustable table for supporting the limb will assist in improving the sonographer's/sonologist's posture. For these a fixed chair for the patient is preferred.
- A transducer wrist strap will allow sonographers/sonologists to easily release their grip to rest and stretch during the examination.
- In difficult procedures a sling installed to support the sonographer's/sonologist's scanning arm can be helpful.
- Push wheelchairs and beds correctly, using steering wheels and brakes, and adjusting to a comfortable height for pushing if possible.
- Push rather than pull equipment.
- All equipment needs to be regularly maintained and kept in good working order.

The Sonographer/Sonologist:

- Need to think posture all the time. They need to avoid bending, twisting, reaching, lifting sustained pressure, arm abduction and awkward postures. This

is difficult but alternating sitting and standing may assist with this as well as varying scanning techniques and transducer grip.
- Need to take time to adjust all equipment to suit and have accessories on hand before beginning to scan (2).
- Get the patient to move as close to them as possible.
- Lower the couch to reduce arm abduction. This also allows gravity to assist when applying pressure with the transducer and allows for a more comfortable transducer grip.
- If the arm is abducted, support it either by a cushion or rest on the patient.
- Sonographers/sonologists should rest then stretch their hand and wrist during procedures to relax stressed muscles.
- Refocus eyes onto distant objects every few minutes reduces eye fatigue.
- Do not perform successive similar ergonomically difficult examinations.
- Take regular breaks from scanning.
- Stretch before commencing work, during, in between examinations and at the end of the day.
- Ensure that meal break are taken, to completely relax.
- Sonographers/sonologists who suffer any pain or discomfort should seek competent medical advice. Musculoskeletal injuries caused by the repetitive task of scanning are often not apparent until the end of the day, or at night. These injuries often take a long time to manifest and a long time to resolve, if ever. The severity of an acute injury may be exacerbated by an existing chronic musculoskeletal injury.
- Report and document any pain and discomfort to employers.
- Appropriate exercise may lessen the chance of getting injured and may reduce the severity of any injury.
- A good level of fitness is necessary for the demanding work tasks a sonographer/sonologist performs.
- Undertake a stretching, strengthening and aerobic exercise program.
- Discuss with colleagues various techniques, exchange and 'brainstorm' ideas to develop scanning techniques to reduce stress on the body and thus musculoskeletal injuries.
- Become multiskilled, to vary work tasks.
- Adjust hours of work to give your body time to rest.
- Follow infection control protocols at all time to prevent cross infection (8).
- Read literature available on work place injuries, back care and specifically musculoskeletal injuries in sonography as they contain information of use. There are several web sites with relevant information.

There are always cases requiring sonographers/sonologists to work around a patient which may result in them adopting awkward postures. This is sometimes unavoidable especially with seriously ill patients. When doing such procedures take frequent breaks to reduce the incidence of fatigue and injury. Do not perform successive difficult examinations without a break.

The Patient:

- Explain the procedure fully to the patients and ask them to move by themselves as much as possible.
- Get the patient to move as close as possible to reduce arm abduction.
- Seek permission to lean on the patient for arm support if required.

Workload and Scheduling:

- Needs to be organised to avoid the sonographer/sonologist performing repetitive examinations.
- Adequate staffing levels are needed to allow the sonographer/sonologist to take scheduled breaks from scanning.
- Introduce task rotation into the work place to reduce the repetitiveness of the work the sonographer/sonologist performs.

The Employer:

The employer has absolute responsibility to prevent health and safety problems that cause injury or illness at work (10). The following points will improve the work conditions for sonographers/sonologists:

- Provision of ergonomically safe equipment and a work environment with adequate room, lighting and ventilation is required.
- Employers need to ensure that staffing levels and scheduling allow for sonographers/sonologists to have adequate work breaks and so they do have a rest from scanning and do not perform repetitive tasks.
- A system for staff to report and document any injuries, whether acute or chronic, needs to be in place. These reports must be investigated.
- Consultation with sonographers/sonologists is recommended to discuss and resolve any problems. Involve consultants with expertise in work place design and ergonomics if required.
- Read literature available on musculoskeletal injuries among sonographers/ sonologists. This will help to ascertain the enormity of the problem among sonographers/sonologists.

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Web sites

- Society Of Diagnostic Sonographers : www.sdms.org and go workzones
- Auntminnie chat line: www.auntminnie.com and go to discussions - technologists
- Australian Sonographer Association: www.a-s-a.com.au

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