



THE UNIVERSITY OF
WESTERN AUSTRALIA

**School of
Sport Science, Exercise & Health**

LABORATORY SAFETY MANUAL

DEXA LABORATORY

VERSION 3 – January 2015

School of SSEH – Laboratory Safety Manual (DEXA)	Published on: January 2015	Version 3.0
Author: W/Prof Tim Ackland (DEXA Licensee)	Review Date: January 2017	Page 1 of 12

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1. GENERAL POLICY STATEMENT ON SAFETY AND HEALTH MANAGEMENT

This School full endorses the UWA OSH policy. This handbook supplements the main UWA policy (UWA Occupational Health and Safety Policy) www.safety.uwa.edu.au/policies to provide and maintain safe and healthy working conditions, equipment and systems of work for its entire staff, students, contractors and visitors. To this end, information, instruction, training and supervision is provided as necessary. Responsibility is also accepted for the safety and health of other people who may be affected by the School's activities, as far as is reasonably practicable. The evidence of accidents within the School is low due to the high quality of ongoing supervision and training of students and staff.

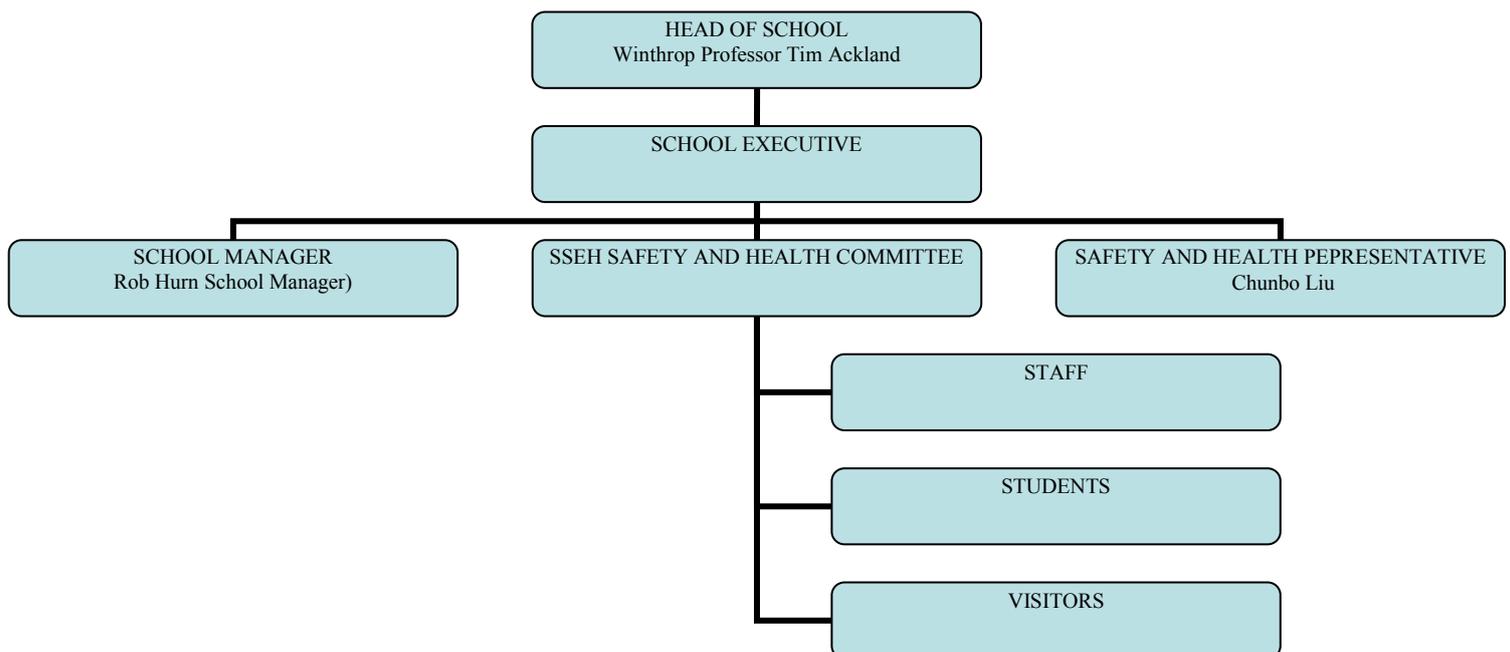
This laboratory induction document is to be read in conjunction with the School's Safety and Health Manual and is to accompany a formal induction process.

Research students and staff must have completed an induction prior to independent use of the School's laboratories

This manual will be kept up-to-date to take account of changes in the laboratory activities.

2. THE SCHOOL'S HEALTH AND SAFETY ORGANISATION

- Ultimate responsibility for safety and health in the School lies with the Head of School.
- Processes for identifying and controlling risk are effectively achieved with the participation of all staff at all levels.
- The organisational chart for the safety and health management structure is as follows:



3. THE SCHOOL'S HEALTH AND SAFETY MANAGEMENT STRUCTURE

DUTIES	MEMBER	CONTACT
UWA Safety Committee	W/Professor Tim Ackland	6488 2668
School's Safety & Health Committee	A/Professor Tim Ackland (HOS) Professor Paul Fournier Mr Rob Hurn Mr Chunbo Liu PG student representative	6488 2668 6488 1356 6488 1865 6488 3945 6488 1385
First Aid Officers	Ms Bonnie Furzier Mr Nat Benjanuvatra Mr Steve Franklin	6488 3333 6488 2437 6488 2266
Fire Wardens	Mr Rob Hurn (Chief) Mr Steve Franklin/Taku Korogi Mrs Inga Carr Technician Mr Chunbo Liu Mr Tony Roby Mrs Georgia Wachmer Ms Giovanna Biagioni Mrs Karen Mau	6488 1865 6488 2266 6488 2360 6488 7313 6488 3945 6488 2371 6488 2361 6488 3510 6488 3510

4. DOMESTIC SAFETY ARRANGEMENTS

For any activity/area in which staff have responsibility for the safety and health of others, they should familiarise themselves, and those within their care, with the basic domestic safety arrangements, such as:

- Location of First Aid Boxes
2 x Pool Area (fixed)
2 x Technical Area (1 portable and 1 fixed)
1 x Unigym (portable)
1 x Rehabilitation Clinic (fixed)
- Defibrillator in pool attendants' office – G09
- Defibrillator in entrance between Physiology (1104) and Biochemistry (1105) labs
- Defibrillator in storage room at Water Polo pool (G113)
- Defibrillator in ground floor foyer (Exercise Science North building)
- All pool supervisors have valid and current Senior First Aid Certificates
- Wheelchair available in the Rehabilitation Clinic (G100)
- Emergency procedures and evacuation are listed at the following web site:
www.sseh.uwa.edu.au/Safety

5. GENERAL SAFETY AND HEALTH PROCEDURES

5.1 Reporting and Investigating Safety and Health Issues

Any person within the School noticing a safety or health issue that they are unable to rectify themselves should immediately inform their supervisor and the School Manager. You may be asked to complete an Incident/Injury Report form, which may be downloaded from the UWA Safety and Health Office web site on www.safety.uwa.edu.au/forms/incident.

5.2 Consultation for Safety and Health

All members of the School are encouraged to raise concerns about safety and health with the School Manager.

Formal consultation regarding safety and health issues takes place through the School's staff meeting. Should an issue involving health and safety be placed on the staff meeting agenda for discussion not be resolved at the meeting, it is then referred to the Safety and Health Committee for further action.

Membership of the School's Safety and Health Committee

ROLE	CONTACT
A/Professor Tim Ackland (chair)	6488 2668
Professor Paul Fournier***	6488 1356
Mr Rob Hurn (School Manager/Safety Officer)	6488 1865
Mr Chunbo Liu (Safety & Health Rep)	6488 3945
PG student representative	6488 1385

*** Radiation Safety Officer

5.3 Safety and Health Training

The Laboratory Supervisor ensures that all new staff and visiting academics are inducted as soon as practicable, by using for guidance, the UWA Safety and Health Office checklist (www.safety.uwa.edu.au/policies/./policies/induction) as a framework. All records of staff/visitor induction are maintained by the School Manager (delegated responsibility to School Safety & Health Committee).

The Laboratory Supervisor ensures that all new postgraduate students are given the same information as for new staff, but are also made aware of the student guide to safety and health. All records of graduate student induction are maintained by the School (delegated responsibility to School Safety & Health Committee).

(www.safety.uwa.edu.au/policies/./policies/student_guide_to_safety_and_health)

Members of the School will not be expected to undertake any procedure for which they have not been adequately trained. The need for specialist training is identified by the Laboratory Supervisor as part of the safety and health induction process or by the student's supervisor and all requests for such training are directed to either the Head of School or the UWA Safety and Health Office. Records are kept of these training sessions by the School Safety & Health Committee.

5.4 Fire and Emergency Procedures

The UWA Main Procedure is outlined at the following site:

<http://www.safety.uwa.edu.au/incidents-injuries-emergency/procedures>

If the fire warning alarm sounds, wait one or two minutes then leave your area and proceed to the centre of the SSEH **oval**. Alternately, at the request of a **Fire Warden** leave immediately and proceed to **oval**.

1. Do not risk your own life.
2. If required and once instructed, evacuate the building calmly.
3. Close all windows
4. Turn off all electrical equipment (i.e. computers, fans, etc.)
5. Close the door behind you and proceed to the **SSEH Oval**.
6. Warn others on the way out.
7. Move at a quick walk: **Do not run**.
8. Do not use the Lift.
9. If a person is trapped, immediately inform a Fire Warden or Emergency Response Officer (Security) on **2222**.
10. People who panic: take their hand and lead them out. If they refuse to go any further, leave them and report their location to Fire Warden.
11. People with a disability. In an evacuation, offer assistance, ask the person to tell you how you can best help them. This may involve lifting, carrying and escorting them from the building and may mean their wheelchair or walking aid needs to be left behind.
12. Move to the **centre of the SSEH Oval** and wait for further instructions.
13. **Do not** congregate in car park areas or around buildings.
14. **Do not return** to the building until cleared by Fire Brigade or Fire Wardens.

5.5 Manual Handling

Please refer to the Safety and Health policy web site:

http://www.safety.uwa.edu.au/policies/manual_handling

Manual handling is one of the most common and costly of workplace injuries. Manual handling involves the use of human effort to lift, push, pull, carry, hold or restrain any object or animal. It does not just relate to the lifting of heavy objects.

UWA has a policy on manual handling which requires areas to undertake risk assessment of all manual handling hazards and implement strategies to reduce the level of risk. This includes, but is not limited to, the provision of training and ongoing supervision of staff and students involved in manual handling activities.

WorkSafe's code of practice can be downloaded at

http://www.commerce.wa.gov.au/WorkSafe/PDF/Codes_of_Practice/Code_manual_handling.pdf

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- No one should undertake any manual handling task that they feel that they are unable to manage; if in doubt, do not do the task and seek assistance. A safety first mentality should be adopted.
- Be aware of the risk factors – the safety of the general environment (e.g. is it cluttered, is lighting adequate, are there any slip or trip hazards) the characteristics of the load (eg heavy, awkward, difficult to grasp) and be mindful of your own ability (eg fatigue, unwell, lacking in coordination).
- Where possible, use assistive equipment such as trolleys and lifting devices. Technical staff should be contacted for assistance and location of safety equipment.
- Always use correct manual handling technique – keep the spine neutral, bend with the knees using semi squat and avoid twisting, flexing forward with the spine, or sideways leaning of the spine.

Assistance with manual handling risk assessment and training in manual handling technique is provided by the Safety and Health Office, phone 2784. Staff are encouraged to phone if they have concerns.

Relying on training of staff is not as effective in reducing manual handling injuries as proper workplace design and provision of equipment – please keep this in mind!

5.6 Safety in the Use of Computer Workstations

Please refer to the Safety and Health web site: http://www.safety.uwa.edu.au/policies/computer_workstation_ergonomics and note that the same principles for adopting correct posture at the computer applies to laptop as well as desktop computers and monitors. Be aware that if you are working from home, you should also apply the same principles.

Most people seem to have difficulty checking whether they have correct posture when set up at a computer, even after reading a pamphlet! If you need assistance, or if at any time you start to develop symptoms, please contact the Occupational Therapist in the Safety and Health Office. Since there are many computer “ergonomic” accessories on the market, the UWA Safety and Health office provides free trial of equipment. It is a myth to think that using all things that are available will prevent problems, and likewise, what works for one person may not suit another. A professional opinion may be warranted if you are having any difficulty with comfort at the computer.

5.7 Working Alone

If you intend working in the laboratory beyond 9pm, please email the Security Office to notify them of your presence: security@uwa.edu.au

Also, please refer to the Safety and Health web site: <http://www.safety.uwa.edu.au/policies/./policies/isolation>

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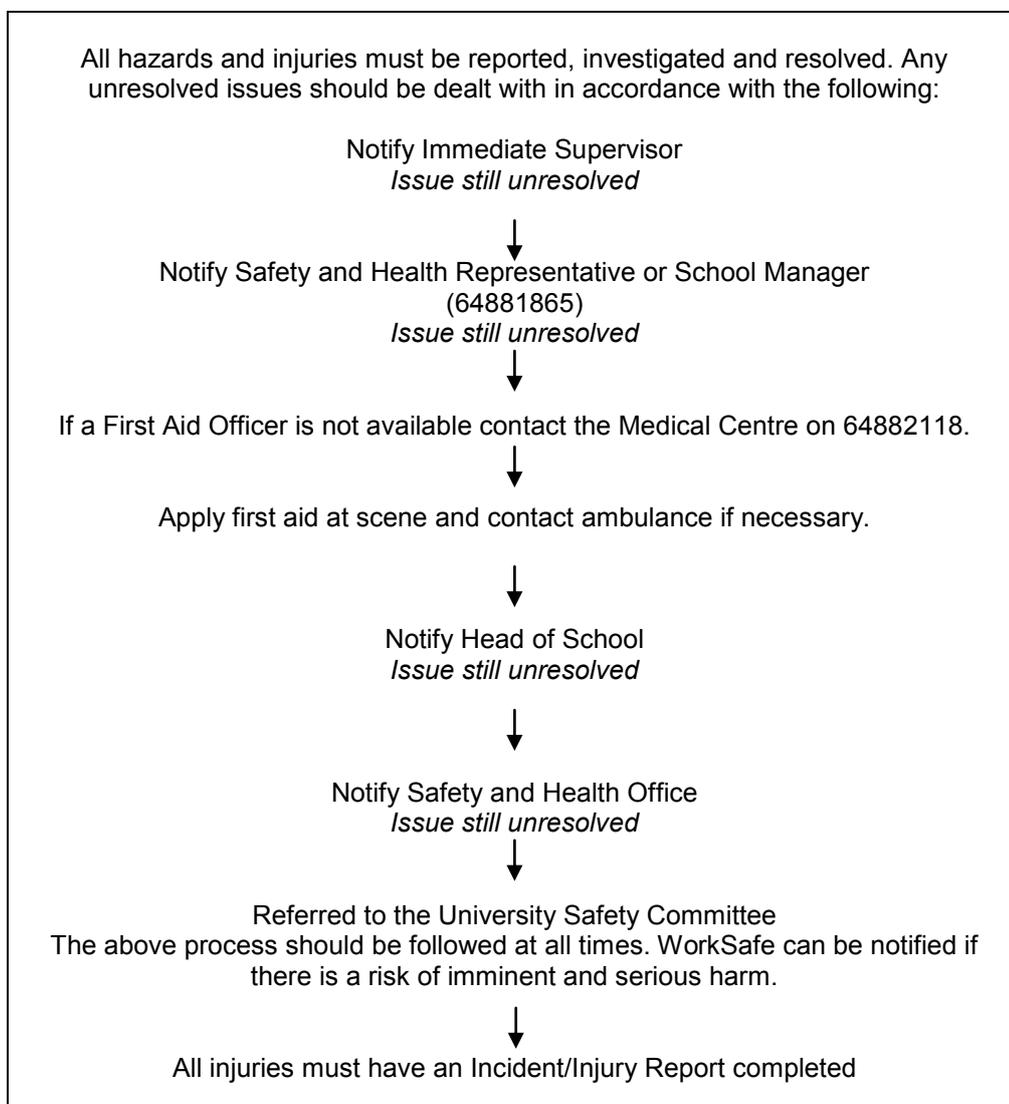
5.8 Action in the Event of an Incident – First Aid Procedures

- The UWA First Aid Procedure Flowchart is outlined at the following site:
http://www.safety.uwa.edu.au/policies/first_aid_procedure_flowchart

In the event of an injury or sudden illness the nearest First Aid Officer needs to be contacted who will be able to assess the situation and provide first aid treatment. If a First Aid Officer is not available then the person should be brought to the Medical Centre if possible, or the Centre should be contacted on 6488 2118, or an ambulance called through the emergency number (2222) for severe illness or injury.

If an incident or injury occurs at the University or during normal University activities, it must be reported to your School Manager **on 64881865**. If the incident occurs elsewhere, you should report it to the responsible person: Warden of a College, Manager of UWA Sports or Manager at the Sport Centre as appropriate. Alert UWA Security (2222) if outside normal University hours but inform the appropriate person as soon as possible.

FIRST AID AND INCIDENT PROCEDURES NOTICE



6.0 GENERAL SAFETY IN LABORATORIES

It is the duty of supervising academic staff members and technical staff to familiarise themselves with the safety and health legislation and Codes of Practice which are relevant to the work being undertaken in their area of responsibility and to ensure that other members of staff and students comply with these requirements.

Laboratories can be places of danger, as a lack of experience and knowledge may contribute to a safety and health incident. We can never totally eliminate the risk of injury; however, you can reduce them by abiding by a number of safety and health rules, as follows.

1. Ensure that you follow all instructions that your supervisor gives you.
2. Wear the correct clothing such as covered shoes and laboratory coats. Laboratory coats can easily be forgotten and thought of as waste of time, however, they provide valuable protection against such things as spills.
3. Use appropriate personal protective equipment such as safety glasses, hearing and respiratory protection when needed. Remember to always wear your laboratory coat and other protective equipment.
4. Eating, chewing, drinking, smoking, taking medication, or applying cosmetics is forbidden in laboratories, as is mouth pipetting.
5. Never undertake potentially hazardous activities whilst working alone.
6. Familiarise yourself with the emergency preparedness procedures. Know the location of the nearest emergency shower, eyewash station, first aid kit, fire fighting equipment and emergency exits.
7. If a chemical spill occurs and you are unsure of how to deal with it, STOP and immediately contact your supervisor or Laboratory Supervisor (and then School Manager). You should however always know how to clean up the chemicals you are working with prior to beginning your task.
8. Never undertake repairs of electrical equipment. Unauthorised modification to electrical equipment is not allowed; only qualified persons are permitted to carry out electrical work.
9. Ensure you know how to operate equipment and machinery safely before beginning you task.
10. When planning a new experiment always consider the hazards that might occur and take the necessary precautions to eliminate or reduce these hazards.
11. Always report all known or observable hazards, incident and injuries to your supervisor and complete and submit the necessary report forms.
12. Be aware of posture ergonomics. Maintaining prolonged postures without regular breaks or changes are to be avoided.

Please refer to the Safety & Health web site for emergency procedures:

http://www.safety.uwa.edu.au/policies/laboratory_emergency_response

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6.1 Laboratory Housekeeping

- Good housekeeping in the laboratory can reduce the risk of injury. Keep corridors and doorways clear.
- Store chemicals in an appropriate cabinets or storeroom areas to ensure proper segregation.
- Always use the sharp disposal containers provided.
- Clean up all spills immediately.
- Keep laboratory free from clutter, clean up work surfaces
- Store gas bottles in the correct manner.

6.2 Cleanliness and tidiness

- Leave equipment and workspace as found. When you leave, the laboratory should be cleaner and tidier than you found it.
- Clean and sterilise surfaces and equipment after use. Be sure to come back and put the clean equipment away (e.g. do not leave mouthpieces and hoses in the sterilizing solution for more than 60 minutes!).
- Clean not only the equipment, but also the floor around the equipment you used (blood, sweat etc.)

6.3 Breakages/Malfunctions

Everyone **must report** all breakages and malfunctions. In the first instance, inform your supervisor and then the Technical staff, and also place a sign on the equipment to let other lab users know there is a problem. Sign and date this notice. Be sure to record the performance of the major pieces of equipment in their respective logs to make it easier for the monitoring of consumables as well as the actual machinery.

6.4 Computers

- Do not install any software on a computer in the lab without informing the Faculty of Science IT Support group (2999).
- Do not use the computers in the lab as storage space. Take the files you need to your own computer. Do not leave files on lab computers without filing them in a folder with your name. Occasionally the hard drives will be cleaned and files with no clear purpose will be deleted.

6.5 Emergency Procedures

Lab users should be familiar with the locations of safety and emergency equipment such as fire extinguishers, fire alarms, first-aid kits, emergency telephones, exits and the School Evacuation Plan.

- The School Manager should be contacted (1865) in the event of an accident.
- The UWA emergency phone no. (2222) is shown on the handset.
- A first aid kits are located in the technical area, pool office, rehabilitation clinic, gym and water polo store room.
- Defibrillators are located in the Pool Office (G09) and entrance between Physiology Lab. (1104) and Biochemistry Lab. (1105), waterpolo pool store (G113) and
- Ground level foyer – SSEH North building.
- Showers for rapid washing in the event of a chemical spill on skin are located in the Exercise Biochemistry lab and also downstairs in the technical storage area.

6.6 Safety Considerations

- Loose clothing and long hair must be kept away from moving equipment.
- Closed shoes must be worn when working in the lab.
- Always wear protective gloves when handling chemicals or biological samples and/or waste. Safety glasses are also recommended.
- DO NOT risk needle stick injury by attempting to re-sheath needles. For more information on needle and syringe disposal/needle stick injuries.

6.7 Security

- Do not remove anything from the lab without permission.
- Always lock the laboratory door when unoccupied. Things can disappear very quickly.
- Keep your valuables safe while working in the lab.
- DO NOT leave polar heart rate monitors and stopwatches in the lab.

7.0 LABORATORY-SPECIFIC SAFETY ISSUES

7.1 Laboratory Booking Procedures

- Book the DEXA via SSEH Reception staff (send an email to admin - SSEH@uwa.edu.au).
- Obtain the room key from reception each time or make arrangements for your copy of the room key for the duration of your project

7.2 Specific Requirements for Research Students

- For research ethics approval, you will need to have obtained an effective dose calculation for your subjects. See DEXA manual for details.
- A copy of your dose estimate and ethics clearance must be provided to the Licensee **before** you begin your project.
- As part of your research proposal, you will need to check the appropriate boxes on the Laboratory Usage form (a required attachment to your proposal document) to (a) confirm that you have completed your laboratory induction and (b) have performed a risk assessment in regard to your proposed methodology.

7.3 Personal Protective Equipment

- Operators must wear their own TLD monitoring badge at all times when scanning. However, this is **not** required for analysing data only.
- The screen must be placed between the machine and the operator for all scans.
- No specific clothing is required (eg. no lab coat).

7.4 Laboratory Safe Working Practices

Working rules are essential to ensure that all types of x-ray equipment are used in accordance with legal requirements and with a high standard of safety.

- a. The machine may only be operated by appropriately trained users who have completed a specific DEXA laboratory induction. A list of appropriately trained users is to be kept in the room.

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- b. The machine is to be booked through the SSEH Reception who will arrange for the user to obtain a key to the DEXA room for the duration of the project.
- c. Records of all exposures, including QA exposure details must be kept on file in the DEXA laboratory.
- d. Copies of consent forms for all subjects who are scanned must be kept by the researcher.
- e. The machine is **not** to be turned off at the main switch. Software 'keys' will be distributed to the head of each user group by way of a password, with a system administration password kept by Professor Tim Ackland.
- f. Exposure to the primary x-ray beam and scattered x-rays must be avoided at all times. Personnel are under no circumstances allowed to put any part of their body in the primary beam.
- g. The mobile shield is to be placed between the exposed volume in the subject and the machine operator during exposures.
- h. Immediate measures must be taken to remove potentially hazardous situations arising from x-ray beams that may be emitted due to an equipment defect, misalignment or any other reason.
- i. Servicing of the x-ray machines may only be carried out by a service technician with a suitable license from the Radiological Council.
- j. All accidents and incidents must be reported to the SRSO and Safety and Health Office and School Manager.
- k. These working rules are to be clearly visible in the x-ray room at all times.

7.5 DEXA – Standard Operating Procedures

- a. Obtain your 'software key' from Professor Tim Ackland.
- b. You must run the initial QA (10 min) prior to any new scans. However, you are able to analyse previous data without this step. You must log the scan in the appropriate file and file the 1-page output.
- c. You need to run the 2nd QA test on the day but not necessarily prior to the first subject. Once again, you must **SAVE** the analysis and file the printout.
- d. Enter the data from the 2nd QA into the Quality Control Analysis program
- e. You will need the patient/subject's height and weight (must be accurate so that the machine can set the most appropriate scan mode)
- f. Ensure you have asked the PREGNANCY question!!
- g. Have you asked and noted any recent medical procedures?
- h. Have you asked and noted any recent radiological / nuclear medicine procedures?
- i. Have you obtained INFORMED CONSENT?
- j. Remove anything that will affect the results:
 - Bone scans – remove all metal in the scan region (belts, keys, coins, zippers, metal clips on bras etc)
 - Soft tissue scans – all the above + patients to be in minimal clothing (no pillows to be used)
 - Shoes off!!
 - Gowns may be useful and/or lycra bathers