



Implementing System-Focused Rotations

The new curriculum in Radiodiagnosis that commenced in December 2009 (NZ) and January 2010 (Australia and Singapore) requires that registrars should be rostered in system-focused rotations in years 4 & 5. For most training centres this will first impact in December 2012 (NZ) or January 2013 (Australia, Singapore).

Following a review of training programs from other countries (UK and USA), the proposal that registrars should undertake system-focused rotations in years 4 & 5 was discussed at the Curriculum Assessment Committee, and subsequently approved at Education Board (now Clinical Radiology Education and Training Committee). 'Systems' are defined later in this document. Registrars will spend a minimum of 4 sessions per week and a maximum of 6 sessions a week (pro-rata for part time training) in a designated 'system'. In year 4 trainees should be rostered for 4 lots of 3 month rotations. In year 5 trainees should be rostered for either 4 lots of 3 month rotations or 2 lots of 6 month rotations.

A system-focused rotation is NOT intended to be a subspecialty rotation. The intention is that that more senior trainees get at least part of the rostered clinical week (not all), attached to specific specialists that report predominantly (not all) in one system or area of radiology. The rest of the rostered week is intended for general clinical work, on-call duties, learning activities and other training/service requirements. It is anticipated that some of the learning resources and training opportunities previously utilised by the Advanced Training Positions in the old curriculum will be available for trainees undergoing system-focused rotations under the new curriculum.

System-focused rostering can be successfully implemented without any changes in staffing, provided the body systems are lumped differently and there is appropriate cross-cover designed into the rostering system.

Getting Started – Moving from Modality Based Training to System-Focused Training

Most radiologists in Australian and New Zealand would not consider themselves subspecialists, and most departments do not work to a subspecialist model. The majority of radiologists do however have some subspecialist interests, even though they consider themselves 'all rounders'. Many departments have already started the process of planning for system-focused rotations, or have implemented them already. There are some common steps in this process which are worth sharing.

The first step is to engage all consultants, giving a basic overview of the proposed change to system-focused rotations. Each consultant should then be asked to declare a primary and a secondary area of interest. These should be broadly defined, and overlap with other consultant's areas of interest.

Next, a roster needs to be devised that gives each consultant at least 3-4 sessions per week of work in their declared primary area of interest, and 1-2 sessions per week in their secondary area. Consultants then cover all reporting for that 'system' for those sessions, regardless of imaging modality. If workload in a subspecialty area is low at any time, consultants can of course take work from another area or 'system' that is busy.

Registrars undertaking system-focused rotations are rostered to the relevant 'system' for at least 4 sessions per week in a given block. The combination of consultant and registrar for that session represents a reporting team. As is the norm, all registrars reporting for that session should be checked and approved (but NOT reported) by the supervising consultant. The reporting of ALL studies in that system for a given session (examination times to be locally defined) is the responsibility of the combined team of registrar and consultant rostered for that session.



A Definition of “System”

As mentioned above, “system-focused” does not equate to full subspecialisation; instead it is a superset of traditional subspecialisation that of necessity is not defined as rigidly. Departments need to adjust the definition of such work, to ensure that reporting of general work is not impeded or compromised, and reporting loads are balanced across the department, whilst also ensuring that more specialised reporting is performed regularly by those consultants who have a specific interest in those areas.

Many departments already have some sort of method of targeting specific types of studies to be reported by specific people. However, within a modality-based rostering system this inevitably leads to delays in reporting some studies, because the individual areas of focus do not have people rostered to cover such studies every day.

System based reporting by its nature is less rigid geographically within the department than modality reporting. Departments will have to ensure that registrars rostered in system-focused rotations are matched to the designated consultant(s) for the requisite time during each rotational block. This may require some lateral thinking at the local level as departments plan their rostering according to what makes most sense locally.

In general, systems should conform to either the broad groups of referring specialists within a body region, or to specific areas that are highly labour-intensive (for example interventional work).

Proposed “Systems”

Moving to system-focused rotations does NOT mean that departments do NO modality rostered work, or that the whole roster becomes system-focused. This would cause difficulties, particularly in smaller centres. Instead, departments should choose ‘systems’ that they a) already have a specialty interest in and b) are currently a ‘strength’ within their departments (for example trauma imaging or musculoskeletal work)

The following way of dividing Radiology into a combination of body systems and modalities can work well from a rostering and practical perspective:

- Head & Neck/Neuroradiology
- Musculoskeletal, including spine
- Body Imaging (Including Chest, Abdomen, Pelvis, GIT and GUT)
- Vascular and Interventional Radiology
- Paediatrics
- Women’s Imaging

To these can be added (overlapped) specific new areas of radiology, including

- Trauma imaging
- Oncologic imaging
- Cardiac imaging

Which of these areas departments choose to use is dependent on the skill mix and casemix in any given institution. Some departments have no or minimal Paediatrics, others have no O&G imaging or breast imaging, some have no interventional radiology. However, virtually all departments can divide their reporting into Neuro/Head and Neck, Body Imaging and MSK at the minimum.

Specific modalities may be regarded as “general” radiology for most reporting purposes. For example:

- Plain x-rays
- Fluoroscopic procedures
- Ultrasound



Within general radiology, departments may choose to subdivide some areas out for system-focused reporting. Such areas could include (for example):

- Trauma x-rays
- Chest x-rays from Respiratory Medicine referrers
- Musculoskeletal interventions under fluoroscopy
- Musculoskeletal ultrasound
- Obstetric ultrasound

In other words, the key to successful implementation is that departments self-organise what makes sense locally from a systems-focused reporting/procedural perspective.

Implementing a reporting system that incorporates, for example, all CT head scans as well as MRI of the brain, and perhaps head and neck CT and MRI for a given session might be accomplished using the PACS, consultant and registrar do not necessarily have to be physically located within CT or MRI to report these studies.

In many departments some of these solutions may not be practical, and some training centres may only be able to support one or two of these 'systems'. However, the key to achieving system-focused rotations is to ensure that rostering follows whatever system-focused reporting scheme the training department decides is most appropriate to their situation.

Even small centres have areas of recognised strength; the key is to identify and segregate such areas from the general reporting stream. This will not only ensure that appropriate system-focused training can occur, but also will strengthen the quality of reporting for those areas.

Large Training Centres versus Small

System-focused rotations will differ, depending on whether they are set up in large departments in tertiary hospitals or departments in smaller hospitals. Radiological subspecialisation, with individuals limiting their practice to specific areas of radiology are more likely to occur in the larger hospitals, or in hospitals that service a subspeciality (such as paediatrics). For such institutions, subdividing reporting into major streams is a logistical but essentially fairly minor shift in existing practice, explicitly recognising the specific radiological skills and expertise available to them.

Smaller centres usually do not have sufficient staffing to support fine subdivision of reporting duties. However, most hospitals can support division of rostering along 3 broad lines:

1. Head & Neck/Neuroradiology
2. Body Imaging
3. Musculoskeletal Imaging

There are many existing sites where 3 consultants cover this work every day, with the key focus on ensuring the work is appropriately balanced. Body imaging is the largest of these components, and workload will not be equal across these three areas. It is up to departments to decide how to allocate reporting along these three streams. For example, one consultant could report all cranial and head and neck radiology for the session or day, but could also cross-cover to report either MSK or body if workload permits.

Some departments have specific areas of strength that are no longer seen routinely in major tertiary hospitals - for example, community paediatric experience, routine obstetric ultrasound, routine breast diagnostic work, or musculoskeletal ultrasound and MRI in sporting injuries. Such departments might develop these areas into system-focused rotations, so that this work is extracted for reporting by a subset of the available consultants. Organising in this way would facilitate training network partnerships with larger tertiary hospitals. In this way training opportunities that better reflect community hospital or private practice might be offered - experience which would be attractive to senior trainees about to enter the workforce.



Training departments with highly subspecialised work that is specific to a particular area of radiology (for example, specialist cancer centres, orthopaedic-only radiology practices, paediatric hospitals, breast screening centres) usually have expertise that is very focused, narrow and deep, as might be expected. Trainees need to have some exposure to such practices, and system-focused rotations are a good way for them to do so. In general, such centres would function as satellite training centres within the context of a local or larger training network. In essence, some of these centres are already working like system-focused rotations within the training program.

Moving Forward

The aim of system-focused rotations is to provide trainee radiologists with guaranteed exposure and closely supervised training in specific areas of radiology, to strengthen their ability to span the range of diagnostic imaging in their careers. Exposure to a form of subspecialist practice will also provide a platform for some trainees to pursue subspecialist practice in the future.

The ability of a radiologist to cover ALL areas of radiology to an extremely high level of expertise is no longer sustainable. At the same time, great career satisfaction may be obtained from aligning areas of personal radiological expertise to particular clinical groupings. Many 'general' radiologists develop specialist interests in this way, and are better placed to 'add value' to their interactions with clinicians. Patients usually present with systems focused disease processes and, naturally, clinical groupings map better to a system-based approach than to a modality based approach.

System-focused training is a key feature of the new radiology curriculum. In the short term it may represent a paradigm shift for some departments, but the investment in setting up such a system should pay dividends, in both the enhancement of radiology training and in maintaining the relevance of our profession into the future.