Opportunities and Threats in Radiology: European Perspective.

Professor Iain McCall
Keele University Medical School
Past President
European Society of Radiology
Opportunities for Radiology in Europe.

- Imaging fundamental to clinical diagnoses.
- Range and volume of imaging examinations increasing.
- Imaging has key role in disease management, follow-up and screening.
- Image guided minimally invasive therapies by radiologists increasingly utilised.
Threats to radiology in Europe

- Insufficient radiologists for workload and lack of public understanding of radiologists role.

- Digital imaging and electronic transfer separating radiologist from monitoring, referring clinician and patient.

- Clinicians and surgeons undertaking radiological work through self referral.

- Large range of work and technology requiring subspecialist competence.

- Radiologists not adequately involved in the new horizons developments
It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.

In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed.

Charles Darwin
Need for change

- Radiology expanding dramatically.
- Radiology departments may change configuration.
- Teleradiology could make radiology a commodity.
- Radiologist must add value to the clinician.
- Radiologists invisible to the public.
- Clinicians becoming increasingly involved in imaging.
- Delivering the expansion of imaging and research.
- Subspecialisation and clinical competence.
- E-Health and Teleradiology.
- Involvement with Primary care.
Expansion in Radiology.

- Whole body and Multislice CT with post processing.
- Complex MRI sequences with diffusion and diffusion tensor imaging.
- Functional and quantitative diagnostic imaging.
- Positron Emission Tomography with targeted labeling.
- Molecular Imaging in oncological applications.
- Expansion of image guided minimally invasive therapy.
- Integration (Fusion) of functional and structural information
Articular cartilage imaging

Gd-DTPA (dGEMRIC)
Relative Proteoglycan Distribution

T2 Mapping

3D Mapping
DTI + PET fusion

Functional Imaging
LAD and Circumflex

Diastole

Systole
Threats to developments

- Insufficient Radiologists for quantity of work.
- Altered workforce demographics
- Insufficient trainees to ensure a large enough workforce.
- European working time directive.
- Clinicians and scientists leading the developments.
- Decreasing recruitment in Interventional radiology due to on-call commitment.
Response of Radiology: Workload

- Increase numbers of radiologists and trainees.
- Subspecialists work in groups to provide a comprehensive radiological service.
- Support teams for complex exams and post processing.
- Increased delegation to radiographers.

EC green paper: European workforce for Health
Response of Radiology: Research

- Increase involvement of trainees.
- Time for research and make full use of advances.
- European Congress and subspecialty societies.
- European Institute for Biomedical Imaging research.
- Radiologists should build strong networks with clinicians and scientists.
Radiological training in Europe.

- High quality and relatively long training.
- Well structured continuous education.
- Entry highly competitive, top medical graduates.
- Focus on radiological-pathological correlation
- Knowledge and skilled in all imaging modalities.
Radiological Training Programs in Europe

- to provide high standards in training curricula
- to facilitate great efforts made by National Societies and training centres to reach these standards
- to harmonize training programs in Europe (enabling cross-pollination of knowledge and skills, easier movement of European radiologists)
Limitations of radiology training in Europe.

- No clinical experience in some countries.
- Anatomy/pathology model. No physiology/cell function training.
- Variable implementation of structured system based training.
- Limited subspecialty training in many countries.
- Full scope of modalities not taught or utilised.
European Training Assessment Program

- Structural variations in the delivery of training.
- Significant variations in resources available to training centers.
- Variable trainee access to imaging modalities.
- Differences in the length of training
- Differences in assessment and appraisal systems
Training solutions for the future

- Clinical experience prior to entering radiology.
- The two year sub-specialty training may be followed by a fellowship for more experience.
- Focus on special interest areas in final two years
- Obtain good clinical knowledge of subspecialty.
- Trainees should participate in clinical rounds and multidisciplinary meetings.
Electronic teaching and e-learning

- EURORAD: Largest peer-reviewed database of radiology teaching files on the internet worldwide
- EPOSTM: More than 8,600 scientific and educational exhibits & presentations online
- eECR: 355 videotaped selected lectures from ECR 2004 - 2007, ESGAR and ESMRMB
- EDIPS: Download/digital preview system
  Presentations of given lectures throughout the year.
  Original PowerPoint presentations of ECR 2006 - 2008 for download
European School of Radiology - Main goals

- To assist the implementation of the European Training Curricula
- To integrate with and enhance existing training programmes with courses throughout Europe
- To coordinate scholarships and fellowships for subspecialty training throughout Europe
- To raise standards in the field of scientific radiology through global E-learning initiatives
EU Principles

- Free movement of EU citizens
- Free movement of patients
- Free movement of Services

- e-Health is a prime focus of the EU
e-Health: making healthcare better for European citizens

e-Health tools or solutions include:

- Health information networks
- Electronic health records
- Telemedicine services
- Wearable, portable monitoring systems
- Health portals
- Lifestyle management
Teleradiology in Europe

- Radiologists home to base.
- Linkage within radiology practices.
- Reporting services to isolated communities.
- Wide area networks: eg Scandanavia, Spain
- Advice from specialist centre
- Night and weekend cover. (Low usage)
- Cross border commercial reporting services.
Key ICT projects in Catalonia

Network Architecture

Corporate network with multiple PACS

Healthcare Node

Public telecommunications network 1Gbps

Concentric network

Community PACS
Establish an online e-market place within the field of radiology

A ‘many to many’ connection functioning as a commodity brokering and exchange of radiological services
Threats of Teleradiology

- Loss of link between the radiologist, clinician and patient
- Radiology becomes a reporting service not a clinical specialty.
- Images a commodity reported anywhere in the world at low fees
- No discussion of radiological findings management.
Radiology Expert (Teleradiology Solutions) is a highly respected and trusted medical service provider, offering nighthawk services, image interpretation services, teleradiology diagnostic services, diagnostic ultrasound services across various hospitals, imaging centers, physician groups. We are expanding the reach of the e-radiology services through out the globe.

Outsource2india is a leading provider of teleradiology services and has been providing cutting-edge diagnostic teleradiology solutions to global customers. Outsource teleradiology services to India and you no longer have to hunt for nighthawk radiologists, worry about the overflow of work during daytime, relieve nighthawk radiologists or find coverage for a radiologist on holiday.

Outsource2india provides teleradiology solutions to O2I and get access to teleradiology services for preliminary and final reports on a 24x7x365 basis. Our teleradiology solutions can give your patients the best possible care, be it during holidays, weekends, day time or late night hours. Your staff can finally take off on weekends and holidays and be assured that we will be working for them. By outsourcing teleradiology services to India you can benefit from best-in-breed teleradiology solutions.
Threats from Teleradiology.

- Fragmentation of radiology into its subspecialties.
- Training focused on common tasks.
- Centralised reporting of common examinations.
- Security of data.
- Lack of clinical audit.
- Medicolegal and insurance cover established.
Using Outsourced Independent service providers.

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<th>Reporting</th>
<th>Solution</th>
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<tr>
<td>- Clinician did not know radiologist</td>
<td>- Better communication</td>
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<td>- Reporting style not familiar</td>
<td>- Improved quality control</td>
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<td>- Numerous examinations re-reported locally</td>
<td>- Feedback to outsource radiologists</td>
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<td>- Complicated reports to GPs and relevance of findings unclear.</td>
<td>- Extensive audit</td>
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*Dixon A, Webster P  Imaging management 2007 7 (3)16-17*
Quality Issues in Teleradiology in Europe.

- Multiple languages in Europe.
- Diverse health systems and regulation.
- Varied payment systems and income.
- Differing training programmes.
- National registration authorities.
EU legal and regulation of e-Health

No specific legislation exists at EU level that specifically targets e-Health services and products.

Face it Fred....You’re lost
Formal EU guidelines on teleradiology.

Promised December 2009.

Still being discussed within commission

*Teleradiology is not telemonitoring.*

*It is a medical act*
Cross-border Healthcare Directive

- Free movement of health services
- Quality - Safety - Privacy - Confidentiality
- Protection - Compensation
- Reimbursement of care outside
- Continuity of care - Interoperability
- Principle of recognition for Prescription
- Standards for Quality and Safety - Audit monitoring
Cross-border Healthcare Directive

Teleradiology – No specific comments

Views of DG Sanco

- Healthcare provider in country of affiliation:
  - has contract regarding image diagnostic services, service provided and liability resolved by the terms of the contract
  - no prior contract, member state where patient is insured is responsible for the quality of services it out-sources
Article 13 – paragraph 1 amendment

- The member state shall ensure that the use of e-health and other telemedicine services:
- Adhere to the same professional medical quality and safety standards as those in use for non electronic healthcare provision
- Offer adequate protection to the patients notably through the introduction of appropriate regulatory requirements for health professionals similar to those in use for non electronic healthcare provision.
Cross border health directive

Article 10 paragraph 2b - amendment

- Member states shall guarantee that registers in which health professionals are listed are available to relevant authorities in other member states.

- Member states shall immediately and proactively exchange information about disciplinary and criminal findings against health professionals where they impact upon their registration or their right to provide services.
Cross-border Healthcare Directive

- Member State of treatment responsible for organisation and delivery of healthcare.

- Define clear quality and safety standards for healthcare provided on their territory.

- Healthcare providers provide all relevant information for patients to make informed choice.

- Systems of professional liability insurance or equivalent are in place.
Contact with patients

- Discuss clinical symptoms with patients
- Explain imaging findings and diagnostic management

Be Visible
Requirements of primary care differ across EU.

Referral to radiology prior to secondary care referral.

Direct referral for image guided diagnostic and therapeutic procedures,
Imaging requirements in primary care.

- Common diseases to confirm and assess extent and resolution.
- Define complications in patients treated in primary care.
- Prior investigation in conjunction with radiologist and specialist
- Types of investigation based on clinical problem and management.
Referral to Radiology should be evidence-based.

Service to primary care should be high quality, efficient and cost-effective.

Clinical radiologist providing reports should interact closely with primary care physician.

Financial systems should empower provision of imaging services to primary care.
Funding of Radiology:

- Direct government allocation.
- Allocation from hospital budget.
- Costed in clinical DRGs.
- Individual examinations: national tariff
  insurance tariff
- Private patient payments.

Inadequate finance- a major threat to Radiology.
Conclusion.

Strategy for the future of Radiology.
- Increase radiologists to deliver the service.
- Embrace and utilise new developments.
- Increase role in multidisciplinary research.
- Promote subspecialty and special interest training.
- Ensure teleradiology has same quality and standards as radiology.

- Maintain close contact with referring clinicians when using networks.

- Communicate with patients and discuss radiological management.

- Promote diagnostic patient management for primary care physicians
European Society of Radiology

Institutional Members - European National societies

Albania
Austria
Belarussia
Belgium
Bosnia & Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Georgia
Germany
Greece
Hungary
Iceland
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