

*These 10 integrated curricula provide "one stop shopping" for learning optimal patient assessment, workup, staging, treatment and prognosis for many common Internal Medicine, Surgery, and Primary care patient problems.*

Family Physician Interpretation of Outpatient Radiographs Overview and Justification Diagnostic radiography is an integral part of the evaluation and management of acute and chronic illnesses. Offering radiography in the family medicine practice reduces access issues and decreases the time to diagnosis and treatment. Specific radiologic services provided are at the discretion of an individual practice. Because family physicians receive the necessary training in residency to interpret radiographs, it is common for them to order and read radiographs in their practices. In some cases, the family physician may choose to have a radiograph over-read by a radiologist. The PCMH model promotes increased patient access and same-day services; in-office diagnostic radiography supports these goals. It is a valuable service for patients, providing care at a local level and giving needed access to patients who would have difficulty traveling to another facility, especially patients who are elderly or have a disability. It saves the health care system money because patients are not seen in the emergency department ED or an urgent care center. This also avoids the fragmentation of care that can occur when an urgent care or ED physician refers a patient out of the PCMH to another specialist following radiography. Physicians billing for in-office radiography may bill for the technical component taking the pictures or the professional component reading the images or both. A family physician with on-site radiography equipment will typically bill for the technical component of the imaging service. In addition, if the family physician reads a radiograph and generates a separate written report, then the professional component would also be billed. If a radiograph is initially read by the family physician and then over-read by a radiologist who generates the written report, the radiologist would bill for the professional component. A study estimated that in nearly 60 percent of states, the percentage of MPFS payments for medical imaging to nonradiologists exceeded payments to radiologists. Between 2000 and 2005, medical imaging was one of the fastest growing categories of Medicare spending, with the number of imaging studies paid for under the MPFS excluding imaging studies performed in hospital outpatient departments growing more rapidly 61 percent growth than the sum of all physician services 31 percent growth. One major action was the Deficit Reduction Act DRA 2011, which took effect on January 1, 2012; it reduced global and technical-only payments for in-office imaging to the outpatient hospital payment level. Patient convenience and satisfaction also are improved by the availability of on-site radiography. The AAFP believes that family physicians "like other physicians who use diagnostic radiography to evaluate patients" are entitled to appropriate compensation for their services. This position is in keeping with the positions of other specialty organizations that represent physicians who are not radiologists but use diagnostic radiography to evaluate patients, such as orthopedic specialists and ED physicians. Chapter 13, Section 13.1 Regarding payment for the technical component of diagnostic radiography, Chapter 13, Section 13.2 For example, well-accepted criteria for diagnostic radiography have been reported in the literature for acute knee and ankle injuries that are commonly evaluated and treated by family physicians. Physicians should be mindful of the risks of medical imaging e. The ACR Committee on Appropriateness Criteria and its expert panels use literature review and a modified Delphi method to develop practice guidelines based on clinical indications for a large number of diagnostic imaging modalities. Section III "Training Methodology Training in diagnostic radiography interpretation begins during clinical training in medical school, although the amount and intensity of the training experience at various medical schools can vary widely. This training occurs during consultation with family physician and emergency medicine preceptors, and during formal and informal consultation with interpreting radiologists. For family physicians who use diagnostic radiography in their practices, training and feedback continue throughout their careers as they consult with practice colleagues and radiologists. Section IV "Testing, Demonstrated Proficiency, and Documentation To advance through their training, residents are expected to have an appropriate level of competence in ordering and interpreting diagnostic radiographs. Competence is judged by the supervising faculty. Deficiencies are addressed by more intense remedial training, as in any other educational category for

family medicine. Testing knowledge of indications for and interpretation of diagnostic radiographs is a part of the general testing for certification by the American Board of Family Medicine. Certification examinations include questions about diagnostic radiography and some radiographic images. Radiography is considered one of many general areas of medical knowledge tested. There are no specific rules for the number of interpretations of radiographs or questions about radiography on each primary certification or recertification examination. Diagnostic and screening mammography, which is subject to oversight by the U. Managed care and health insurance organizations may request that participating physicians go through a credentialing process, either to meet internal standards or as a part of an application for National Committee for Quality Assurance NCQA accreditation. However, specific procedures or skills are not usually considered in the credentialing process. Competence for interpretation of diagnostic radiographs The literature on interpretation of diagnostic radiographs suggests that the error rates of family physicians are similar to the error rates of radiologists. A primary care physician is likely to have a more complete clinical history for the patient than a radiologist has, which may give the primary care physician an advantage in interpreting radiographs accurately. One systematic review reported that the majority of studies showed higher accuracy of radiograph readings when clinical information was provided, and none of the studies showed a decrease in accuracy. Concordance between readings by family physicians and radiologists was found in Over-reading of radiographs A variety of studies have addressed the issue of whether over-reading by a radiologist improves clinical care. For example, a study evaluated 1, pairs of radiograph readings, with an initial reading performed by one of 86 primary care clinicians in nine ambulatory practices and an over-reading performed by one of 42 radiologists. Instead, studies suggest that over-reading by a radiologist is not always necessary and that selective request for radiology consultation is appropriate. Formal relationships with other organizations Cooperation should be encouraged between the AAFP, the ACR, the Intersocietal Accreditation Commission, and other relevant organizations in the development of quality improvement programs, radiography use guidelines, and CMS standards for in-office imaging. Studies of radiograph guideline dissemination methods have had mixed results. Research agenda The research agenda for interpretation of outpatient radiographs should focus on the following: Quantifying whether a shift in billing for the professional component of radiology services, or in CMS standards for performing and interpreting outpatient radiographs would affect the financial model of the PCMH Developing effective quality improvement programs that ensure acceptable image quality, reduce interpretation error rates, ensure patient safety, and provide guidance regarding which radiographs should be referred for consultation Identifying effective methods to encourage appropriate outpatient radiography use and discourage unnecessary or inappropriate use Defining the effect of on-site performance and interpretation of diagnostic radiographs by family physicians on patient-oriented clinical outcomes compared with the effect of referral to a radiologist for off-site imaging and interpretation, with particular attention to outcomes in rural areas and other underserved areas. Clinical Procedures Performed by Physicians at their Practice. Accessed June 1, Regional variation in Medicare payments for medical imaging: Winter A, Ray N. Paying accurately for imaging services in Medicare. Kennedy S, Forman HP. Comparative analysis of Medicare spending for medical imaging: The Neiman Report, No. Neiman Health Policy Institute; American Academy of Family Physicians. Privileges revised and approved American Academy of Orthopaedic Surgeons. In-office diagnostic imaging studies by orthopaedic surgeons revised February American College of Emergency Physicians. Interpretation of Imaging Diagnostic Studies revised and approved February Freedom of practice in medical imaging D Radiology services and other diagnostic procedures. Access June 1, A study to develop clinical decision rules for the use of radiography in acute ankle injuries. Evaluation of the Ottawa clinical decision rules for the use of radiography in acute ankle and midfoot injuries in the emergency department: Derivation of a decision rule for the use of radiography in acute knee injuries. Implementation of the Ottawa Knee Rule for the use of radiography in acute knee injuries. Ottawa Ankle Rules accurately assess injuries and reduce reliance on radiographs. Multicenter comparison of two clinical decision rules for the use of radiography in acute, high-risk knee injuries. Appropriate and safe use of diagnostic imaging. Radiation risk from medical imaging. Imaging for low back pain. National Committee for Quality Assurance. Use of imaging studies for low back pain. American College of Radiology. Accreditation

Council for Graduate Medical Education. ACGME program requirements for graduate medical education in family medicine revised Personal communication, April Medicare coverage of imaging services. Important reminders about advanced diagnostic imaging ADI accreditation requirements. Accreditation of advanced diagnostic imaging suppliers. Loy CT, Irwig L. Accuracy of diagnostic tests read with and without clinical information: Radiographs in the office: J Am Board Fam Pract. Assessment of joint review of radiologic studies by a primary care physician and a radiologist. J Gen Intern Med. Diagnostic radiology peer review: The effect of an on-site radiology facility on radiologic utilization in family practice. Interpretation of chest roentgenograms by primary care physicians. Radiologic interpretation by family physicians in an office practice setting. The interpretation of office radiographs by family physicians. Added value of radiologist consultation to family practitioners in the outpatient setting. Effect of audit and feedback, and reminder messages on primary-care radiology referrals: Br J Gen Pract.

## Chapter 2 : Radiology | The Primary Care Center

*If the address matches an existing account you will receive an email with instructions to reset your password.*

Radiology and imaging are non invasive and informative. The course hones skills on when and what imaging investigations to prescribe, their interpretation and escalation to specialist radiologist. Course At A Glance Course: English About the Course General practitioners and family physicians who are the first point of medical contact are very important for the health of a community. However commercialization, corporatization, specialist reductionist approach to health and increasing patient awareness and medicolegal litigations have made general practice difficult. Investigations are increasingly being ordered in defence against law suits apart from diagnostic purposes. Radiology and imaging given its intrinsic quality of being non invasive and informative they are one of the most prescribed investigations. In such a scenario General Practitioners should be abreast with the relevant knowledge in Radiology. Recognizing this potential, IMA eVarsity has designed the six months certificate course in Primary Care Radiology, which imparts enough knowledge and skills for a busy practitioner. The course is for those who wish to develop knowledge and skills in Radiology and Imaging and for all those who wish to better manage radiology investigations in their daily practice. The course is run over six months, using a blended approach, comprising of self-paced online education, complimented case based discussion and graded assessments. It prepares you as a clinician, with comprehensive and up-to-date knowledge in specific areas and allows you to confidently deal with patients. The six months Certificate in Primary Care Radiology aims at imparting you with basic, simple and yet up-to-date knowledge in Radiology at primary care level. The course hones your skills on when to prescribe what imaging investigations, how to interpret them and when to ask for a specialist radiologist opinion. What are the key Features of the program? The program was designed using scientific pedagogic principles to incorporate features drawn from successful on-campus and distance education. These features offer an appreciable advantage by enabling students to: Have sound knowledge related to the basics of Radiology at primary care level. Develop skills, knowledge and attitudes through a structured online learning experience. Candidates should have a clear aptitude for the program and aspire to pursue higher education in this speciality. You may register online or contact your local IMA chapter. You may register up to six months in advance and not more than one week after course starts. Course Syllabus Image quality control and optimization Digital imaging and telemedicine.

### Chapter 3 : Lieberman's eRadiology Learning Sites

*Radiology X-rays are a form of radiation, like light or radio waves, that can be focused in a beam, much like a flashlight beam. Unlike a beam of light, however, X-rays can pass through most objects, including the human body.*

Older polls Radiology X-rays are a form of radiation, like light or radio waves, that can be focused in a beam, much like a flashlight beam. Unlike a beam of light, however, X-rays can pass through most objects, including the human body. When X-rays strike a piece of photographic film, they can produce a picture. Dense tissues in the body, such as bones, block many of the X-rays and appear white on an X-ray picture. Less dense tissues, such as muscles and organs, block fewer of the X-rays and appear in shades of gray. X-rays that pass only through air appear black. Before the X-ray test, tell your doctor if you are or might be pregnant. Pregnancy and risk of radiation exposure to the fetus must be considered. The risk of damage from the X-rays is usually very low compared with the potential benefits of the test. Also, tell your doctor if you have undergone an X-ray test using a barium contrast material such as a barium enema within the past 4 days. Barium shows up on X-ray films and can interfere with the results of an X-ray. An X-ray is taken by a radiology technologist. The X-ray pictures are usually interpreted by a doctor who specializes in evaluating X-rays radiologist. You will need to remove any jewelry that might interfere with the X-ray picture. You may need to take off some or all of your clothes, depending on which area is examined. You will be given a cloth or paper covering to use during the test. During the X-ray test, you will lie on an X-ray table. You will be placed in different positions to obtain the needed views. If the X-ray is being taken because of a possibly serious injury to part of your body, a radiologist will review the first pictures to prevent further injury before taking others. Usually 3 to 5 X-ray pictures are taken. You need to lie very still to avoid blurring the pictures. You will feel no discomfort from the X-rays. However, the X-ray table may feel hard and the room may be chilly because air-conditioning is used to keep the X-ray equipment at a constant temperature. You may find that the positions you need to hold are uncomfortable or painful, especially if you have an injury. There is always a slight risk of damage to cells or tissue from being exposed to any radiation, including the low levels of X-rays used for this test. However, if this test is really needed, the risk of damage from the X-rays is usually very low compared with the potential benefits of the test. There are precautions you can take to reduce your risk of radiation exposure from X-rays. In an emergency, the results of an X-ray can be available within a few minutes. Otherwise, the results are usually ready within a day.

## Chapter 4 : Radiology Services | UI Health

*Fulfillment by Amazon (FBA) is a service we offer sellers that lets them store their products in Amazon's fulfillment centers, and we directly pack, ship, and provide customer service for these products.*

Long Courses Certificate in Primary Care Radiology aims at imparting basic up-to-date knowledge in Radiology at primary care level. Radiology and imaging are non invasive and informative. The course hones skills on when and what imaging investigations to prescribe, their interpretation and escalation to specialist radiologist. Course At A Glance Course: However commercialization, corporatization, specialist reductionist approach to health and increasing patient awareness and medicolegal litigations have made general practice difficult. Investigations are increasingly being ordered in defence against law suits apart from diagnostic purposes. Radiology and imaging given its intrinsic quality of being non invasive and informative they are one of the most prescribed investigations. In such a scenario General Practitioners should be abreast with the relevant knowledge in Radiology. Recognizing this potential, Commonwealth Medical Evarsity has designed the six months certificate course in Primary Care Radiology, which imparts enough knowledge and skills for a busy practitioner. The course is for those who wish to develop knowledge and skills in Radiology and Imaging and for all those who wish to better manage radiology investigations in their daily practice. The course is run over six months, using a blended approach, comprising of self-paced online education, complimented case based discussion and graded assessments. Career Prospects The aim of the Commonwealth Medical Evarsity programs is to enhance the knowledge and practical skills of general physicians and family physicians. It prepares you as a clinician, with comprehensive and up-to-date knowledge in specific areas and allows you to confidently deal with patients. The six months Certificate in Primary Care Radiology aims at imparting you with basic, simple and yet up-to-date knowledge in Radiology at primary care level. The course hones your skills on when to prescribe what imaging investigations, how to interpret them and when to ask for a specialist radiologist opinion. What are the key Features of the program? The program was designed using scientific pedagogic principles to incorporate features drawn from successful on-campus and distance education. These features offer an appreciable advantage by enabling students to: Have sound knowledge related to the basics of Radiology at primary care level. Develop skills, knowledge and attitudes through a structured online learning experience.

**Chapter 5 : Radiology - X-Ray MRI | Hartford**

*Register for the Baylor Scott & White Health Radiology for Primary Care, which is designed to provide a review of common radiology and imaging topics, emphasizing the evaluation of patients from the perspective of the primary care provider.*

Published online Jun Received May 10; Accepted May Abstract This joint paper outlines the current status and future outlook of the cooperation between radiology specialists and general practitioners. It discusses issues of referrals in primary care, imaging requirements, quality of care, types of radiology services and finances, all seen by both sides—radiologists and primary care physicians. Radiology, Primary care, Family care, Guidelines, Access, Quality Introduction—the role of primary care and general practice in health care delivery Primary care may be considered the point of first contact for patients with a doctor and the type of clinician concerned is dependent on the definition used for primary care. Although this central role of general practice in health care is generally accepted in some healthcare systems, the initial contact of a patient may also be a self referral to a specialist that the patient believes is appropriate because of a special symptom or status such as pregnancy. Patients may also present initially at an emergency department with ailments that do not require immediate admission to the hospital, because they do not have access to any other primary care service, and are therefore treated over a short term by those departments. On the other hand patients may sign up with a single or with a group of primary care physicians, a term which is used in this document identically with the term General Practitioners GPs , who provide a continuous, comprehensive and coordinated care and are responsible for diagnosis and treatment of common ailments and for referral to secondary care when necessary, as clearly indicated by the European definition [ 1 ]. This paper is primarily devoted to this third scenario although allowances must be made for the considerable variation in the concept and structure of primary care services for patients across Europe. In some countries primary care services delivered by GPs is as yet less developed and only deal with cases of minimal every day disorders while anything that is more complex is dealt with by a specialist working in outpatient clinics or hospital environments to whom either the GP or the patient self refers. It is not the first time that GPs and Radiologists have produced a joint statement: Now, due an initiative undertaken by the European Society of Radiology, this joint paper with the WONCA Europe underlines the need to see clinical radiology and primary care physicians to work together with the main aim to improve the care of patients in Europe. These primary care physicians have to make the initial evaluation of the patient and instigate appropriate treatment. In doing so, GPs have a specific decision process determined by the prevalence and incidence of illness in the community and by the pre-and post-test probabilities using simple and inexpensive diagnostic tools. When there is uncertainty over the diagnosis or where the treatment required is more complex they are responsible for referring patients to specialists and for providing follow-up care after discharge. In some countries this model is managed and funded directly by the state for example in the UK whereas in other countries it is independent of state management and funded either privately or through a healthcare insurance scheme, which may be state or independently resourced for example in Austria. A recent development in some countries, especially in large cities with a mobile population, is a primary care service being delivered by walk-in centres for immediate care for common ailments ; however, these may lack the knowledge of the patient and the long-term commitment to continuous, comprehensive and coordinated care that is considered the hallmark of many primary care services. In one country in Europe health insurance organisations are allowed to offer contracts at reduced costs if patients agree to first contact primary care physicians in order to reduce specialist visits and the associated costs it is true for Germany, however it has just began to be implemented. However, even in health care systems that provide open access to specialists, the first contact for patients is most often a GP. Referral from primary care to secondary care Primary care physicians require a broad knowledge of medicine: This enables the primary care physician to diagnose and treat most common ailments without recourse to expensive secondary and tertiary hospital based services. The demographic changes with an increasing proportion of old patients with chronic and multiple diseases and who wish to be treated in their own environment also increase the need for

enhanced primary care services. It also empowers them to investigate a patient more fully in conjunction with the clinical radiologist prior to referring to another specialist, which may either avoid a referral or may result in a specific referral to the appropriate specialist thereby keeping delays to a minimum prior to treatment. This also increases the efficiency of hospital outpatient facilities and saves time and cost to the patient. For such a means of referral to be effective the imaging would need to be organised by the clinical radiologist to ensure that the appropriate investigations are performed and to avoid repetition of investigations. In order to provide comprehensive care to take place in the primary care setting, access to a wide range of services is necessary. These include pathology, biology, imaging and also practice and community nursing services. There is also potential for primary care physicians and GPs to refer patients directly to imaging departments for image-guided procedures—both diagnostic and therapeutic—on an out-patient, day case or in-patient basis. Thus, good collaboration between them and clinical radiologists is a need and a challenge at the same time. It serves both clinical disciplines and their patients: Imaging requirements of primary care

In order to fulfil the above objectives it is necessary to address the requirements of patients and physicians in the primary care setting. Some clinical presentations in primary care are common and appear to be easily diagnosed clinically requiring no more therapy than reassurance and proprietary medicines available in all pharmacies by direct purchase. However, some of these ailments may present unusual or worrying features or are out of character for the individual patient all of which require further investigation. Some conditions may be diagnosed or strongly suggested clinically but require imaging to confirm the diagnosis and to assess the extent of the changes. These are then treated appropriately and follow up examinations may be required to confirm or assess the degree of resolution. Sometimes the primary care clinician may be treating a patient with a confirmed diagnosis but resolution is slow or has failed and imaging is required to exclude or define complications. Finally, imaging may be undertaken for more complex cases that require specialist referral but prior investigations in conjunction with the clinical radiologist and the relevant specialist is undertaken to ensure that the referral is to the correct specialist and that the consultation is productive. The types of investigation available to primary care clinicians should be based on relevance to the clinical problem and patient management and not only on the cost or complexity of the imaging procedure. Plain radiography should be provided and chest, bone and joint imaging is widely utilised by primary care services. It has also been shown to be cost effective [ 5 ]. Joint disease is also an important reason for consultation in general practice and although clinical history and examination can assist in the diagnosis of osteoarthritis radiographic demonstration may be required and the x-ray features have been shown to affect management regardless of the clinical picture [ 6 , 7 ]. Unfortunately, access may be limited by the number of more complex systems in some countries and GPs may not be allowed to refer patients directly. However, Magnetic Resonance is now the investigation of choice in many musculoskeletal, spinal and neurological complaints. The use of these modalities in primary care has not been studied scientifically in any detail and there remains a level of debate. The value of lumbar spine MR in back pain is still subject to debate but lumbar radiography or MR is reported to increase patient reassurance and satisfaction [ 9 , 10 ]. Patients with knee pain are commonly seen by GPs and access to MRI for patients presenting to GPs with continuing knee pain has been shown to represent a cost effective use of health service resources [ 11 ]. Despite the absence of detailed evaluation it is clear that these investigations should be accessible to primary care, using the same referral guidelines as secondary care, although in the short term this may be dependent on availability and the allocation of resources. In some situations a single imaging procedure will avoid the need for further investigation and referral to a specialist or hospital, which would cost considerably more and may still involve the cost of the imaging examination. Increasingly complex studies including some MR and nuclear medicine examinations are more likely to be relevant to the specialist and recognition of availability of some studies may require limitation to specific users. Where the investigation requested is considered inappropriate or where a more sophisticated but costly examination is preferred a direct discussion between the primary care physician and the clinical radiologist is of great importance. This, however, is unlikely to be possible on a regular basis due to time constraints of both parties and, therefore, referral guidelines which may be European or national should be utilised by the primary care physician to minimise inappropriate requests. The radiological report should not only describe the

findings and potential diagnoses but should recommend further investigations, including the rationale for the recommendations, and whether more complex and expensive investigations should be undertaken. In some cases this may be followed by a verbal discussion. It is important for the radiologist to identify in the report any positive results that would appear to be irrelevant to the main diagnosis or treatment. It must be recognised that in some cases where a positive investigation result seems unlikely to the radiologist, a negative result is of great value to the primary care physician in reassuring the patient. Some interventional procedures may also be undertaken on the basis of a direct referral to the interventional radiologist from primary care physicians. These may be performed on an outpatient or day-case basis with the post procedural care being shared by the radiologist and the primary care physician. In these circumstances the patient will be under the care of the clinical radiologist who will deal with most of the clinical workup and immediate follow-up. For that the clinical radiologist will have clear protocols in place to deal with complications that may occasionally arise. However, in a number of countries radiologists do not have the facilities to take care of their patients after the intervention and a change in this situation should be encouraged.

**Quality of care, issues for primary care physicians**

**Timing of service** Some conditions managed by primary care physicians are acute and require rapid investigation. The imaging service must be in a position to respond by providing an urgent appointment with an immediate report transmitted to the primary care physician verbally, electronically or by fax, dependent on the systems available. Many conditions, however, are chronic and the timing and speed of the investigation is not critical. These investigations can be performed more easily to suit the patient, particularly if they are working although the result should be efficiently transmitted to the primary care physician in order to allay any anxiety that the patient may have regarding the outcome. It is important also that unexpected findings, which may require more rapid clinical intervention should be transmitted directly to the primary care physician preferably by direct communication.

**Comprehensiveness of service** It is important that the radiology report is accurate and comprehensive not only identifying the lesions but also providing advice on the significance of the findings and providing guidance for further investigation or referral. Many findings on imaging are the result of the normal aging process. Other findings may be anomalies of a benign nature which have no relevance clinically and some abnormalities seen may not be relevant to the clinical problem being investigated but are important to note.

**Clarity of reports** The primary care physician may not be familiar with some of the radiological terminology and a clear decisive report is important. The reporting style may need to be modified accordingly. In some countries the patient has direct access to the report transmitted to the primary care physician which means that technical and clinical explanations must be included in the report as well as clear conclusions and advice for strategy. In certain systems the primary care physician has limited access to the images and, therefore, relies on the report to a greater extent than specialist colleagues. This may, however, change with internet access to digital images.

**Professional communication** It is important that personal contact between the primary care physician and the clinical radiologist is encouraged so that advice can be given about the value of the initial investigation, the need for further appropriate investigations and the clinical implications of the radiological findings. A fair partnership in this communication should overcome traditional references of specialists when they invite to collaborate with GPs [ 14 ]. In some circumstances where an acute problem is identified direct referral to another specialist by the clinical radiologist may be required. This should be done in consultation with the primary care physician

**Types of radiology services for primary care**

**Outreach clinical radiology services** In rural areas, comprehensive radiology departments may not be available within easy access but local community hospitals or primary care centres for example in Greece will have some imaging facilities used by primary care physicians. It is important that these facilities should be directly related to, or under the organisational control of a clinical radiologist. This is important to ensure that the requirements of the EURATOM directive on Ionising Radiation are implemented and that there is proper quality control and trained staff. Where possible there should be direct picture archiving and communications system PACS linking to a central department where the images can be reported efficiently and effectively. In these circumstances it is important for the reporting radiologists to have a dialogue with the rural primary care physicians and organised visits by the clinical radiologists and rotation of staff in and out of the local community hospital departments or rural primary care centres would also enhance clinical

governance and training. In some countries clinical radiologists operate their own small units providing basic or even advanced imaging services to both primary care physicians and specialists working nearby at the community level for example in Austria. Although such a system can be efficient there will inevitably be some limitation on the range of examinations available in small peripheral units; further, the necessary support should be available if intravenous injections of contrast medium, which are associated with potentially lethal complications, are undertaken. Imaging services provided in primary care facilities Imaging services for primary care should usually be provided in Radiology Departments where there is a range of equipment and fully trained expertise. However, in some countries for example in Greece imaging services such as basic radiography and ultrasound have been established in some large primary care centres in rural areas. This may be driven by a desire for patients to receive more routine imaging close to home, which may be valuable for rural communities. There may also be a financial advantage to the practice in some countries with personal insurance-based systems. Although there is some evidence that Australian doctors serving rural and remote areas have undertaken professional development and quality assurance activities in radiology after education [ 15 ] it is unlikely, however, that most centres will have the necessary expertise to deliver these services unless this is provided as an out reach service by a Radiology Department. It is particularly important that all staff members involved in undertaking and interpreting the examinations are properly trained to a similar standard as those in the Radiology Departments that would otherwise be providing the service. They must be suitably qualified, competent and experienced to perform each separate procedure which they are undertaking. They should be performing a sufficient number of examinations to maintain their skills and they should also maintain their continuing medical education in this field. It is also important that the equipment and facilities used are fit for purpose. If radiographic services are provided in the primary care setting they must comply with all national and European legislation. It must be recognised that self referral from clinicians to themselves as imagers has been shown to be more expensive in health care provision; thus, all referrals by primary care physicians should be in line with the referral guidelines published by the EU or by national radiological organisations [ 16 , 17 ]. The provision of these services within primary care setting should represent value for money and should be subject to external audit and monitoring for quality, clinical effectiveness and cost which means that if expensive equipment is installed in primary care facilities it must be fully and efficiently utilised. Ultimately, it is the interpretation of the examination that is key to patient care and the patient has a right to expect a high standard of reporting skill commensurate with the investigation being undertaken. Teleradiology services The increased development of national and international teleradiology services and the ability of complex equipment to be transported to the patient is a major development for primary care imaging provision. These can be sited on a regular or intermittent basis in easy reach of primary care facilities enabling patients to be scanned closer to home in areas with population densities that are insufficient to support a fixed site scanner. The images are transmitted to reporting centres and the reports transmitted back to the primary care physicians.

### Chapter 6 : IMA eVarsity | Radiology Course Online

*Lippincott's Primary Care Musculoskeletal Radiology, part of the Primary Care Series, helps family practitioners, internists, nurse practitioners, and physician assistants identify and diagnose patient injuries based on the radiologic findings that are most seen in the office setting.*

### Chapter 7 : Radiology | UI Health

*Certificate in Primary Care Radiology aims at imparting basic up-to-date knowledge in Radiology at primary care level. Radiology and imaging are non invasive and calendrierdelascience.com course hones skills on when and what imaging investigations to prescribe, their interpretation and escalation to specialist radiologist.*

### Chapter 8 : Physicians Primary Care, Ft Myers, Cape Coral, Lehigh Acres

*At COPC we have mastered the art of embracing the leading technology that advances the future of Imaging and Radiology, without compromising the speed and accuracy of our services.*

## Chapter 9 : Primary Care Imaging

*At Primary Care Imaging, we offer broad and affordable radiology solutions for our clients. We focus on making sure we meet each one of our client's unique needs, improving the quality of care for their patients.*