TELERADIOLOGY

1. PURPOSE: This Veterans Health Administration (VAH) Handbook provides procedures for establishing and managing teleradiology services between Department of Veterans Affairs (VA) medical centers, with other federal agencies, with community facilities, and with teleradiology contractors, within the territorial borders of the United States of America

2. SUMMARY OF CHANGES: This is a first issuance.

3. RELATED ISSUES: VHA Directive 2001-055 “Credentialing and Privileging of Telemedicine and Telehealth Services Provided in Hospitals and Clinics,” September 4, 2001.

4. FOLLOW-UP RESPONSIBILITY: Medical Center Directors (00) are responsible for the content of this Directive.

5. RESCISSIONS: None.

6. RECERTIFICATION: This VHA Handbook is scheduled for recertification on or before the last working day of XXX XXXX.

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Acting Under Secretary for Health

Attachments

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TELERADIOLOGY

1. PURPOSE

This Veterans Health Administration (VHA) Handbook provides procedures for establishing and managing teleradiology services between Department of Veterans Affairs (VA) medical centers, with other federal agencies, with community facilities, and with teleradiology contractors, within the territorial borders of the United States of America.

2. BACKGROUND

a. Teleradiology is an enabling technology that allows radiologic and nuclear medicine studies acquired at one location to be transmitted electronically for interpretation by an imaging physician at a second location. Examples of the use of teleradiology include:

(1) Interpretation of studies off-hours when there is no radiologist in house. This is the most common form of teleradiology in VHA. Off-hours interpretation may be provided by the radiologist on-call reading from their home computer, from a university affiliate or community practice group, or from a company that specializes in this service – often referred to as a “nighthawk” company.

(2) Matching radiologist supply and demand. Studies acquired at one VA facility may be interpreted at another VA facility that is better staffed or staffed with subspecialty radiologists.

(3) Radiologic consultation. An unusual or challenging study may be transmitted to a second facility where a specialist radiologist may consult on the case.

(4) Outsourcing of interpretation to a contractor. In the event of loss of radiologists, or inability to recruit radiologists, some radiologic studies may be transmitted for interpretation by practitioners in private practice groups or universities.

(5) Cross-agency services. Imaging studies may be sent to or received from Federal agencies, such as Department of Defense (DoD) or Indian Health Service (IHS), for interpretation.

b. Teleradiology interpretations may be either preliminary or final. A preliminary interpretation must be verified or read again for the medical record by a second radiologist. Preliminary reading services are less expensive than final reading services. Preliminary interpretations may be made by residents.

c. Images are often exchanged among VA medical centers to support healthcare decisions made by clinical services, but without the intention of generating a report. Examples include transmitting images of a patient that is referred to for care at another VA facility, as well as viewing images at multiple facilities simultaneously during clinical conferences. This type of activity is not specifically treated in this handbook.

3. DEFINITIONS

a. Teleradiology is the electronic transfer of radiologic or nuclear medicine images from one site to another for the purposes of interpretation or consultation.

b. Radiologist and teleradiologist, for the purpose of this Handbook, are meant to encompass all types of physicians who are privileged to interpret radiologic or nuclear medicine studies, regardless of the clinical service in which they are employed.

c. Picture Archiving and Communication Systems (PACS) is an information system to capture, store, transmit, print, and display radiologic images.

d. Digital Imaging and Communication in Medicine (DICOM) is a technical standard for communication of information between radiologic devices and PACS, or between PACS.

e. The ordering facility is the site from which an order for a radiologic or nuclear medicine study is issued.

f. The performing facility is the site at which a radiologic or nuclear medicine procedure is performed and the images acquired.

g. The interpreting facility is the site at which the interpreting radiologist is located when a study is interpreted.

h. Notification is the communication of interpretation results before a written report is available in the medical record, usually by direct conversation. This type of communication is made for STAT exams, or when results require immediate action on the part of the treating team.

i. Preliminary report is a written report of interpretation results that is not signed by an attending radiologist. These are often issued by residents. They may or may not be entered in the medical record.

j. Final report is a report of interpretation results that has been signed or electronically verified by an attending physician who is privileged to interpret radiologic studies. Final reports are kept in the medical record.

k. Modality refers to the type of equipment used to acquire an imaging study. Examples are Ultrasound, Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and Dual Energy X-ray Absorptiometry (DEXA).

l. Radiography is the imaging modality commonly referred to as “plain films,” such as chest and bone x-rays. These studies may be acquired in digital format, and without the use of film, by use of the technologies Computed Radiography and Digital Radiography.

4. APPROPRIATE OUTSOURCING OF INTERPRETATION

Some radiologic procedures may be safely interpreted remotely, while others may not. In general, procedures with fixed protocols may be read remotely, while procedures that involve real-time observation of images, interactive decision making, or intervention should be interpreted by a supervising radiologist who is physically present during the study.

a. Studies that may be read remotely by teleradiology include radiography, US, NM, CT, MRI, and DEXA.

b. Studies that should not be read remotely by teleradiology include fluoroscopic exams, interventional procedures, catheter x-ray angiography, drainages, and biopsies. These should be performed with a radiologist in attendance.

c. Sonography (ultrasound) may be read off-hours by teleradiology, so long as the teleradiologist and technologist agree on the scope of the procedure and images to be obtained before the study is performed. It is recommended that sonography performed during normal working hours be supervised by a radiologist in attendance.

d. Screening mammography may be read remotely, assuming one has specialized equipment to do so. Diagnostic mammography, which unlike screening mammography does not follow a fixed protocol, may be read remotely only if the teleradiologist approves the images, and has an opportunity to order any additional views that may be needed before the patient leaves the imaging facility.

5. SUPERVISION OF PROCEDURES AND TECHNOLOGIST ACTIVITIES

All technologists and radiology assistants work under the supervision of an imaging physician. Supervision is ordinarily made by an imaging physician who is physically present in the facility. Supervision may be made remotely if certain requirements are met.

a. If studies are acquired without a radiologist physically present in the performing facility, then the responsible radiologist should be identified by policy. If a contract teleradiologist is responsible for supervising the technologist, that duty should be delineated in the contract.

b. Under no circumstance may a technologist or radiology assistant communicate their own interpretation of a study, preliminary or otherwise, to anyone outside of the radiology service. Rather, they should relate their observations to the teleradiologist, who will contact the treating team directly.

c. Protocol manuals should be developed at each imaging facility, and approved by the service chief or designate. These manuals should delineate standard images to be acquired. Manuals should be provided to the technologist and to the radiologist so there is no misunderstanding regarding the standards for examination. If the teleradiologist is the supervising radiologist, the teleradiologist should be available to the technologist by phone to answer questions regarding the selection of protocol, and variations to the protocol that may be patient specific. The teleradiologist may customize the protocol for individual patients as needed.

d. A local policy must specify which studies may be performed without first conferring with the radiologist, and which require individual approval. For example, it might be service policy to perform all non-contrast head CTs without calling the radiologist first, but to call the radiologist for approval of all head CTs requiring intravenous contrast. If the teleradiologist is the supervising radiologist, the teleradiologist should be available by telephone to discuss the approval of studies as needed. When studies are scheduled, and not emergent, the study may be approved in advance of the procedure date.

e. Patients who are unstable or require physiologic monitoring must be accompanied in the imaging suite by a nurse or physician. It is unsafe for the technologist, who is busy performing the procedure, to monitor the vital signs of an unstable patient.

f. If a procedure requires injection of iodinated contrast material, a physician must be present in the immediate vicinity of the imaging suite. If the patient is at high risk for a complication from injection of

iodinated contrast material, a signature consent must be obtained before the procedure is performed. The teleradiologist may not administer informed consent or supervise the injection. Each facility must develop a policy that states who evaluates the patient, obtains written consent if needed, supervises the injection of contrast material, and monitors the patient's vital signs if needed when there is no radiologist in house. In the event that consent may not be obtained, alternative provisions of the Informed Consent Handbook 1004.1 must be followed.

6. INTERPRETATION OF STUDIES

When interpreting radiologic studies for VHA, certain standards must be observed.

a. The teleradiologist must be provided with the reason for the study. Contact information for the requesting physician must be provided so that the teleradiologist may request additional clinical information if needed.

b. Relevant prior studies must be made available to the teleradiologist. Interpretations must compare current and prior studies. A mechanism must be in place by which the teleradiologist may request that additional prior studies be transmitted if needed.

c. The teleradiologist should have access to the electronic medical record, or to a health summary, or be able to contact the ordering physician to obtain clinical information such history, cytology results, and laboratory values, as well as reports of prior radiologic examinations. Failure to provide this information will result in less accurate interpretations.

d. All images of the study must be examined, the exception being intermediate images used to calculate final images. If the radiology service chief expects intermediate images to be read as well, this should be delineated in the contract or memorandum of understanding (MOU).

e. Studies that are attempted but incomplete, for example when the patient refuses to continue, should be reported. If the study is technically limited or incomplete, and can not be interpreted with certainty, the teleradiologist must notify the technologist so the study may be repeated. If this is not feasible, can not be done immediately, or is not likely to be productive, the study must be reported, and the technical limitations of the interpretation described in the report.

f. Written final reports should include, at a minimum, the following elements: Name of interpreter, patient name, social security number, case number, date of study, date of interpretation, reason for study (history), comparison studies and dates, a description of the procedure including the scope of the study, the body of the report, and the impression. The report text should list pertinent positive and negative findings.

7. AVAILABILITY OF CONSULTATIONS, NOTIFICATIONS, AND REPORTS

The teleradiology contract or MOU should define the expectations for provision of consultations, direct notification of urgent or STAT results, as well as the expected time to interpret and verify a report. Depending on the intended responsibilities, the contract might include these provisions:

a. The teleradiologist will be available by telephone for consultation to the ordering physician, both before the study is ordered in order to determine the most appropriate procedure, and after the study is performed to discuss the interpretation.

b. The teleradiologist will be provided with the telephone or pager number of the treating team so that emergent findings may be communicated directly at the time of interpretation. The date and time, means, and person to whom that notification was made will be documented in the report or in a note. A back up notification mechanism will be provided to allow communication of emergent findings if the practitioner can not be reached. If the notification or preliminary report differs significantly from the final report, the final radiologist is responsible for so informing the treating team.

c. Findings that require follow-up, but which are not emergent in nature, will either be communicated directly, or a diagnostic code entered at the time of verification to trigger an electronic alert.

d. STAT studies will be read, and the interpretation returned, within a specified time period from receipt of the study.

e. Written final reports will be transcribed, and verified by the teleradiologist (electronically signed) within a specified time from completion of the study. If teleradiologists use their own transcription service, they are responsible for timeliness of the transcription.

f. When providing teleradiology interpretation of digital mammography images, the teleradiologist must comply with the patient notification and reporting requirements of the Mammography Quality Standards Act (MQSA).

8. MEDICAL RECORD STORAGE

a. Reports will ordinarily be stored at the facility ordering the study, and the facility performing the study (which may be same location), but need not be stored at the facility interpreting the study, unless otherwise agreed to by the Medical Center Director.

b. It is strongly recommended that radiology reports be entered directly into the Radiology Reports section of the VA electronic medical record as text, and electronically signed by the interpreting radiologist. This may most conveniently be achieved if the teleradiologist uses the same transcription service as the ordering facility.

c. In the event that reports are returned as signed hardcopy only, the document may be scanned into VistA Imaging, attached to an administrative radiology report, and administratively verified, or “signed on chart.” The administrative report text might read “A hardcopy radiology report is attached.” If diagnostic codes are set, the administrative report must be verified by a radiologist. If hardcopy reports are transcribed into the medical record, the report must be verified a second time by the teleradiologist.

d. Written preliminary reports must be retained until the final report is verified, and until they are no longer needed for quality assurance and peer review purposes. Preliminary reports need not be entered in the medical record, however, any significant discrepancies between the preliminary and final report must be documented in the final report, and the treating team so notified.

e. Images must ordinarily be stored at the facility performing the procedure, unless there is an alternative plan approved by the Medical Center Director.

f. The facility or contractor providing teleradiology interpretation may temporarily store copies of reports and images, but must delete or destroy all copies after the contract has expired, excepting records

required for billing and reimbursement purposes, or expecting records for which the patient has requested a release of information that would authorize the interpreting facility to retain those records.

9. PROFESSIONAL QUALIFICATIONS

Guidance for credentialing and privileging of telehealth professionals is provided by Directive 2001-055 “Credentialing and Privileging of Telemedicine and Telehealth Services Provided in Hospitals and Clinics.”

a. Teleradiologists must be credentialed and privileged at both the facility where the procedure is performed, and at the facility where the procedure is read. Teleradiologists must meet the same privileging standards as VA employee radiologists.

b. If the teleradiologist is not a federal employee, and is not working in a federal facility, then state licensure rules apply. Licensure rules for teleradiology are complex, and vary among States. State laws may require licensure at both the performing and interpreting locations, or just at the location where the interpretation is made.

c. Residents may only provide preliminary interpretations. Residents must be supervised by an attending radiologist who is privileged to practice at the requesting site. A training affiliation agreement may be required so that the resident is covered by medical malpractice insurance. Residents may read only those studies that are appropriate to their level of training in accordance with a resident supervision policy. In addition, residents may only read studies for which the supervising attending radiologist is privileged.

d. Residents who are Board eligible may be hired as licensed independent practitioners, in which case they may provide final interpretations, and need not be supervised. However, they might not receive malpractice coverage from their training institutions.

10. LIABILITY

a. Teleradiologists are responsible for the accuracy of their final reports, whether entered as electronic text or scanned as hard copy. Transcriptions must be corrected by the teleradiologist before report verification.

b. Similarly, teleradiologists are responsible for the accuracy of preliminary reports and notifications made directly to clinicians.

c. When teleradiologists offer consultation to a second attending radiologist, who then dictates a report, the dictating radiologist is responsible for the content of the report.

d. Teleradiologists may or may not be responsible for ensuring that studies are indicated and appropriate, that informed consent is obtained when needed, and that patients are safely monitored during the procedure. Responsibility for these duties should be delineated in local policies, and in the teleradiology contract or MOU.

e. Malpractice insurance is required when final reports are provided, or when notifications or preliminary reports are communicated directly to non-radiologist clinicians. Teleradiologists who are not

VA employees or residents must carry their own malpractice insurance, unless otherwise stated in the contract.

11. MONITORS OF CLINICAL PERFORMANCE

Teleradiologists who live far from the radiology service are not expected to attend service QA meetings, but are expected to participate in focus reviews and morbidity and mortality reviews of those incidents in which they provided care. A physician profile of all teleradiologists must be kept by the radiology service chief for purposes of renewal of privileges. The profile for teleradiologists should include, at a minimum, the following elements:

a. Peer review of interpretations performed at least annually. Errors in interpretation, in completeness, and in documented communication of urgent findings, may be aggregated by the radiology service chief and compared with other radiologists.

b. Complaints and compliments regarding interactions with other caregivers, availability and responsiveness, and usefulness of consultation provided.

c. Timeliness of result notification if required by the contract, and of report verification.

12. WORKLOAD ASSIGNMENT

Workload is assigned according to the Current Procedural Terminology (CPT) codes and modifiers selected upon registration of procedures in the Radiology Package of VistA. Procedure registration is a prerequisite to the entry of reports, and to the indexing of studies in VistA Imaging. Registration at more than one VA facility may be necessary in order to enter reports or images at those facilities, but care must be made not to assign duplicate workload. Duplicate workload may, in most instances, be avoided by use of proper CPT code modifiers.

a. Assignment of the technical workload component of the Relative Value Unit(RVU) will be made to the facility that performs the study.

b. Assignment of the professional workload component of RVU will be made to the physician who is named as the “primary interpreting staff” in VistA. If an independent interpretation is ordered at a second facility, and a separate report generated and verified at that second facility, the second radiologist may also claim the professional component.

c. If studies are registered at additional facilities merely for purposes of indexing a report or storing images, then no workload will be assigned.

d. Note that these assignments do not account for all work activities that might support teleradiology. The facility that sends patients to another medical center to be imaged, or images to another facility to be interpreted, may expend a considerable amount of labor in coordinating the contract, but this does not result in workload assignment through CPT codes. This labor may, however, be mapped for entry in Decision Support System (dSs).

13. SECURITY AND PRIVACY

Teleradiology arrangements must comply with all Federal laws and regulations, VA regulations and policies, and VHA policies on privacy and security. Current policy includes, but is not limited to, VHA Handbook 1605.1, “Privacy and Release of Information” and Handbook 1605.2, “Minimum Necessary Standard for Protected Health Information”. Security rules for remote access to the VA computer network are contained in VA Directive 6212 “Security of Electronic Connections.”

Teleradiology may involve sending patient information between two or more VA facilities, where the information resides on VA imaging systems. The VA’s national Wide Area Network (WAN) and Veterans Integrated Services Network (VISN) WANs provide secure communications internal to the VA. Privacy of images transferred from one VA facility to another within these networks is protected by a tightly configured system of routers, switches, as well as physical and logical firewalls.

Teleradiology may involve sending patient information to non-VA facilities, where the information resides on non-VA imaging systems. Such arrangements must be established via a government contract which meets the requirements dictated by VA’s Office of Acquisition and Materiel Management and the Federal Acquisition Regulations. Section 16 of this handbook, on “Contracts and Agreements” identifies issues which need to be addressed in such contracts.

VA’s privacy regulations do not require that a patient consent to release of his/her individually identifiable information to a contractor who provides radiological interpretations. Handbook 1605.1 states specifically that VHA may disclose or release individually-identifiable information to VA contractors for the purpose of the contractor performing a service under contract (subparagraph 12c.). The non-VA contractor, as a health provider, is responsible for managing the patient information in conformance with the Health Insurance Portability and Accountability Act (HIPAA).

Before establishing a teleradiology connection, consult your Information Security Officer, who can help you to comply with security rules, and gain all necessary approvals. The following is not intended to provide a comprehensive list of security requirements, but rather to emphasize issues that may be important or problematic in establishing an external connection for teleradiology.

a. Computer networks. Transfer of images to or from teleradiologists outside of the VA WAN requires “remote access.” Remote access must comply with the current interpretation of specifications found in VA Directive 6212, “Security of Electronic Connections”. These specifications address such security controls as:

(1) Configuration and installation.

(2) Access management, including secure system authentication and applications restricted only to those with a need to use them.

(3) Auditing of usage and filtering/regulation of Internet ports.

(4) Notification of threats, including unsolicited distribution of executable files as well as the notification of efforts by users to gain access to systems to which they do not have a need.

(5) Firewalls or other network security tools, and encryption. At this time, remote users accessing the VA network via the Internet must use virtual private network services (One VA VPN). The One VA VPN provides for secure authentication, tunneling through the national firewalls and encryption of data/images. Policy on requirements for point-to-point connections between a VA facility and non-VA contractor is

under development. At a minimum, it is expected that these connections will be required to undergo a certification and accreditation process. Your Information Security Officer can provide you information on this process. The policy will also provide details on the technological requirements for such connections. Information technology of all types changes rapidly; your Chief, Information Resource Management or facility CIO can assist you in addressing the technology issues.

b. Personal authorization and access

(1) All VA employees are trained to maintain the privacy and security of protected information. VA policy on privacy and security is well documented. Training on this policy includes information on HIPAA regulations, secure use of computer systems, protection of sensitive data, and information security.

(2) All VA employees' positions are to be assigned sensitivity designations based on their national security and public trust responsibilities. These designations determine the level of background investigations required for incumbents of these positions (see VA Directive and Handbook 0710, "Personnel and National Information Security"). These same requirements apply to contractors. Without compensation appointees with appointments of greater than six months are also subject to these requirements.

(3) Contractors who are "health providers" under HIPAA should be following the national HIPPA regulations that provide for security and privacy of patient information. Contractors who are not "health providers" are required to sign Business Associate Agreements for privacy issues that usually involve patient/veteran confidentiality as well as for issues involving the disclosure of knowledge related to the VA physical and information systems architectures.

(4) Access to teleradiology systems must be controlled by user name and passwords specific to each user. An audit trail must be electronically logged, so that inappropriate access may be detected and investigated.

c. Secure communication of text information.

When sending patient identifiable text information between sites, such as patient lists, radiology reports, and billing records, use encrypted e-mail, fax, or express mail. All fax communications of protected or sensitive information must be point to point. The sender of the fax must contact the intended receiver prior to the transmission and the receiver should be standing by to receive the facsimile. Ideally the facsimile machine should be placed in a controlled access environment such as the radiology file room. Express mail services offer tracking of a package or letter from point of origin through to destination, thereby satisfying the requirement for an audit trail.

d. Subcontractors.

Images given to contractors cannot be sent on to other parties to be interpreted. See Section 16 on "Contracts and Agreements" for additional information on this topic.

14. EQUIPMENT SPECIFICATIONS

a. When acquiring images for transmission by teleradiology, it is preferable to use direct digital equipment rather than printing and then digitizing film. Digital studies should be sent to PACS using

DICOM standard at full matrix size and bit depth. If film digitization is used, resolution should be 2.5 or more line pair per millimeter, and at least 10 bit pixel depth.

b. The speed of image storage, retrieval, and transmission must be compatible with the clinical and contractual needs for timely service. Network capacity must be appropriate to the clinical needs of the facility and medical staff, and must not prohibit the teleradiologist from completing assignments within the time frames that were agreed to.

c. Reversible and irreversible compression may be used when transmission bandwidth is limited, but only if there is no clinically significant reduction in diagnostic quality. The radiology service chief should approve all compression schemes and ratios for each modality.

d. Display systems used by the teleradiologist must meet minimum specifications.

(1) The workstation must accurately associate patient demographics with patient images. The workstation must be able to display the following parameters for each image: patient name, social security number, study date and time, the use of compression (if any), overlays including demographics and anatomic labels, clinically relevant technical parameters, as well as the series number and image number within the series. The workstation must be able to display the case or accession number for each study.

(2) Luminance of gray-scale monitors should be at least 50 foot-lamberts. For small matrix images (Sonography, CT, MR, Nuclear Medicine, Fluoroscopy), the workstation monitor(s) must able to display the entire matrix at full resolution, with at least 8 pixel bit depth. For large matrix images (Radiography), resolution of the workstation monitor(s) must be at least 2 mega pixel, with at least 8 bit depth. If images were acquired with color, at least one monitor of the workstation should be capable of displaying color.

(3) The workstation must be able to select studies, series, and images for display, and to compare different studies or series by displaying them simultaneously.

(4) The workstation must be capable of window and level, pan and zoom, rotation and flip, as well as measurement of length and pixel value.

e. Quality control. There must be documented policies and procedures to ensure proper performance of the system, monitor calibration, data integrity, and data back-up.

15. PLANS AND AGREEMENTS

Successful teleradiology requires the coordinated efforts of many people, including physicians, radiology technologists, clerks, teleradiologists, transcriptionists, engineers, and computer specialists, working at remote sites, often at night and weekends. Teleradiology also involves complex technology, including electronic medical records, PACS, computer networks, FAX machines, firewalls, authorized access, and so forth. All of these elements must work in coordination. All too often, teleradiology agreements break down because of differing expectations for responsibilities, unrealistic performance requirements, or an inadequate plan for communication. These problems may be avoided by crafting a well written agreement.

a. The goals should be clearly stated. A workflow process should be defined, listing each step of the process. Procedures and responsibilities should be specified in detail. All persons involved should

understand and agree to their responsibilities. It may be helpful to name a teleradiology coordinator who maintains records, and is the point of contact for reporting problems.

b. Contact numbers, on-call schedules, etc. should be provided and kept up to date. A means of direct communication of urgent results to the treating team or ordering physician should be provided.

c. Infrastructure and technical support needed to initiate and maintain the project should be determined.

d. There should be a contingency plan, with system redundancies both for failure of equipment and absence of personnel. Situations that trigger alternative actions should be defined. Back-up and maintenance personnel should be specified.

e. A robust tracking system should be in place to perform QA, discover missing reports, calculate workload and billing, assess penalties, defend the VA in the event of a tort claim, and adjudicate disputes. Activity records should be trended. Records should be reconciled with the contractor frequently. At a minimum, the following transactions should be recorded for each study:

(1) Patient requisitions and images sent, time, and by whom.

(2) Patient reports received, name of teleradiologist, time, and by whom.

(3) Time of report verification.

(4) In addition, the teleradiologist must document in the report all conversations with the treating team regarding emergent results.

f. Performance metrics are important in medical processes where speed and accuracy are vitally important. Expectations for turnaround time, and performance penalties, should be predetermined.

g. There should be a provision for periodic meetings to review workload and coding, performance metrics, and to resolve problems.

h. It is often simplest to contract with a local radiology group, rather than a remote one. Local groups may be more easily monitored. Often local radiologists, and the quality of their work, will be familiar to your staff.

i. Consider a gradual implementation, adding complexity later. Perfect your process on routine studies before contracting for STAT exams.

j. There are generally two ways to provide access to images. Either the studies are transferred to the PACS system or workstation of the teleradiologist, or the teleradiologist logs in remotely to the PACS of the performing facility.

(1) The advantage of study transfer is that image manipulation may be faster, facilitating interpretation. Also, the teleradiologist provides their own equipment. The disadvantage is that someone at the requesting facility must be available at all times to ensure that studies and priors are sent (“pushed”) to the teleradiologist. If the teleradiologist is given permission to query the PACS of the performing service, then the teleradiologist can request (“pull”) their own studies. A third alternative is to allow the

teleradiologist to log in to the PACS where the study was performed in order to push studies back to their teleradiology system.

(2) The advantage of remote log on is that coordination of study transfer is no longer needed. However, in this case the teleradiologist must have a compatible workstation, and the network must be fast enough to support remote manipulation of images.

k. Appendix A is a list of elements that should be included in any teleradiology agreement or contract.

16. ROLES AND RESPONSIBILITIES

a. The Medical Center Director:

(1) Approves all teleradiology contracts.

(2) Approves any plan to store images or reports outside of the facility.

(3) Oversees credentialing and privileging process.

b. The Chief of Staff:

(1) Ensure a communication of results procedure is in place, specifying a system of surrogates when the ordering physician is not available.

(2) Approves appointment and assignment of privileges to teleradiology staff.

c. The Radiology Service Chief:

(1) Ensures that a written teleradiology procedure is in place that delineates responsibility, ensures successful communication, and provides for contingencies. Assigns individuals to record transactions, including images sent and reports received.

(2) Works with teleradiologists to establish standard procedure imaging protocols.

(3) If the teleradiologist provides coverage when there are no radiologists present on station, establishes a policy defining what studies require prior approval by the teleradiologist, and devises a contrast injection policy, defining who approves study, who administers informed consent, who supervises the injection, and who monitors the patient.

(4) Ensures that peer reviews are undertaken, timeliness of interpretations is monitored, and that complaints and complications are reviewed, and that this information is used when renewing privileges and contracts.

(5) Ensures that residents who provide teleradiology are appropriately supervised.

(6) Works with teleradiologists to establish a policy defining what prior examinations should be transmitted to the teleradiologist for comparison with current examinations.

(7) Ensures that when compression is used to transmit images to the teleradiologist, the compression scheme used results in images of diagnostic quality.

(8) Appoints a specialist to supervise the computerized teleradiology system and PACS. The specialist undertakes monitors of quality control, data integrity, back-up of patient records, and accuracy of patient demographic data entry.

d. The Teleradiologist:

(1) Depending on the terms of the contract, approves studies, provides procedure protocols, supervises technologists, provides consultation to clinicians, communicates notifications and interpretation reports, and verifies reports promptly within the timeframe agreed to.

(2) Participates in quality improvement of the teleradiology process, and in complication reviews as requested.

(3) Complies with VHA regulations, including patient information confidentiality and security.

17. REFERENCES

a. VHA DIRECTIVE 2001-055 "Credentialing and Privileging of Telemedicine and Telehealth Services Provided in Hospitals and Clinics," September 4, 2001.

b. VHA DIRECTIVE XXX "International Telehealth." (in concurrence)

c. VHA Handbook 1004.1 Informed Consent for Clinical Treatments and Procedures

d. ACR Technical Standard for Teleradiology

e. ACR Practice Guideline for Communication: General Radiology

f. VHA Radiology Program Interim Guidance on Reporting of Abnormal Results

g. VHA Directive 2003-043 Ordering and Reporting Patient Test Results

h. VHA Handbook 1104.1 Mammography Standards

i. Mammography Quality Standards Act (MQSA) of 1992 PL 102-539

j. VA Directive 6212 "Security of External Electronic Connections."

RECOMMENDED ELEMENTS OF A TELERADIOLOGY AGREEMENT

Depending upon the scope of the teleradiology plan, agreement, or contract, consider including each of these points:

1. Dates, days of week, and hours of day of service.

2. Types of studies, expected volume.

3. Names of teleradiologists. Level of training. Credentials and privileges at facility providing service, license. If resident provides services, training program and VA-privileged attending radiologists who will provide supervision. Requirement that contractor will not substitute other teleradiologists for privileged ones named in contract.

4. Nature of reports, whether preliminary or final. Performance time for notifications, reports, and report verification, as relevant to the types of studies to be read. Performance time for STAT studies and how they are identified. How timeliness will be monitored. Policy for communication of results and for direct communication of urgent results, as applicable to the scope of contract.

5. Standards for accuracy and completeness of reporting. Teleradiologist peer-review mechanism.

6. When there is no in-house radiologist at the requesting site, how the teleradiologist and technologist will be notified that a procedure needs to be done. Policy for approval of emergency procedures. Who supervises procedures and how. Who sets protocols. How the technologist confers with teleradiologist, if applicable, to discuss patient specific concerns and modifications to protocol. Depending on the types of studies specified in the contract, how patients are evaluated prior to procedure, and how written informed consent is obtained. Who starts IV lines and injects contrast and how is this supervised. What physician supervises contrast injection. Who monitors critically ill patients, if applicable.

7. For both routine and emergency studies, how teleradiologist is informed that a study needs to be interpreted. How the reason for study (history), and other medical information is provided to the teleradiologist. Who transmits images to the teleradiologist. If demographics exceptions must be corrected before studies may be forwarded from PACS, who performs this task. Who selects prior comparison studies, how will they be selected, and how will they be sent to the teleradiologist. If transmission was unsuccessful, or if additional prior studies are required, whom the teleradiologist will contact to have additional studies sent. (Some of these steps may not be necessary if the teleradiologist access images by remote log-on.)

8. How clinicians will discuss the appropriate ordering of studies with the teleradiologist, if relevant to the nature of the contracted service. How the teleradiologist contacts the ordering physician to clarify the reason for study. How the teleradiologist notifies the clinician of an urgent finding, and how will this be documented. If clinician can not be contacted, what is the fall back plan for communication of emergent results. How clinicians will contact the teleradiologist to find results or clarify preliminary interpretations.

9. How the dictation will be transcribed and by whom. How report text will be up-loaded into VistA. How the teleradiologist will verify reports.

10. How the requesting facility will record names of patients and time that each interpretation was requested, images sent, and names of reports received.

11. How names of responsible individuals, duty rosters, call-schedules, and contact numbers will be kept current. How sudden changes in assigned personnel or contact numbers will be communicated.

12. The QA process by which deficiencies in timeliness and report accuracy will be corrected. How the teleradiologist will participate in QA activities, including complication review.

13. Whether contractor must carry malpractice insurance. Whether teleradiologist agrees to participate in claims defense.

14. The contingency plan for equipment or network malfunction. How all parties are notified of down-time. Individuals responsible to correct the deficiency, and how are they contacted.

15. How parties are notified if the teleradiologist is ill or cannot be available.

16. Where reports will be stored. Where images will be archived.

17. If contractor or teleradiology facility provides image archival services, how archive will be monitored for completeness and integrity. Requirement that studies are indexed according to patient name, SSN, and VistA case number. Responsibility for moving patient images to another archive when the contract is terminated.

18. Who will provide teleradiology and/or network equipment. If contractor provides equipment, minimum standard requirements. Approval of any compression schemes.

19. Where interpretation will take place. VA security directives, including secure firewalls, isolation of networks, security and privacy training and rules of behavior. Method of secure electronic transmission. Use of an approved gateway, such as 1VA VPN. Compliance with access rules, including authorization and logging of audit trail. Responsibility for timely application of security patches to operating systems, firewall, and antiviral software. Requirement for BAA. Agreement to erase or destroy patient information at end of contract.

20. Requirement to not forward studies or reports to third parties. Names of any subcontractors, and prohibition from using other subcontractors unless authorized in advance. Method to monitor whether work was actually done by the contractor if relevant (for example, unannounced phone calls to confirm teleradiologist is on duty).

21. Requirement for pre-award inspection of contractor’s facility.