TABLE OF CONTENTS

I. PRESIDENT'S MESSAGE — Robert S. Pyatt, Jr., MD, FACR

It is a busy winter season for the PRS. The Medicare Deficit Reduction Act, passed in December 2005, proposes to reduce markedly the technical fee for outpatient MRI performed at physician-owned imaging locations (and less drastically for other procedures). This broad-based approach results in a dramatic reduction in technical fees at non-hospital sites without regard for radiologist vs. non-radiologist imaging.

It is hoped that the ACR can reverse this in 2006. It is very important that Radiology groups CONTRIBUTE to RADPAC and the ACRa to get the attention of Federal legislators. **Do this now**. The PA RADPAC also needs your support. We have two bills under consideration in the Pennsylvania legislature. Senate Bill 838, the Telemedicine Bill, should receive your support and will hopefully be passed after many years of work! The other bill, House Bill 1774, the self-referral bill, is in the Insurance Committee and is struggling to get free for more action. The Pay for Performance (P4P) Initiatives, which were expected to gain more support this year, have moved backwards, replaced by the "big slash approach" to reducing expenses by markedly reducing payments (technical components). However, it is expected that the P4P approaches will increase in the years ahead. The ACR is working hard on the IPRC (Imaging Provider Report Card, which I co-chair) as a means of measuring Quality at Imaging Sites. The Metrics Committee is also working hard on quality measures. The future in imaging will involve more efforts to improve patient safety and quality. This is our advantage over other physician groups that perform imaging.

As a result of these efforts, I have included in this Bulletin the work of the Mayo staff on the issues of Contrast Nephropathy and Patient Safety. You will see their efforts to improve patient safety, quality, and consistency across all sites (they have well over 100 radiologists and many sites). Efforts like this will improve patient safety, quality, and radiology value. Please see my comments at the Quality and Safety part of this Bulletin.

I would like to thank the PRS Executive Director, Bob Powell, and the Quantum Imaging staff for the outstanding work they did at this year's Annual Farm Show in Harrisburg. This event, in the first week of January, attracted thousands of attendees and highlighted our booth with the performance of on-site sonograms and DXAs. This met with great interest and a very strong thank you letter from the Department of Health. I hope we can do the same next year. A special thanks to the staff of Quantum Imaging in Harrisburg for making this happen and increasing the visibility of radiologists and Radiology.

Highmark's initiatives to alter the inappropriate utilization of imaging have undergone many revisions since they were first released. This is due to the strong political issues at stake. The current version indicates much softening in language that would have mostly been beneficial to Radiology groups and would have decreased inappropriate utilization. The five-modality rule has been significantly weakened. You can cover three of the five modalities with an ultrasound unit. The weekday and weekend rules have been eliminated. Other rules were softened or eliminated. Most non-radiologist MRI centers now can easily bypass the Highmark regulations. The Highmark initiative is now minuscule compared to the original concept. Other initiatives are in the works by various other payers.

As we prepare for the Annual Meeting of the ACR, I appreciate the contributions of the PRS staff, especially our extraordinary Executive Director, Bob Powell, our Senior Councilor, Dave Buck, MD, Government Relations Leader/Past President Tim Farrell, MD, FACR, and our Councilors and Alternate Councilors. Please let us know what issues you have as we approach the Annual Meeting in Washington, DC.

I also want to thank the efforts of Past President Peter Arger as he works with the Residents and Fellows. His efforts to increase Resident & Fellow activities within the PRS are a very positive event for Pennsylvania Radiology.

I would also like to thank Dr. Dave Levin for all his efforts with the Pennsylvania Medical Society's Task Force on Imaging. As the sole Radiologist on this Task Force, he has done a superb job as an advocate and defender of our contributions to improving patient care and safety and quality of imaging services. He has been especially outspoken on the issues of inappropriate utilization of imaging and the need for appropriate qualifications for those who perform imaging.

We are developing the agenda for the Annual Meeting in Philadelphia this October. If you have any suggestions for topics, speakers, issues, etc., please let me know (rsp1@aol.com or bob_pyatt@hotmail.com). It is the plan at this time to highlight Cardiac Imaging and Coronary CTA in the afternoon focus session. In the morning session we will again have an ACR leader speak on the hot issues across the country. Also, ever popular ACR Coding and Nomenclature Chair, Rich Duszak, MD, will be speaking on coding issues. Other speakers are in development. The meeting will be at the Four Seasons Hotel, with 7 hours of free CME on Saturday, October 28. These CME credits meet the state licensure requirement for Patient Safety/ Risk Management. Save the date!

ACR Practice Accreditation in Radiation Oncology

The ACR has requested that we recognize the following two Pennsylvania sites that have recently achieved ACR Practice Accreditation in Radiation Oncology. This accreditation is a testimony to the groups' commitment to establishing and maintaining high practice standards in their medical specialty.

- UPMC Cancer Center - McKeesport
- UPMC Cancer Center - Johnstown

II. EDITOR'S COLUMN — Thomas S. Chang, MD

This month, I thought I would relay some interesting new items I've read recently. Hopefully, you'll find them just as interesting.

Malpractice Insurance Subsidies to Breast Imagers

New Jersey has paid almost $11,000 to each neurosurgeon, obstetrician, and breast imager in the state to help pay for escalating malpractice insurance premiums and will continue making these payments for two more years. The 2004 law that earmarked these subsidies was enacted in response to fears of physician shortages in these specialties.

It seems to me that this solution is only a band-aid for the larger underlying problem of inequitable reimbursements. Part of this inequity is the result of inadequate accounting for litigation risk in certain high-risk procedures, including breast imaging, fetal ultrasound, interventional radiology, and orthopedic radiology.

If "Failure to Diagnose Breast Cancer" is at the top of the list of reasons radiologists get sued and make large malpractice payments, reimbursements for mammograms should not be near the bottom of the barrel. At most hospitals, mammography is a loss leader and is offered only because it's expected in a full-service radiology department and because it's a way for hospitals to keep patients and their families within their system for their other more lucrative procedures. I'm sure most of you reading this would agree with this assessment in your own departments. Why can't reimbursements more accurately reflect not only time, effort, and expenses, but also litigation risk? If there had been higher reimbursements for high-risk procedures, New Jersey may have been able to avoid paying these costly subsidies.

Unlikely Champion of Radiology Reimbursements Could Be a Lawyer

In auntminnie.com, I read about an elder care attorney who is single-handedly doing something that may save many radiology practices nationwide. Jim Zeigler (jimzeigler.com) is challenging the constitutionality of the Deficit Reduction Act of 2005 that President Bush signed into law in February. That's the law that will make drastic cuts (almost $3 billion) in payments for imaging services performed in outpatient offices. Mind you, Mr. Zeigler is not doing this because he loves radiologists or feels indebted to radiology. As it turns out, the law also has a provision that penalizes certain Medicaid recipients who enter nursing homes. Many of his clients fall into this category. Hence, his interest in seeing the law overturned.

According to the U.S. Constitution, both the House and Senate must pass identical versions of a bill before the President can sign it. Interestingly, the length of time that oxygen would be covered under the new law is different in the two versions of the bill. That means the bill never should have reached the President's desk and the cuts to radiology never should have occurred. If Mr. Zeigler succeeds, the lost revenue at outpatient imaging centers should be reversed. Stay tuned to see how this challenge plays out in the courts.

A Different "PET" Scan

First, there was the CAT scan. Then along came the PET scan. Now comes the new and improved "PET" scan. Researchers have found that dogs, who we all know have a keen sense of smell, were able to identify 99 percent of lung cancers and 88 percent of breast cancers just by smelling breath samples. These numbers are better than many of the imaging tests we currently use for detecting these cancers. The researchers are not sure what exactly the dogs smell in the cancer patients' breath. But whatever it is works. I hope this doesn't mean that New Jersey will stop paying mammographers and start looking for breast imagers in kennels.

Please email me any articles you would like considered for publication. Questions for the Experts and Letters to the Editor are welcome as well. I hope to see many of you at the ACR meeting in Washington, DC.

III. CODING Q & A — Richard Duszak, Jr., MD, RCC

Obstetrical Ultrasound Coding

We routinely perform obstetrical ultrasound studies in the 2nd and 3rd trimesters, and report them using CPT® code 76811. Several insurers, however, are denying payment, stating that this service is not medically necessary for routine obstetrical scans. Are they right?

In most radiology practices, the majority of 2nd and 3rd trimester fetal ultrasound examinations will be reported using CPT® code 76805 (Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (∃14 weeks, 0 days), transabdominal approach; single or first gestation). The documentation requirement for this service is not insignificant. In its *CPT Assistant* publication, the American Medical Association states that this services includes: "determination of number of fetuses and amniotic/chorionic sacs, measurements appropriate for gestational age (∃14 weeks 0 days), such as biparietal diameter, head circumference, femur length and abdominal circumference, survey of intracranial/ spinal/ abdominal anatomy, four-chambered heart, umbilical cord insertion site, placenta location and amniotic fluid assessment and, when visible, examination of maternal adnexa." When less comprehensive studies are performed, CPT® code 76815 (Ultrasound, pregnant uterus, real time with image documentation, limited (e.g., fetal heart beat, placental location, fetal position and/or qualitative amniotic fluid volume), one or more fetuses) may be more appropriate.

CPT® code 76811 (Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach; single or first gestation) describes high-level anatomy-intense examinations (i.e., those historically described in the obstetrical community as "level 2" studies). This code is intended to describe the extensive fetal evaluation required for pregnancies at increased risk of congenital anomalies. Accordingly, many payer policies restrict its use to very specific high-risk diagnoses. This code includes all of the elements of the aforementioned CPT® code 76805. In addition, it requires a detailed anatomic evaluation of the fetal brain/ ventricles, face, heart/ outflow tracts and chest anatomy, abdominal organ specific anatomy, number/ length/ architecture of limbs and detailed evaluation of the umbilical cord and placenta, in addition to evaluation of any other fetal anatomy as clinically indicated. Note the number of times the word *and* appears in that last sentence; the amount of work involved is substantial!

Based upon 2004 Medicare data, radiology practices typically report 76811 and 76805 at a 1 to 10 ratio. Depending upon referral patterns, some practices will legitimately report CPT® code 76811 with a higher frequency. As part of their ongoing compliance efforts, such practices should carefully conduct internal audits of the medical necessity for and final dictated reports of such studies to ensure that the billed service is appropriate. Payers will often audit practices identified as statistical outliers. As long as documentation is adequate (i.e., the examinations are ordered, medically necessary, and reported in appropriate detail), such audits should be uneventful.

For more information, refer to *CPT Assistant*, March 2003.

Documentation of Contrast Administration

Our hospital's compliance officer is challenging the documentation of some of my partners, stating that our practice can't code for a contrast-enhanced study without specific radiologist mention of the volume of administered contrast in their CT reports. They routinely state that "no abnormal enhancement is present." Shouldn't that suffice?

Yes and no. CPT® categorizes CT studies into three categories: those without contrast, those with contrast, and those performed both ways. A study cannot be appropriately coded unless the medical record indicates how the examination was performed. Without a code, there can be no bill, and without a bill, there can be no payment.

How much of the medical record is available to the coder is dependent upon a practice's information technology systems. The dictated comment about lack of enhancement clearly implies that contrast was administered, but some payers read such reports very literally and are either reluctant to pay a higher fee for a contrast enhanced scan without explicit mention that contrast was administered. Accordingly, when contrast is administered, a statement to that effect may prove helpful in the event of an audit.

When imaging services are coded differently based upon the specifics of the examination (e.g., presence of contrast for CT, or number of views for skeletal radiography), radiologists are encouraged to provide that information in their report to facilitate accurate coding within their practice. At the practice level, without the mention of intravenous contrast, the coder may believe that no contrast was administered and that means the service is billed at a lower level, leaving your money on the table.

For professional service billing, it is not necessary to mention the specific volume of contrast. Current Procedural Terminology does not require this. Additionally, the ACR Practice Guideline for Communication of Diagnostic Imaging Findings does not require such physician documentation as long as such administration is documented elsewhere in the medical record (e.g., the technologist worksheet or requisition). However, for technical billing, the volume information may be necessary to secure appropriate payment for the administered contrast.

For more information, refer to the ACR Practice Guideline for Communication of Diagnostic Imaging Findings and the August 2005 issue of the JACR (Get Paid for What You Do).

The Coding Q&A column is a regular feature of the PRS Bulletin. *While space constraints preclude us from answering all coding questions, issues of greatest interest will receive the highest priority in future columns. E-mail questions to the author at rduszak@yahoo.com*

IV. LEGAL NEWS HIGHLIGHTS — Michael J. Beautyman, Esq.

CMS Issues Final Rule on Electronic Submission of Medicare Claims

The Centers for Medicare and Medicaid Services (CMS) issued a final rule November 25 (70 Fed. Reg. 71008) on the electronic submission of Medicare reimbursement claims, including instances in which the electronic billing requirement is waived. The final rule, effective December 27, follows an interim final rule published on August 15, 2003, to implement §3 of the Administrative Simplification Compliance Act (ASCA), which required that Medicare reimbursement claims under Part A and Part B be submitted electronically by October 16, 2003, unless a specified ground for waiver applied. The Administrative Simplification provisions of the Health Insurance Portability and Accountability Act (HIPAA) established transactions and code set standards for electronic data transmission when transactions are conducted electronically. The ASCA requires Medicare providers and suppliers to submit claims electronically to Medicare, which means Medicare claims must be submitted in the HIPAA-compliant format, the rule noted. Because of concerns that many Medicare providers would be unable to submit compliant claims by the compliance date, CMS deployed a contingency plan permitting the submission and processing of non-compliant claims.

The ASCA allows the DHHS Secretary to waive the electronic claim submission requirement in certain cases. The interim final rule established two specific exceptions: when there is no method available for the submission of an electronic claim (for example, when a Medicare beneficiary submits a claim) and when the entity submitting the claim is a small provider of services or a small supplier. The interim final rule also established three "unusual cases" in which the Secretary could waive the electronic submission requirement: dental claims; service interruption experienced by the provider or supplier that is beyond its control while submitting an electronic claim; and other "extraordinary circumstances." The final rule, with some minor modifications, adopts all the provisions set forth in the interim final rule and includes two additional "unusual cases" for an automatic exception to the mandatory electronic billing requirement. For details, see: http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-23080.pdf.

Medicare Appeals Process Revised

CMS's interim final regulation, overhauling the appeals process for Medicare fee-for-service claims, 70 Fed. Reg. 11,420 (Mar. 8, 2005), amended by 70 Fed. Reg. 37,700 (Jun. 30, 2005), makes a number of changes to the Medicare appeals process, including:

- Transferring authority for administrative law judges (ALJs) to CMS
- Reducing decision-making time frames and permitting cases to be escalated to the next level of appeal if decisions are not made timely
- Requiring submission of all evidence early in the appeal process, absent showing of good cause
- Creating a new independent entity to handle second-level appeals (now known as reconsiderations)
- Limiting the use of in-person ALJ hearings in favor of hearings conducted by videoconference
- Requiring substantial deference to CMS guidance

More Physicians Accept New Medicare Patients

The percentage of physicians who accept new Medicare patients has increased over the past four years, despite a slight drop in physicians' reimbursement rates. The findings from a Center for Studying Health System Change survey that encompassed parts of 2000 and 2001 showed that the percentage of U.S. physicians accepting all new Medicare patients stood at 71.1 percent, while the center's latest survey puts the percentage of doctors accepting all new Medicare patients at 72.9 percent. The American Medical Association said its own survey shows that 38 percent of physicians planned to decrease the number of new Medicare patients if the 4.4 percent physician reimbursement cut went through. (AP)

Personal Financial Planning Strategies

Beginning in 2006:

- The top Federal estate and gift tax rates will decrease from 47% to 46%
- The Federal estate and GST tax exemptions will increase from $1.5 million to $2 million
- The Federal gift tax exemption will remain at $1 million
- The annual gift tax exclusion will increase from $11,000 to $12,000 ($24,000 in the case of a married couple).
- The annual gift tax exclusion will increase from $117,000 to $120,000 for gifts made to a non-citizen spouse

Although the reduced Federal estate tax rate and higher exclusion amounts are good news, many states do not follow the Federal changes, resulting in higher combined estate taxes.

V. QUALITY & PATIENT SAFETY COMMITTEE REPORT — Robert S. Pyatt, Jr., MD, FACR Chair

The Quality and Patient Safety Committee includes in this Bulletin the Protocols and Guidelines for the use of Iodinated Contrast Materials at the Mayo Clinic, Rochester, MN. These are to help prevent contrast-induced nephropathy. These guidelines were developed by Dr. Eric Williamson (507-284-2405) at Mayo. The Director of Patient Safety and Quality at Mayo is Dr. Stephen Swensen (507-284-0887). The PRS appreciates the willingness of Drs. Williamson and Swensen, and the Mayo Clinic, to share these guidelines with us. Mayo uses the intranet to coordinate the use of these guidelines internally and to cause a great deal of harmony within their 125+ radiologists, practicing at many sites. If you use these guidelines within a multi-site healthcare system, you will gain the greatest impact. Consider putting them on your intranet after their internal review and approval. Standardization will bring about much QI success and improved patient outcomes. Also, be sure to discuss these proposals with nephrologists, internists, and other key providers within your healthcare system. You may need to establish new procedures, such as IV hydration nurses or teams, to facilitate these ideas. Your imaging reports should indicate any hydration performed pre- or post-procedure. Important references are attached to this information.

It is hoped that these very current protocols from the Mayo Clinic will help you to perform an important Quality Improvement Initiative at your practice, facilitated by these attachments. The PRS is hoping to improve, state-wide, patient safety and outcomes as a result of this information. Please share with us any success stories (or failures, too) at bob_pyatt@hotmail.com.

VI. EDUCATION COMMITTEE REPORT — Robert S. Pyatt, Jr., MD, FACR Chair

This past year's 90th Annual Meeting had a very successful educational program, judging from the program evaluations. As we work towards our 91st Annual Meeting at the Four Seasons Hotel in Philadelphia, October 28, 2006, we have had a number of topic suggestions. These include definite repeat performances for the ACR HOT National Issues Update and Rich Duszak's very popular Coding and Avoiding Billing Fraud topic. In addition, the following topics/ issues have been suggested for 2006:

- More programs with Patient Safety/Risk Management (PS/RM) credit to comply with the state licensing regulations - requested by many attendees
- Breast MRI - many attendees would like this topic again this year
- The Radiology Physician Assistant (RPA) - more practices are looking at this option
- The Imaging Provider Report Card (IPRC)/ Quality Measures in Radiology: It's coming to your practice sooner than you might realize. What does it mean to your group? How is quality measured?
- The ACR Practice Guidelines and Technical Standards: Using them in daily practice
- The ACR Communications Guidelines: Improving Communications and Reducing Exposure to Liability
- New Roles for CAD: The Chest
- Advanced Radiology Life Support (ARLS): A refresher course meeting CME requirements for PS/RM
- Afternoon Session: Coronary Artery Imaging CME, both basic and advanced

We're going to have both morning and afternoon sessions, with CME credit also for the Annual Oration in the evening, during the presentation of the Gold Medal. If you have any suggestions for CME topics or speakers, or feedback on these topics, please email me at rsp1@aol.com.

VII. ACR COUNCIL STEERING COMMITTEE REPORT — Marcela Böhm-Vélez, MD, FACR

I would like to inform you that based on the feedback the ACR had from 300 members who went to Capitol Hill each of the past two years, the ACR Steering Committee decided to make the following changes to the Day on Capitol Hill event in an effort to secure more appointments with Members of Congress:

- The Day on Capitol Hill has been changed from Tuesday to Wednesday; and
- The scheduling of congressional appointments will be placed back in the hands of those ACR members going to Capitol Hill, instead of using an outside consultant as we have the previous two years.

For more information about congressional appointments during the 2006 AMCLC, please contact Ted Burnes at: 1-888-295-8843 or via e-mail at: tburnes@acr.org.

VIII. RESIDENTS' REPORT — Michael F. Goldberg, MD, MPH

Greetings from the Resident Section of the Pennsylvania Radiological Society. It has been a busy winter as we have tried to refocus our efforts to increase resident participation in the Pennsylvania Radiological Society.

With the tremendous support of Dr. Peter Arger, the PRS Past President, we spearheaded this effort by having a meeting among representatives of as many training programs as possible. To that end, in Philadelphia on December 13, we met over dinner and drinks with representatives from five different programs. Considering the many clinical commitments residents have, we were extremely pleased with the turnout for this inaugural meeting.

At this dinner, we agreed that the goal of the Resident Section of the PRS should be to "increase resident awareness of and knowledge in the many social, economic, and political/legislative issues facing the field of radiology." We noted that most traditional radiology residency curricula do not include these issues, despite a high level of interest in them among residents.

To achieve this goal, we discussed the following initiatives: 1) Due to the kind generosity of Dr. Beverly Coleman, President of the Philadelphia Roentgen Ray Society, the Resident Section of the PRS will have allotted time at monthly PRRS meetings to speak on issues of importance. Dr. Harry Jha, a 4th year resident at the Hospital of the University of Pennsylvania, spoke at the February meeting on the importance of organized radiology and I will be giving a talk at the April meeting. 2) Presenting articles at journal club on economic/ political/ legislative issues facing radiology. 3) The Resident Section of the PRS will be sending two radiology representatives to the annual ACR meeting in May in Washington, DC. 4) We will be starting an evening lecture series, one to be held for the Philadelphia programs and another to be held for Geisinger/ Penn State. It is hoped that a similar lecture series will be started in the western part of the state. These lectures will feature invited speakers with expertise in areas such as malpractice, outsourcing, turf battles, and contract negotiation. Generously supported by the PRS, this lecture series will not only be informative, but also be an informal way for residents to socialize and network with their peers.

In conclusion, with the generous support of the PRS, the Resident Section has been rejuvenated and we will strive to meet our goals in raising residents' interest in and awareness of issues facing Radiology.

IX. RADIOLOGY POINT OF SERVICE CREATININE PROTOCOL — Mayo Clinic

Outpatient Protocol Reference Document

Radiology Point of Service Creatinine Protocol

Protocol applies to all patients who are scheduled to undergo a procedure requiring the intravenous administration of iodinated contrast media. Documentation of this protocol will be electronic only. Documentation will be collected using Shorthand in the Radiology Management Information System (RIMS) application. This information will be viewable using the RIMS application or the electronic medical record.

To access this protocol: 1. Access the RIMS application.

2. Ensure the Shorthand application has been launched.
3. Enter patient's clinic number in the number field.
4. Verify patient's name.
5. Initiate protocol.

.

Note: Complete all sections of the protocol. **Radiology Point of Service Creatinine Protocol**

Care delivered to this patient as described in this note is based on the Radiology Point of Service Creatinine Protocol (MC1156-585).

Pre-Contrast Administration Screening: Must be completed prior to contrast administration.

□Pending Serum Creatinine result at the time of contrast administration (regardless of any other risk factors).
□Patient reports or documented history of prior Genitourinary surgery and/or malignancy (bladder, kidney, ureter, prostate, cervix).
□Patient is 70 years old or older.
□Patient reports or documented history of Serum Creatinine level greater than 1.4 mg/dL.
□Patient reports or documented history of medical renal disease.
□Patient reports or documented diagnosis of diabetes.
□Patient reports or documented diagnosis of multiple myeloma.
□Patient reports or documented diagnosis of Congestive Heart Failure (receiving Medication)

• If any box checked go to **Pre-Contrast Administration Testing** .
• If no boxes checked proceed according to **Contrast Administration Guidelines**

Pre-Contrast Administration Testing:

□Yes □ No Has the patient had a Serum Creatinine level drawn within last 30 days (*and* since most recent GU surgery, if applicable)?

• **If yes**, review test results and proceed according to **Contrast Administration Guidelines**.
• **If no**, Registered Nurse to perform venipuncture to obtain blood sample for Serum Creatinine testing (procedure outlined below) prior to administering contrast media.

Serum Creatinine testing procedure:

• Obtain serum creatinine testing kit.
• Perform venipuncture to obtain blood sample for testing.
• Complete test ordering form and request serum creatinine level. When asked for the name of requesting physician write in the name of the radiologist who will be performing the radiology procedure requiring contrast media.
• Review test results and proceed according to **Contrast Administration Guidelines**.

Enter Name:
At the end of this protocol the user will be required to enter their name.
Entry of the user name at this point constitutes the creation of an electronic signature.

To view the information entered in this protocol: the information will be formatted and recorded in RIMS. This information is viewable using RIMS and in the radiology Section of the electronic medical record.

This protocol has been developed to reflect the practice patterns of the clinicians who wrote it. It sets forth recommendations as to practice, not rigid rules.
 MC1156-585 DRAFT

X. Mayo Clinic Department of Radiology Procedural Guideline
Prevention of Contrast Induced Nephropathy

DRAFT

Procedural guidelines are designed to assist Radiologists by providing an analytical framework for the evaluation of patient iodinated contrast dosage based on patient serum creatinine level and/or weight. They are not intended to replace radiologist judgment nor to establish a procedure for all patients.

Procedural Statements:

- Iodinated IV contrast is an essential part of Excretory Urogram and many Computerized Tomography (CT) Exams.
- The diagnostic benefits of administering iodinated contrast and potential risks which includes contrast media induced nephropathy, must be evaluated prior to administration of iodinated contrast material.
- Contrast nephropathy is an infrequent complication of contrast use, affecting less than 1% of low risk patient population.
- Specific patient populations are at a higher risk for contrast nephropathy.
  - Patients with **Diabetes and or history of renal disease or renal surgery are at the greatest risk.**
    -Recent serum creatinine level should be available on all patients with diabetes or previous renal disease/surgery.
  - Patients with 2 or more risk factors may run the risk of developing contrast nephropathy. These include:
    - Advanced age (>70 years)
    - Dehydration
    - Multiple myeloma
    - Congestive heart failure
    - Hypertension
    - Nephrotoxic medications (chemotherapy, aminogycosides)

Procedural Guidelines:

Pre Contrast Administration

- Radiologist will give order for contrast administration.
- Utilize Radiology Standard Intravenous (IV) Contrast Table unless Radiologist orders alternative dosage for individual patient.
- If contrast ordered per protocol, utilize the following table **or** utilize exam specific protocol, whichever is the lesser amount of contrast.
- CT Urogram (CTU), CT Angiogram Runoff (CTA runoff) and Excretory Urogram (EXU) are potential exceptions. Consult Radiologist for dosage if CTU, CTA runoff or EXU patient meets requirement criteria for reduced contrast dose per table below.

Radiology Standard Intravenous Contrast Table Using Omnipaque 300 or Omnipaque 350

No Diabetes			
Volume of Contrast in ML's			
Weight	<140 lbs 64 kgs	140-240lbs/ 64-109kgs	240-300lb/ 109-164kgs
Serum Creatinine <1.4 mg/dl	100 ml	150 ml	200 ml
Serum Creatinine 1.4-1.9 mg/dl	80 ml	100 ml	150 ml
Serum Creatinine >1.9 mg/dl	Consult with Radiologist		

Diabetes*** and/or Single Kidney			
Volume of contrast in ML's			
Weight	<140 lbs/ 64kgs	145-240lbs/ 64-109kgs	240-300lbs/ 109-164kgs
Serum Creatinine <1.1 mg/dl	100 ml	150 ml	200 ml
Serum Creatinine 1.1- 1.4 mg/dl	80 ml	100 ml	150 ml
Serum Creatinine >1.4 mg/dl	**Consider VISIPAQUE Consult Radiologist**		

*** Patients receiving diabetic medications containing metformin with a creatinine >1.4mg/dl should **NOT** receive IV contrast media. *Link to Radiology Policy Manual Glucophage*

Patients > 300lbs/164 kgs, please refer to on-line *Exam Specific Bariatric CT Protocols*

Post Contrast Administration

- Assess patient's medical history prior to fluid therapy. Exceptions to fluid therapy include:
  - Patient with Congestive Heart Failure (CHF) receiving medications, ie diuretics.
  - Patients on fluid restrictions
- If indicated, utilize "Radiology Standard Hydration Protocol" post IV contrast administration *link to protocol*

- Administer fluids per protocol
- Encourage oral fluids for all patients.
- Provide patient education

Radiology Standard Fluid Therapy Table

Weight	<125 lbs (57kg)	125-240lbs (57-109kg)	>240lb (109 kg)
Serum Creatinine <1.6 mg/dl	Encourage p.o. fluids	Encourage p.o. fluids	Encourage p.o. fluids
Serum Creatinine 1.6 – 2 mg/dl	.9NaCl 150 ml IV Infuse over 15 min	.9NaCl 250 ml IV Infuse over 15 min.	.9NaCl 500 ml IV Infuse over 30 min.
Serum Creatinine >2.0 mg/dl	9NaCl 150 ml IV infuse over15 min. consult with Radiologist for further treatment	.9NaCl 250 ml IV Infuse over 15 min. consult with Radiologist for further treatment	.9NaCl 500 ml IV Infuse over 30 min. consult with Radiologist for further treatment

Contrast Induced Nephropathy Prophylactic Therapies

The following guidelines may be utilized by the physician to order pre-medication and/or hydration for patients with elevated creatinine levels who require iodinated contrast administration:

- Use of Visipaque (Iodixanol Injection) contrast media (100-150ml).

- Pre-medication with acetylcysteine 600mg PO BID one day prior to and the day of contrast administration. (To be ordered by primary physician.)

- Intravenous fluids (.9NaCl) pre-contrast administration. (To be ordered by primary physician. See below for instructions for Infusion Therapy Center.)

- Sodium Bicarbonate as a bolus of 3 mL/kg per hour for 1 hour prior to IV contrast, followed by an infusion of 1 mL/kg per hour for 6 hours after the procedure. . (To be ordered by primary physician. See below for instructions for Infusion Therapy Center.)

Infusion Therapy Center (ITC) may be utilized for outpatients patients needing IV fluids or IV medications prior to administration of iodinated contrast. The following steps may be utilized by primary physician to schedule patient for Infusion Therapy Center:
- Call **4-4319** to schedule appointment. ITC is better able to accommodate appointment request, if appointment scheduled in advance.
- Complete **MC-2040** to order intravenous medications/fluids. Instructions on the MC2040 form on how to send to Charlton ITC.

Resources:
American College of Radiology. (2001) Manual on Contrast Media. 4.1 ed. Reston, Virginia.

Bush, W. H., Krecke, K. N., King, B. F., & Bettermann, M. A. (Eds.). 1999. Radiology Life Support. New York: Oxford University Press, Inc.

Cross Reference:

- Radiology Specialty Guideline: Assessment of Patients
- Radiology Specialty Guideline: Administration of Iodinated Intravenous Contrast Media

Approval: **Review Date:** **1/3/06**

XI. ANNOUNCEMENTS

Free Online Access to the *AJR* for all Residents
The American Roentgen Ray Society provides FREE online access to the *AJR* ("Yellow Journal") at www.ajronline.org to all residents. If you are a program director or teach residents in your practice, please encourage them to visit https://www.arrs.org/scriptcontent/Membership/memAppWizard.cfm and select the category for in-training membership. Online access to the *AJR* is free with a completed membership application. A free online subscription to *AJR Integrative Imaging*, our new quarterly educational journal, is included with membership.

August 3-6, 2006: 24th Annual Pittsburgh Breast Imaging Seminar to be held at the Pittsburgh Convention Center, with all events on one floor, Pittsburgh, PA. Featured speakers to include Farhad Contractor, MD, FACR, Debra Deibel, RTR(M), Stephen Feig, MD, FACR, Terri Gizienski, MD, Ronald Johnson, MD, Thomas Julian, MD, Kathy Lang, RTR(M), Elsie Levin, MD, FACR, Michael Linver, MD, FACR, Ingrid Naugle, MD, FACR, Jay Parikh, MD, Jules Sumkin, DO, FACR, William Poller, MD, FACR. Course Director: William R. Poller, MD, FACR. For further information and to receive a brochure, please call 412-359-4952, e-mail Cheri Jackel at cjackel@wpahs.org, or visit www.aghcme.org.

Breast Imaging - Body Imaging Fellowship (Funded)
The Department of Human Oncology at Allegheny General Hospital has a Breast Imaging Fellowship position available July 1, 2006. Enjoy the comforts of a 10,000 square foot breast center that is fully digital. In addition, there are two stereotactic units, state-of-the-art ultrasound units, the hand-held Mammotome, the Intact biopsy device, MRI and CAD. Twenty-four thousand (24,000) total breast imaging studies are performed yearly. Flexible year to include dedicated time with surgery, pathology, **and body imaging**, if desired. Research opportunities are also available, either with the NSABP (National Surgical Adjuvant Breast Project) or the ACRIN (American College of Radiology Imaging Network) trials associated with breast imaging. There is direct interaction with dedicated breast surgeons who are associated with the NSABP.

For further information, please contact and send a resume and two letters of reference to William R. Poller, MD, FACR, Allegheny Cancer Center, 5th Floor, Allegheny General Hospital, 320 East North Avenue, Pittsburgh, PA 15212-4772. Telephone: 412-359-8366, FAX: 412-359-8685, Pager: 412-359-8220 ID 4544, e-mail: wpoller@wpahs.org.

Full-time Breast Imager Wanted
The Department of Human Oncology at Allegheny General Hospital, 320 East North Avenue, Pittsburgh, PA 15212-4772 has an opening for a full-time Breast Imager. Enjoy the comforts of a 10,000 square foot breast center that is fully digital. In addition, there are two stereotactic units, state-of-the-art ultrasound units, the hand-held Mammotome, the Intact biopsy device, MRI and CAD. For further information contact William R. Poller, MD, FACR, Telephone: 412-359-8366, FAX: 412-359-8685, Pager: 412-359-8220 ID 4544, e-mail: wpoller@wpahs.org or Paul M. Kiproff, MD, Telephone: 412-359-4113, e-mail: pkiproff@wpahs.org