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UMKC Radiology Residency Educational Program

The University of Missouri-Kansas City (UMKC) Diagnostic Radiology Residency Program is a categorical program accredited by the Accreditation Council of Graduate Medical Education (ACGME). The program integrates 1 year of clinical training and 4 years of diagnostic radiology, which fulfills requirements to prepare residents for specialty certification by the American Board of Radiology (ABR) and complies with various guidelines recommended by the ABR and ACGME.

The principal goal of the diagnostic radiology residency program is to meet or surpass the requirements of the ACGME Radiology Residency Review Committee in training competent, caring radiologists who possess the knowledge, skills and competencies necessary to:

- Pass the core American Board of Radiology (ABR) exam.
- Begin preparing for the ABR Certifying exam to be completed after fellowship.
- Pursue a fellowship, enter private practice, or begin an academic career.
- Practice radiology according to the standards set by the ABR, American College of Radiology (ACR), and other professional organizations.
- Practice life long learning.

These goals are accomplished by:

- Meeting various milestones of residency training.
- Providing supervised graduated exposure to varied case material.
- Delivering an educational program that consists of clinical teaching and performance feedback that is supplemented with conferences, case discussions, ACR syllabi, journal clubs/articles, teaching files, and suggested readings.
- Providing clinical teaching and experiences designed to enable residents to master the 6 ACGME core competencies, meet specialty milestones, and gain confidence in image interpretation, consultation, and performance of technical procedures expected of a professional practicing diagnostic radiologist.
- Resident participation in scholarly activity through medical student teaching, presentations at departmental and interdisciplinary conferences, regional or national meetings, peer-reviewed publication or presentation of original research, and membership in professional and scientific societies.
- Active participation in quality improvement activities.
ACGME Program Requirements:

The UMKC Diagnostic Radiology residency is fully accredited by the Accreditation Council for Graduate medical Education (ACGME), and therefore is guided by the ACGME Program Requirements. Compliance is monitored by the Residency Review Committee (RRC) for diagnostic radiology. In April 2017, the RRC accredited the UMKC Diagnostic Radiology program as being in substantial compliance with no citations. Program Requirements are modified over time and our policies change to maintain compliance. Residents are kept informed when changes are made.

The ACGME program requirements for radiology may be reviewed at http://www.acgme.org.

ACGME Resident Case Log and Other Case Logs:

The ACGME requires radiology residents to maintain a case log on the ACGME ADS website, which will be reviewed at the biannual evaluations with the program director. Numbers of exams in which the resident participated in the interpretation are printed in a monthly report from SLH, TMC, CMH, and the breast imaging center, based on specific CPT codes mandated by the ACGME.

Other resident logs must be kept up to date and are reviewed at biannual evaluations as follows:
Residents are given a excel worksheets on a thumb drive to track the following:
- Interventional cases – including outcomes
- Thyroid treatments – including specific amount of radiopharmaceutical used
- Interdisciplinary conference attendance
- Introduction to research series attendance
- Personal and Professional Development seminars (4 required)
- Work hours – Recorded daily in New Innovations

Instructions: How to obtain CPT code numbers for the ADS/ACGME website

ACGME requires residents to track certain CPT code numbers of cases (specific codes listed below). The sources of these reports include TMC/SLH/CMH and the breast center.

TMC, CMH and SLH: Residents assigned to CMH, TMC, and SLH will receive a report at the end of the month with their case numbers. As a PGY 2, each resident will be given log in information and instructions on how to enter the data by the program coordinator. Residents should log onto the ADS system and enter their individual data monthly. Residents are issued a username and password via email when the residency coordinator creates a resident profile in ADS (ACGME database). Contact your coordinator 816-932-2237 if you have not received your username/password by the end of August your PGY 2 year. For instructions on how to use the ACGME Case Log System visit www.acgme.org and view the user guide.

Mammography: Mammography studies interpreted at TMC will be included on your monthly report. Residents assigned to mammography at the SLH Breast Center will also receive a report in their box each month, but may also request a report as follows:

1. During your mammography month, select your name in Magview for the studies with which you are involved.
2. At the end of the month, ask the office manager to print a list of your studies.
3. The printed list will give the total studies which can then be entered into the ACGME website.
Below are the codes that the ACGME has required you track:

Updated by the ACGME 1/2018

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray</td>
<td>71045, 71046, 71047, 71048</td>
</tr>
<tr>
<td>CT Abd/Pel</td>
<td>72192, 72193, 72194, 74150, 74160, 74170, 74176, 74177, 74178</td>
</tr>
<tr>
<td>CTA/MRA</td>
<td>70496, 70498, 70544, 70545, 70546, 70547, 70548, 70549, 71275, 71555, 72159, 72191, 72198, 73206, 73225, 73725, 73706, 74174, 74175, 74185</td>
</tr>
<tr>
<td>Image Guided Bx/Drainage</td>
<td>20604, 20606, 20611, 32555, 32557, 49083, 49405, 49406, 49407, 77012, 76942</td>
</tr>
<tr>
<td>Mammography</td>
<td>77065, 77066, 77067</td>
</tr>
<tr>
<td>MRI Body</td>
<td>71550, 71551, 71552, 72195, 72196, 72197, 74181, 74182, 74183, 74712, 74713</td>
</tr>
<tr>
<td>MRI Brain</td>
<td>70551, 70552, 70553</td>
</tr>
<tr>
<td>MRI Lower Extremity Joints</td>
<td>73721, 73722, 73723</td>
</tr>
<tr>
<td>MRI Spine</td>
<td>72141, 72142, 72146, 72147, 72148, 72149, 72156, 72157, 72158</td>
</tr>
<tr>
<td>PET</td>
<td>78459, 78491, 78492, 78608, 78609, 78811, 78812, 78813, 78814, 78815, 78816</td>
</tr>
<tr>
<td>US Abd/Pel</td>
<td>350 76700, 76705, 76706, 76770, 76775, 76830, 76856, 76857</td>
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</table>
General Competencies:

In 2001, the ACGME adopted 6 general competencies to the program requirements for all accredited residencies in every specialty. Beginning in 2002, all residency programs were responsible for implementing a teaching and evaluation plan for these 6 competencies. Compliance with this requirement is a major emphasis of accreditation.

Patient Care: Provide patient care through safe, efficient, appropriately utilized, quality-controlled diagnostic and/or interventional radiology techniques and effectively communicate results to the referring physician and/or other appropriate individuals in a timely manner. (Completion of BLS and ACLS is part of this competency.)

Medical knowledge: Engage in continuous learning using up to date evidence and apply appropriate state of the art diagnostic and/or interventional radiology techniques to meet the imaging needs of patients, referring physicians, and the health care system.

Practice Based Learning and Improvement: Investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence and improvements in patient care. In addition, residents must participate in evaluation of their personal practice utilizing scientific evidence, "best practices", and self-assessment programs in order to optimize patient care through lifelong learning.

Interpersonal and Communication skills: Residents must master effective communication with patients, colleagues, referring physicians and other members of the health care team concerning imaging appropriateness, informed consent, safety issues, and results of imaging tests or procedures. This communication must result in effective information exchange and teaming with patients, their families, and other health care professionals.

Professionalism: Manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Moreover, residents must commit to high standards of professional conduct, demonstrating altruism, compassion, honesty and integrity. Follow principles of ethics and confidentiality and consider religious, ethnic, gender, educational, and other differences in interacting with patients and other members of the health care team (Completion of modules in ethics, medical-legal issues and HIPAA training are part of this competency.)

Systems-Based practice: Manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents should understand how the components of the local and national healthcare system function interdependently and how changes to improve the system involve group and individual efforts. Optimize coordination of patient care both within one's own practice and within the healthcare system. Consult with other healthcare professionals, and educate healthcare consumers, regarding the most appropriate utilization of imaging resource.
See article explaining systems based practice projects and how to conduct one later in this manual.

**Core curriculum Milestones:**

During your training you will demonstrate graded levels of competence in the core competencies based on the ACGME radiology milestones. Core competency formative evaluations will occur monthly and will be considered during assessment of resident milestone assessments that will occur regularly during your training.

We assess resident performance throughout the program and use assessment results to improve performance. We assess competence in all 6 areas and provide regular, timely feedback to residents.
Pillars of professional practice

Acquire skills & knowledge through scholarly training & lifelong learning

Place patient’s interests above one’s own

Self-regulate through ethics behavior and self-discipline

**Methods of teaching and assessing core competencies:**

<table>
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<th>Interpersonal/Communication skills</th>
<th>Practice Based Learning &amp; Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Methods</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online lectures on patient care, radiation safety</td>
<td>Curriculum in radiology reporting (3 online modules)</td>
<td>Clinical teaching - you teach others (lower level residents, &amp; med student lectures)</td>
</tr>
<tr>
<td>Online module on fluoroscopic techniques</td>
<td>Performance feedback from faculty, patients, peers, technologists</td>
<td>Clinical experiences – you identify knowledge gaps, find the information</td>
</tr>
<tr>
<td>Performance feedback on clinical &amp; radiology rotations</td>
<td>Departmental/interdepartmental conference and presentations</td>
<td>Performance feedback – biannual program director and annual self-assessment</td>
</tr>
<tr>
<td>Interdepartmental conferences, lectures and discussions, including M&amp;M</td>
<td>Individual or group scholarly projects with local and national oral presentations</td>
<td>Participate in M&amp;M and research/journal club</td>
</tr>
<tr>
<td>HIPPA and other mandatory hospital training, AIRP, ACLS</td>
<td>Biannual report scoring and feedback</td>
<td>Participation in societies &amp; health care organizations</td>
</tr>
</tbody>
</table>
### Evaluation Methods

<table>
<thead>
<tr>
<th>Evaluation Methods</th>
<th>360° Evaluations (faculty, technologist, patient, education committee); biannual program director, annual self-assessment, yearly peer review</th>
<th>360° Evaluations (faculty, technologist, patient, education committee, biannual program director/self assessment evaluation)</th>
<th>360° Evaluations (faculty, technologist, patient, education committee, biannual program director/self assessment, yearly peer review)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation of safety and fluoroscopic techniques modules</td>
<td>Focused observations and evaluations – <em>professional dress &amp; demeanor, presentation skills</em></td>
<td>Documentation in portfolio of scholarly activity, presentation at conferences</td>
<td></td>
</tr>
<tr>
<td>Documentation of competency in dictation skills and proper referral</td>
<td>Yearly resident peer evaluation</td>
<td>Focused observation and evaluation – evaluate and impact patient care practices</td>
<td></td>
</tr>
<tr>
<td>Documentation of competency in core IR, US and fluoro procedures</td>
<td>On line communication modules (Reporting/Teaching)</td>
<td>Documentation IR and thyroid patient outcome logs</td>
<td></td>
</tr>
<tr>
<td>Participation and preparation of M&amp;M conferences</td>
<td>Documentation of 75% pass rate on reporting curriculum</td>
<td>Documentation of participation in ABR exams</td>
<td></td>
</tr>
<tr>
<td>Maintenance of licensure status</td>
<td>Compliance with institutional, departmental program policies</td>
<td>Participation/presentation at Journal club</td>
<td></td>
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<tr>
<td>Documentation of error rates in prelim &amp; final reports</td>
<td>Documentation of passage of ABR core exam</td>
<td>Evaluation of UMKC faculty and peer review</td>
<td></td>
</tr>
<tr>
<td>Documentation of IR case log with patient outcomes</td>
<td>Documentation and scoring of radiology reports</td>
<td>Participation in in-training exam</td>
<td></td>
</tr>
</tbody>
</table>

### Medical Knowledge

<table>
<thead>
<tr>
<th>Learning Methods</th>
<th>Professionalism</th>
<th>Systems Based Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiology departmental lectures &amp; discussions</td>
<td>Completion of professionalism training as R1</td>
<td>R1 review &quot;How to do a System Based Practice Project (SBPP)&quot;</td>
</tr>
<tr>
<td>Clinical experiences &amp; daily PACS station teaching</td>
<td>Completion of Pediatric professionalism training as R3</td>
<td>Annual self assessment &amp; choice of SBPP</td>
</tr>
<tr>
<td>Performance feedback by faculty at the end of each rotation</td>
<td>Performance feedback during each rotation (clinical and radiology)</td>
<td>Performance feedback, biannual program director review</td>
</tr>
<tr>
<td>Monthly review of goals &amp; objectives on each rotation</td>
<td>Punctual attendance at conferences</td>
<td>Departmental/hospital QI/QA &amp; M&amp;M participation</td>
</tr>
<tr>
<td>Various learning activity - AIRP, ACLS, reading assignments, review of cases &amp; teaching files</td>
<td>Role modeling professional behavior – dress, phone etiquette (compliance with hospital/departmental policies)</td>
<td>Individual or group SBBP projects – presentation at local or national radiology societies meetings</td>
</tr>
<tr>
<td>Evaluation Methods</td>
<td>Evaluation Methods</td>
<td>Evaluation Methods</td>
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<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>360° Evaluations (faculty, technologist, patient, education committee, program director, self-assessment, peer review)</td>
<td>360° Evaluations (monthly faculty, technologist, quarterly patient, education committee, biannual program director/self assessment evaluation)</td>
<td>360° Evaluations (faculty, technologist, patient, education committee, program director, self-assessment, peer review)</td>
</tr>
<tr>
<td>Documentation of satisfactory performance on ACR In-training exam or remediation of deficiencies</td>
<td>Documentation of completion of online professionalism module (R1) &amp; compliance with hospital professionalism training</td>
<td>Documentation of review of “How to do a System Based Practice Project (SBPP)” in R1 year Attendance records</td>
</tr>
<tr>
<td>Documentation of passing score on ABR core exam or remediation</td>
<td>Documentation of completion of pediatric professionalism training (R3)</td>
<td>Documentation of annual self assessment, and PD progress on SBPP</td>
</tr>
<tr>
<td>Documentation of satisfactory performance on ACR in service exam or remediation of deficiencies</td>
<td>Documentation of punctual conference attendance</td>
<td>Participation in evaluation of faculty, department and residency program</td>
</tr>
<tr>
<td>Documentation and feedback on discrepancies in preliminary reports</td>
<td>Resident peer evaluation of professionalism and feedback at PACS station by faculty</td>
<td>Documentation of attendance and participation in M&amp;M, QI/QA conferences</td>
</tr>
</tbody>
</table>
Patient care & Radiation safety

Matriculating residents should complete the following activities at or prior to radiology orientation. Place certificates of completion in your portfolios.

- **Fill out membership forms to join the ARRS and ACR** (if you are not a member already). Bring the forms to orientation, as the program director has to sign them to verify you are residents. We will mail them for you. It is free for residents. Links are:

- **Fill out forms to join RSNA** at this link: [https://www2.rsna.org/shared_society_pages/CreateAccount/](https://www2.rsna.org/shared_society_pages/CreateAccount/)
  - Once you are an RSNA member, you can create an account with password and then you can log in and access the physics modules. Print first page of each and sign proving you did it. Log in to the RSNA website, click tools for trainees, click physics modules. If you have issues with this, let the program coordinator know. Read/learn the following RSNA physics modules.
    - Atoms, Radiation and Radioactivity
    - Basic Radiation Biology
    - Fundamentals of Radiation Protection
    - Radiation dose and risk

- **Complete online modules on radiology reporting.** Register, print and bring certificates to orientation. It will be hard for you to make the findings on the studies, but the lessons in dictating are what it is all about. Complete 3 modules on line at: [http://protocols.xray.ufl.edu/live_crr/prog/home/home.php](http://protocols.xray.ufl.edu/live_crr/prog/home/home.php)

- **View beginner on-line radiology introductory tutorials at link below.** Do the cervical spine, head CT, chest, skeletal trauma, emergency ultrasound, body CT, gastrointestinal, and genitourinary sections. Print first page of each and sign proving you did it. [http://www.med-ed.virginia.edu/courses/rad/](http://www.med-ed.virginia.edu/courses/rad/) These (along with the intro lecture series) will help you get quickly oriented to radiology basics.

- **Think about how best you learn.** Radiology is a vast specialty, very different from the majority of what you've learned in medical school. Mastering it will require continued organized effort on your part. We will discuss study techniques during orientation.
Systems-Based Practice Project (SBPP) Guidelines

All residents are required to complete a SBPP during resident training. The program director will approve any reasonable proposal that will enable the resident to achieve the learning objectives for this activity. A written updated description of the SBPP must be placed in the resident portfolio annually, and will be reviewed by the program director. Once the project is completed, the final description will be placed in the resident portfolio where it will remain, which will indicate the resident has met this program requirement. At the conclusion of the project, the resident will prepare and present a 10-minute summary for Research Conference.

Competency: As a diagnostic radiology resident (per the RRC), you are competent in systems-based practice when you:
1. Understand how the components of the local and national healthcare system function interdependently and how changes to improve the system involve group and individual efforts.
2. Optimize coordination of patient care both within your own practice and within the healthcare system.
3. Consult with other healthcare professionals, and educate healthcare consumers, regarding the most appropriate utilization of imaging resources.

Learning Objectives: A self-directed systems-based practice project is designed to enable the resident to:
1. Increase individual knowledge of health care systems.
2. Gain experience in writing research proposals, conduct studies & report results.

Proposal Format: The project proposal should be no more than 3 pages, typewritten using 1” margins and a font no smaller than 10-point and include the following sections.

1. Problem Statement: What problem or need does your project address? Describe your interest in researching the topic as well as the importance of the effort. What is the existing knowledge? The basis for your project may be as simple as personal conversations or email correspondence. Include any preliminary data you have collected.
2. Specific Aims/Hypotheses: What do you intend to accomplish (anticipated outcomes)? State the hypotheses to be tested or your research questions. These will serve as the measure of your project’s success.
3. Method: Describe the project’s experimental design and methods. How will you collect, analyze, and interpret data? Identify potential difficulties and limitations and explain how you will overcome or mitigate them. Specify your timeline for the project. Will you need IRB and/or other approvals?
4. Resources: Describe the roles and qualifications of all persons who will participate in the process. Identify other resources you will need – facilities, major equipment, support services, etc. For example, will you need help with IRB approval or statistical analysis?
5. References: Document all sources used to develop your project including, but not limited to, personal conversations/correspondence, reports, online documents, published literature.
Interdepartmental Problem-Solving as a Method for Teaching and Learning Systems-Based Practice

Ralph C. Panek, Linda A. Deloney, Jong Park, Whit Goodwin, Sarah Klein, and Ernest J. Ferris

Rationale and Objectives. Systems-based practice (SBP) has been the most difficult competency to implement in radiology residency programs, and methods for teaching and learning SBP concepts are needed. Because systems problems are usually multifactorial, a multidisciplinary approach is required. In our institution, survey data indicated patient dissatisfaction with emergency care. Prolonged wait times for radiology procedures were identified as a systems problem. When hospital administration asked the emergency medicine and radiology departments to work together to improve patient care, residents had a “real-world” opportunity to achieve the SBP competency.

Materials and Methods. Systems problems were identified and categorized. Data on patient transport were collected. Accurate time logs documenting when studies were ordered, performed, and interpreted were maintained. Data were analyzed at interdepartmental meetings and three improvements were planned and implemented.

Results. A direct line of communication was established between radiology and emergency medicine via a dedicated cellular telephone. A joint emergency medicine/radiology teaching conference was established. Additional transport personnel were employed. Residents in both departments increased their understanding of their role in the health care system, demonstrated an ability to identify systems problems and appropriately implement improvements, and enhanced their professional relationships.

Conclusion. This innovative method integrated educational goals with patient care goals, was grounded in “real-life” experience, and held residents accountable for results. Competence in SBP, patient care, professionalism, and interpersonal and communication skills were demonstrated. We recommend this approach as an efficient and effective way to integrate SBP into everyday clinical practice.

Key Words. Systems-Based Practice; Accreditation Council for Graduate Medical Education (ACGME); Residency Review Committee (RRC); Resident Education; Quality Improvement; Professionalism; Emergency Medicine; Interdepartmental Problem Solving.

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Systems-based practice (SBP) has been a difficult concept for faculty and residents across all medical specialties (1,2). A majority of diagnostic radiology program directors (78%) reported that SBP was the most difficult competency to implement in their residencies (2). Although physicians recognize their professional responsibility to improve the quality of patient care, few of them understand how the health care system operates or how to effectively promote systems change (3). Before 2003, SBP was not taught in traditional residency training or other educational venues for medical students and faculty (4). Once in practice, physicians typically function as “solos”—clinical autonomists and occupational monopolists—in spite of the fact that they are delivering medical care in complex systems in collaboration with specialists from many disciplines.

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1 From the University of Arkansas for Medical Sciences College of Medicine, Department of Radiology, 4301 W. Markham #556, Little Rock, AR 72205 (R.C.P., L.A.D., J.P.W.G., S.K., E.J.F.), Received January 4, 2006; accepted June 12, 2006. Address correspondence to: L.A.D. E-mail: Deloney.Adia@uams.edu © AUR, 2006 doi:10.1016/j.acra.2006.06.003

Radiologic Education

In graduate medical education, there has always been a potential for conflict between educational needs and the efficiency of the health care system. Residents, who are accountable for the patient’s good, learn to “work around” systems to save time and take care of their patients.

This emphasis on clinical autonomy is no longer appropriate in complicated environments that depend on effective processes and efficient systems (5). An understanding of system interactions and strategies for promoting cohesion are especially important for assuring optimal patient care (5). Communication and teamwork in particular are known to be essential for delivery of high-quality, safe patient care (6,7). When SBP was introduced as a general competency, the Accreditation Council for Graduate Medical Education (ACGME) provided selected references and a “toolbox” of assessment methods, but no core content or curricula (8). If SBP is to become integrated into residency training, efficient methods for teaching SBP concepts are required. Health care improvements need not be
sophisticated or elaborate or involve new devices or technologies. They can be initiated simply by learning how the work is done and reflecting on how it might be done differently (9,10). With the confluence of increasingly complex clinical needs and rapid advances in imaging technology, many “real-world” learning opportunities for the SBP competency exist in the daily routine of each resident and faculty member’s workday. As an example, this article illustrates the educational potential of one interdepartmental problem-solving initiative as a resident learning opportunity for the SPB competency.

THE SYSTEMS PROBLEM
Radiology and emergency medicine (EM) are two fast-paced hospital-based specialties being practiced in an increasingly complex and fluid environment. As the demands on these health care systems multiply, improvements in the organization of work and access to timely clinical information are required to manage the workload in a safe and efficient manner (11). The main cause of patient dissatisfaction with emergency care, according to a recently published review of the emergency medicine literature, was lengthy waiting times (12). Our institutional experience supports this finding. Patient survey outcomes indicated dissatisfaction with emergency care. Prolonged wait time for radiology procedures, primarily computed tomography scans, was cited as a systems problem (13). These data suggested that improvements were needed, and hospital administration asked the radiology and EM departments to collaboratively manage the workload in an efficient manner.

THE SYSTEMS ANALYSIS
An interdepartmental approach to problem solving was undertaken during the 2005 summer semester, providing an important learning opportunity for residents from both departments to participate in a systems-based project. Department chairmen, residency program directors, and chief residents met to identify systems problems. Identified problems were then categorized as interdepartmental communication, timeliness of interpretation, or professional relationship.

The analysis revealed that EM physicians requested radiology exams after-hours (5 PM–8 AM) by filling out a paper form and then paging the on-call resident. The radiology resident would then contact the appropriate technologist to provide patient information and the study protocol. Patients would then be transported from the emergency room to radiology by EM transporters or ancillary personnel. These transport personnel positions were often understaffed and had high turnover rates. Consequently, transport times of 1 hour or more were not unusual. After the radiographic study was performed, the technologist would contact the radiology resident via pager when the images were available for interpretation. After the study was interpreted, the preliminary or final result was electronically reported to the ordering EM physician by means of a dialog box which could be viewed on any of several clinical picture archiving and communication systems located in the emergency department. Next, an institutional review board–approved study was undertaken to accurately identify time parameters and common types of delays. Radiology residents were trained for data collection and maintained meticulous logs during a 4-month period. Logs were designed to record time involved in ordering, performing, and interpreting various studies as well as for patient transport between the emergency room and radiology. Study data was analyzed to identify the range, mean, and standard deviation of time involved for each of the aforementioned activities. Systems problems were discussed monthly at the resident level during regularly scheduled radiology resident meetings. Residents were asked to make constructive suggestions on how to improve the current failing system.

The chief residents from each department served as resident liaisons at the interdisciplinary EM/radiology meetings and presented resident suggestions at the administrative level.

RESULTS
Study outcomes created a foundation for data-driven decision making by the interdisciplinary team. Results indicated that transport time between the EM and radiology department averaged 58.6 minutes. Interpretation time ranged from less than 5 minutes to 1.5 hours, with a mean interpretation time of 21.6 minutes. With accurate study data and constructive resident input, the interdepartmental team proceeded to plan systems improvements and achieve consensus regarding three initiatives. First, a direct line of communication was established between on-call radiology residents and an EM senior resident or attending using department-funded dedicated cellular telephones. This eliminated the outdated and inefficient alphanumeric paging system.

Second, study data clearly identified the impact created by inefficient patient transport. Additional transport personnel were employed in both departments. Ongoing informal anecdotal reports indicate departmental satisfaction with the improved transport services. Finally, an EM/radiology teaching conference was established to promote
collegiality and increased communication among residents and staff of each department. The inaugural conference, held during the fall semester 2005, brought together residents from both departments to discuss typical clinical and radiographic presentations of right lower quadrant abdominal pain. To assess resident satisfaction with the new forum, one conference was randomly selected for evaluation. Participants evaluated the March 2006 conference using a standardized form and a 5-point Likert-type rating scale anchored by “5” for “exceptional” and “1” for “unsatisfactory.” Average ratings across six dimensions ranged from 4.40 to 4.00, indicating that the conference exceeded their expectations. Most highly rated aspects were the quality of cases presented for discussion (4.40) and the organization of the conference (4.33).

Resident learning outcomes included an appreciation of the potential for interdisciplinary problem solving in health care environments and enhanced awareness of their role in the health care system. Importantly, professional relationships improved as residents developed a better understanding of each others’ specialty and particular difficulties in providing clinical services. Documentation of project participation has been included in the learning portfolios of participating residents.

DISCUSSION
For SBP to become integrated into residency training and medical practice, residents need effective methods for learning SPB concepts in the course of their daily activities. When SBP was adopted as one of six competencies for residents across all medical specialties (1,2), the competency was loosely defined (eg. “awareness of and responsiveness to the larger context and system of health care” and “ability to effectively call on system resources to provide care that is of optimal value”) (8) and the requisite knowledge and skills for SBP performance—resources, providers, and systems; cost-appropriate care, delivery systems, and patient advocacy—were unclear (14). It was not until 2005 that the Residency Review Committee for diagnostic radiology modified the broad ACGME definition for SBP and established specialty specific criteria to define the expected knowledge and skills pertinent to radiologists (Table 1) (15). Early recommendations to educate radiology residents and faculty about the SBP competency were to review appropriate literature; attend departmental and multidisciplinary conferences; interact with department administrators and faculty to gain an understanding of costs and reimbursements; view American College of Radiology (ACR)/Association of Program Directors in Radiology (APDR) videotapes; join and participate in radiologic societies; and schedule presentations on healthcare funding and regulation (16). This initiative incorporated many of the active learning recommendations.

Table 1: The Residency Review Committee for Diagnostic Radiology’s Definition of Systems-Based Practice

- Understand how the components of the local and national health care system function interdependently and how changes to improve the system involve group and individual efforts.
- Optimize coordination of patient care both within one’s own practice and within the health care system.
- Consult with other health care professionals, and educate health care consumers regarding the most appropriate utilization of imaging resources.

Across the medical education literature, SBP education has evolved from a combined didactic and experiential methods (4,17–22) to a more interactive approach. Clinical vignettes are used to trigger systems– based discussions on health care financing, administration, leadership, and political problems (23) and discharged patients are followed to gain information to improve discharge planning (24). SBP simulation is being used to practice coordination and teamwork (22), and a computer game has been designed to teach the principles and practical application of health economics (25). Recently, SBP was conceptualized using the metaphor of a village, made famous by then-First Lady Hillary Clinton when she said “it takes a village to raise a child,” and the metaphor was supplemented experientially by multidisciplinary patient care rounds, nursing evaluations, and quality assessment systems improvement exercises (1). Each of these efforts, however, was limited by the time and faculty required to develop an effective curriculum tailored to the education and practice needs of radiology students.

Problem-solving teams are widely used in health care systems for continuous quality improvement. Approaches such as “plan-do-study/check-act” cycles have become a core element of many program and systems improvement initiatives as an application of the scientific method to implement and test the effects of change ideas on the performance of health care systems (4,9), and, increasingly, on medical education activities (26). These quality improvement activities not only provide “real-world” opportunities of daily work to teach and learn SBP concepts, but can result in significant systems improvements as well.

CONCLUSION
This interdisciplinary team initiative provided significant opportunities for residents to participate in a system based project, a practice performance measure now required by the Residency Review Committee for diagnostic radiology
Residents had a practical experience that illustrated the capacity for effective change within the larger system based on data-driven decision making by professional colleagues from different disciplines. What made our approach novel was the intricate involvement of residents through each step of solving a systems-based problem. From identifying the underlying issues, gathering pertinent data, and implementing constructive ideas into a viable solution, residents played an essential role in improving patient care by fixing a broken system. It was an effective competency-based teaching and learning activity because it was explicit and clearly aligned with expected competencies, criteria-driven and focused on accountability, grounded in “real-life” experience, supportive of the residents’ ability to self-assess; and individualized, providing opportunities for independent study. We recommend this method to other institutions seeking effective means to demonstrate resident competency in the conceptually difficult ACGME pillar of SBP.

REFERENCES
Your Resident Portfolio  
Diagnostic Radiology Residency, Department of Radiology  
University of Missouri-Kansas City

A Portfolio is kept on each individual resident in the Medical Education Office throughout the resident's radiology training at the University of Missouri-Kansas City. The resident portfolio includes information regarding your licensing, certification, research, etc. The resident portfolio is a supplement to the information in the New Innovation Resident Database, although there are some areas of duplication.

The portfolio includes 15 sections: CV/LOR, Case/Procedure Logs/Duty Hours, Patient Care, In-Training Exam/Med Knowledge, Self-Assessment & Learning Plan, Evaluation of Reports, Professionalism/Documentation of Compliance, Medical Licensure/Certification, System Based Practice Project, Scholarly Activity/Practice Based Learning, Evaluations, Yearly Rotations/Schedules, Research & Physics Training, Misc Correspondence.

Although the portfolio remains the property of the training hospital, residents are allowed access to their portfolios during regular business hours and may remove portfolios from hospital property to prepare for evaluations. A portfolio should be returned to the residency coordinator as soon as possible to avoid getting lost, stolen, damaged, etc. Most information in the portfolio, including NRC logs, procedure competency logs, letters of clinical training, etc may be impossible to replace. Individual residents are responsible for the content of the portfolio. Your program director will review your portfolio twice a year give guidance on what items need to be placed in your portfolio and why.

After graduation, the portfolio is stored with other alumni files and retrieved only when needed (credentialing, audits, etc).

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Independent learning and scholarly projects

Independent study by residents is guided and accomplished by several means. The residency program provides access to Stat Dx and RadPrimer, has copies of the ACR files, has an extensive collection of teaching DVD's, and on line journal access.

Residents who submit research proposals may request departmental support in the form of dedicated time for research. Editorial and media services are available and financial support is provided through UMKC, alumni/friends society, and hospital foundations.

SCHOLARLY ACTIVITY:

Residents are required to pursue scholarly activity. Residents may receive up to 5 days off to present research at national conferences. Residents may also apply for presentation funding through the GME Office. Information regarding that process can be found on the UMKC SOM web page.

Research Time:

Residents may request research time beginning in the R1 year. Submission of a written proposal to request research time is required and must include a description of the project, the faculty mentor name, co-
investigators names, and the outcome measure that will be used for evaluation purposes during the rotation. The research elective will be granted based on the education committee's evaluation of individual submitted proposals and availability of coverage requirements.
Residents and fellows should take credit for scholarly activity appropriately and keep CVs up to date. Below are comprehensive lists of various forms/types of scholarly activity.

**Discovery – finding new knowledge**
- Participate in research, particularly projects that are funded, following peer review and/or result in publications or presentations at scientific meetings
- Present/publish clinical, biomedical, health services, or medical education research
- Participate in the design/interpretation of research studies

**Dissemination (Integration/Teaching) – making connections**
- Author a textbook chapter
- Prepare/present a meta-analysis
- Review an assigned clinical or research topic
- Prepare/present board review sessions or courses
- Prepare/present scientific papers at regional/national professional/scientific societies
- Prepare/provide teaching sessions to medical students, residents, faculty, allied health professionals, the public (evaluation, comparison to peers)

**Application – applying knowledge to significant problems**
- Publish/present reports or clinical series at professional/scientific meetings – *essential features of a good case report: tells a “real” story, raises a thought-provoking issue, has elements of conflict, promotes empathy; lacks an obvious “right” answer; encourages learners to think and take a position; demands a decision, is relatively concise* (Boehrer & Linsky, 1990; Lang, 1986)
- Prepare/present Grand Rounds, state-of-the-art lectures on topics with a focus on recent scientific advances
- Prepare/present radiology at multi-disciplinary case conferences
- Prepare/participate in journal and research clubs – critique and evaluate
- Critical analysis of systems/practice with action plans for improvement – M&M conferences, QA projects

If you have questions as to whether your project qualifies as a scholarship activity, please ask the program director.
Conferences: Schedule and attendance policy

Attendance at daily conferences is mandatory.

The only excusable exceptions are (1) residents who are post-call, (2) residents on select clinical rotations, (3) residents on approved time off such as vacation or AIRP, (4) resident involved in a procedure and cannot break away.

ACGME program requirements require that the program director monitor attendance and written proof of attendance is required at RRC site visits.

Sign the attendance book, since you will not be able to do it later. The program coordinator will compile attendance data for review during your semi-annual evaluation sessions. Accurate documentation of attendance is the responsibility of each individual resident.

If you miss or are late conference for an “unexcused” absence, you must notify the residency coordinator via e-mail with an explanation.

If this becomes a pattern (3+ incidences), then the PD will request a formal meeting to discuss appropriate professionalism. Consequences may include additional weekend assignments, delay or lack of approval of vacation/meeting time, and denial of approval of use of funds to attend meetings.

Attendance undergoes regular audits.

The UMKC faculty demonstrate their commitment to resident education by presenting conferences on a regular basis. The faculty are experienced, knowledgeable, and receptive to questions. Conferences are typically didactic and/or case-based discussions held in the Radiology conference rooms at 7:30am. Resident led conferences are held over the noon hour and web-conferenced to other hospital sites.

The conference schedule available on line.

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30am biweekly</td>
<td>IR-SLH</td>
<td>MSK-SLH</td>
<td>Peds rad - CMH</td>
<td>Potpourri/Physics-SLH</td>
</tr>
<tr>
<td></td>
<td>Physics-SLH</td>
<td>Chest-SLH</td>
<td>Neuro-SLH</td>
<td>Potpourri - Resident</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potpourri</td>
<td>US/GI/GU – SLH</td>
</tr>
<tr>
<td>12:00pm</td>
<td></td>
<td></td>
<td></td>
<td>Journal club</td>
</tr>
<tr>
<td>webcast</td>
<td>Interesting</td>
<td>Interdisciplinary</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cases</td>
<td>or research conf</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Residents are excused from their assigned areas to attend specific conferences.

Conference series/tracts:

- **Didactic lecture series**: Given by UMKC faculty at 7:30am Mon-Friday. These conferences cover core medical knowledge topics.
- **Case based & interdisciplinary conference series**: Generally given by residents at noon. These conferences focus on individual interesting cases. Interdisciplinary tumor conferences run every Wednesday as well as every other Tuesday and Friday at TMC. The Wednesday conference is a broad tumor board with multiple subspecialties. The radiologic findings for this conference are presented by the resident on the Nuclear Medicine/Ultrasound rotation at TMC. Tuesday is Thoracic conference which is presented by the resident on Chest at TMC. Friday is GI Tumor board; this conference is presented by the resident on GI/GU at TMC.
• **Introduction to Radiology conference series:** Lecture series for PGY-1 and PGY-2 residents covering basic radiology topics for the core rotation. Lectures are held throughout July and the beginning of August.

• **Introduction to research conference series:** A series of lectures for all residents developed by Dr. Sherwin Chan, Director of Radiology Research. Lectures are held quarterly repeating over a two-year period.

• **Physics conference series:** Annual 1 week/year physics conference by CMH physicists Dr. Nima Kasraie and Dr. Mohammed Aljallad. PGY-2 and PGY-4 residents are freed from clinical duties to attend the physics week. Biweekly physics lectures are also given throughout the year for all resident levels.

• **Business of Radiology lecture series:** Coordinated by SLH department Chair, Dr. Kunin (MD, MBA), this series of lectures covers topics like contract negotiation, malpractice, insurance, reimbursement, etc.

• **Personal and professional development lecture series:** 2-4 annual dinner conferences for residents and spouses with guest speakers are provided by SLH. Reservations are required and can be made through the Medical Education Office. Residents must attend an average of 1 conf/year.

• **UMKC Visiting professor series:** The goal of these lectures is to enrich the teaching, clinical and research experience of radiologists through exposure to internationally renowned expertise. On average 4-8 visiting professors are scheduled to lecture each year.

• **Greater Kansas City Radiological Society:** Meets 4 times a year for lectures from visiting professors from across the country. Membership in KC Rads is paid on behalf of each resident by UMKC. Residents are required to attend all lectures.

• **Journal club, research presentation conference series:** A topic is presented by a resident or faculty and discussed as a group on a biweekly basis. Residents present their research, developing topics in radiology, or educational articles at this conference.

• **Practice Based Management (Morbidity and Mortality) conferences:** Quarterly case based presentations of difficult/missed cases or changed preliminary report cases are organized by the residents and presented in conjunction with the SLH department Chair.

**Interdepartmental conferences:**

Radiology is invited to many conferences held by our clinical colleagues to present the pertinent radiographic findings for the particular case. Residents should attend interdisciplinary conferences at the institution where they are rotating.

Conference presentations may be assigned to residents by faculty on their service. Residents should familiarize themselves with the cases to be presented, including the history, and be prepared to discuss the disease process and radiologic findings in the cases.

These conferences should be viewed as an opportunity to shine, as the resident learns about the clinical issues, complications, and post-imaging events that transpired. He/she is reminded of the patient behind the interesting case and is challenged to look beyond the black and white of the images to the shades of gray of patient care.

**Radiology residents are required to keep logs** on an Excel worksheet of their interdisciplinary conference attendance. The log will be checked by the PD semi-annually.

**Research Conference presentations:** Residents who have prepared papers or posters or made presentations at a national conference are encouraged to share their research with their faculty and colleagues during this conference.
Journal club:
Every academic year, each resident presents an article he/she has chosen from a recognized radiology journal. To prepare, the resident consults with a staff member who shares interest in the topic and gives a copy of the article in advance to the residents (email). The resident presents the article to the group, highlights the pertinent points, areas of controversy, and is prepared to discuss the topic with the group.

Residents follow Evidence Based Medicine format performing a critical review of the article. Residents place a journal club work sheet (see below) in their portfolios and this is reviewed with the PD at their biannual review.

Daily Schedule:
Residents should report to their assigned rotations immediately following the conclusion of morning lecture (typically 8:30 am). In the event that there is no morning lecture residents rotating at SLH and CMH should be in their respective read rooms by 8:00 am. In order to allow continual coverage of ED studies at TMC, residents on ER/Fluoro, Chest, GI/GU and Neuro at TMC must arrive at their stations by 8:00 am when there is no morning lecture. Residents on MSK and NM/US must arrive by 8:30 am. Repeated failure to arrive on time for rotations will result in discussion of appropriate professionalism and you may be at risk for being reprimanded or placed on probation. Residents at the KCVA should be at their rotation by 8:30 am when there is no morning lecture.

The day ends when staff dismisses the resident for the day.
Radiology Journal Club Worksheet (rev 06/16/2016)

Instructions: Fill in this form each time you do journal club. Bring the completed form with you to your semiannual program director review meeting. Be sure your mentor initials this form.

Resident name: ________________________________
Date of Journal club: ___________________________
Attending mentor (print name): __________________ Initials: __________________
Title & full citation of Journal article: __________________________

Please comment on:

1. Abstract: (Ex – was it a concise overview? Did the conclusion match the aim? Were there discrepancies between the abstract and the body of the paper?)

Introduction: (Ex – did it include reasonable rationale why to do the study? Were goals of study included? Does it explain how the authors’ aims fit into what is already known on the subject?)

2. Materials and Methods: (Ex – Is this a good blueprint that another person could read and reproduce? Do the methods attempt to minimize bias and confounding factors? Are the patients included and excluded appropriately? Are correct statistics used?)

3. Results: (Ex- Do the results follow the order of the methods? Are there any unexpected results data sets? Are the results clear? Are all subjects and materials accounted for?)

4. Discussion: (Ex- Does it state if the hypothesis was verified? Does the discussion compare and contrast with prior literature? Is there an explanation of differences compared to prior literature? Are any unexpected results explained?)

5. Conclusion: (Ex – Given the limitations of the study, are the conclusions valid? Does the conclusion respond to or answer the question asked in the aim of the study? Are the conclusions proven in the manuscript?)

6. What knowledge gap did this manuscript fill in (practice based learning improvement)?

7. Any other comments?

Glossary:
Evidence based medicine – Deciding which clinical practice to use based on critical literature analysis
Practice based learning improvement – Filling in knowledge gaps.
Reference: Budovek JJ. Evidence Based Radiology: A primer for reading scientific articles. AJR 2010;195:1-4
How to obtain Journal Articles from the St. Luke’s Health Sciences Library

Health Sciences Library
816-932-2333
library@saint-lukes.org

5th Floor, Main
Monday – Friday
8:30 a.m. – 5 p.m.

• Access to over 7,000 online journals: Visit the library webpage to search. We offer Medline, Cochrane Database of Systematic Reviews, and ClinicalKey among many other online resources.

• Article Delivery: Submit a list of articles, and the library will send you the full-text PDFs.

• Literature Searches: Submit a topic. We will do a literature search, and send you a list of articles.

• Inter-Library Loan: If we don’t own what you are looking for, we will borrow it from another library free of charge.

• Computers: We have six computers with internet access as well as the Microsoft Office products. The main library reading room is a wifi zone.

• Alerts: Monthly email alerts of new articles published on your topic of interest. It helps in staying up with trends in your field. If you are interested, ask one of the librarians about this.

• Current Contents: You may request the table of contents from a journal or journals be emailed to you each month.

• Off-site Access: Login info for Ovid & EBSCO
  Ebsco: ID-stlukesuser
  Password: library1882
  Ovid: slhkc001 (or 002-006)
  Password: icehouse

We’re located on the 5th floor of SLH!
Questions? Call or email us!
library@saint-lukes.org 816-932-2333
Evaluation process (see sample evaluations in New Innovations)

UMKC meets the ACGME requirement for a variety of valid and reliable evaluations of each competency. A 360° degree evaluation process is in place to assess all core competencies. Sample evaluations are described below.

360° evaluation - The 360 degree evaluation, with attention to the core competencies, includes the following:

1. Monthly formative faculty evaluation of residents
2. Bimonthly or quarterly formative technologist evaluation of residents
3. Yearly formative peer evaluation
4. Biannual formative patient evaluations (approximately 10-30 per year)
5. Semi-annual formative self reflection evaluation
6. Semi-annual program director summative evaluation
7. Completion of annual residency training evaluation

1. Monthly faculty formative (constructive) evaluation of residents:
   - Residents undergo monthly electronic evaluation by various faculty members that the resident is exposed to during each rotation. These evaluations include constructive criticism information on the six core competencies: patient care, medical knowledge and clinical performance, interpersonal/communication skills, practice-based learning and improvement, professionalism, and systems-based practice.
   - The evaluations are electronically submitted by the faculty member through the GME system software provided by UMKC. The PC is responsible for collating the data which will be discussed at quarterly education committee meetings and with the program director every 6 months or sooner if the need arises. The collated data are placed in the resident's portfolio.
   - The evaluations will remain confidential, to be discussed with the resident as part of their semi-annual program director evaluation. Residents may view evaluations online through GME system software at any time.

2. Bimonthly technologist evaluation
   - Residents receive formative (constructive criticism) evaluations from selected technologists that they are exposed to during various rotations. These evaluations include information on the six core competencies (as already listed) as appropriate for a technologist's assessment of resident performance. Evaluation forms used are those recommended by the ACGME. Evaluations are electronically submitted through the GME software. The evaluations are available to be reviewed anytime the resident so desires. The technologist reviewers are from TMC, SLH and CMH campuses and their identity is kept confidential.

3. Yearly peer review
   - Residents receive a yearly written formative peer evaluation from residents in the program. These evaluations include information on the six core competencies: patient care, medical knowledge and clinical performance, interpersonal/communication skills, practice-based learning and improvement, professionalism, and systems-based practice. Peer evaluations are submitted electronically through the GME software system. Residents are able to view their
evaluations at any time after they are submitted. Evaluations are confidential. The program director may discuss peer evaluations with the resident at his/her semi-annual review. The following PGY levels will evaluate each other:

- PGY 1 evaluate PGY 3 & 5
- PGY 2 evaluate PGY 3 & 4
- PGY 3 evaluate PGY 2 & 4
- PGY 4 evaluate PGY 1 & 5
- PGY 5 evaluate PGY 1 & 2

4. Patient evaluation

- Residents will receive anonymous written formative survey evaluations of their performance from patients they care for during various rotations. The resident must receive at least ten survey evaluations per fluoroscopy/GI rotation. These evaluations include information relevant to the core competencies, specifically patient care, clinical performance, interpersonal/communication skills, and professionalism.
- The evaluations are the resident’s responsibility for collating the results and placing them in his/her portfolio. The evaluations remain confidential (the patient’s or guardians name who filled out the survey will remain confidential). The patient evaluations are reviewed with the resident as part of their semi-annual program director evaluation.

5. Semi-annual formative self assessment

- Residents are asked to fill out a semi-annual self assessment formative evaluation where they reflect on their goals and accomplishments during the prior 6 month period. The resident discusses their self evaluation with the PD semi-annually. Plans for reaching new goals for the following year will be discussed.

6. Program director summative evaluation

- The PD conducts a semi-annual summative evaluation with each resident. At this meeting, the resident and program director discuss individual and collated evaluations that he/she has received. The resident signs the collated formative evaluation form stating he/she has reviewed them.
- The PD prepares a semi-annual summative evaluation that rates the resident as “outstanding”, “good”, “satisfactory”, or “marginally” approved to remain in the program versus recommend to not remain in the program. The resident signs the evaluation form to document that he/she has participated in the process and understands the outcome of the evaluation review session.
- A rating of marginal approval is considered the equivalent of being placed on probation. Any resident being given that rating will be told that his/her performance must improve or he/she will not be retained in the program. In the case of receiving probation status, the resident will receive guidelines by which he/she will be later re-evaluated, usually within 3-6 months, to determine whether the resident will be taken off probation, remain on probation, or possibly be dismissed.

7. Completion of residency training evaluation

- At the completion of the residency training program, the PD will sign and date a completion of residency training evaluation that rates the resident as either “outstanding”, “good”, “satisfactory”, or “marginally” approved. This form will serve to document the successful completion of the residency training program.
8. Role of the UMKC resident education committee in evaluation

- The education committee meets quarterly to discuss various resident issues and discuss the individual performance of each resident. Resident status and summative reports include the recommendations of the resident education committee. The PD makes all decisions on advancing residents in conjunction with the education committee.

More information regarding UMKC’s advancement and disciplinary policies can be found on the UMKC SOM website. The Diagnostic Radiology Program will follow all policies and procedures set forth by the University of Missouri-Kansas City SOM.
SEMI_ANNUAL EVALUATION SELF_EVALUATION AND REFLECTION
UMKC Radiology Residency (revised 6/1/2017)

DATE: _______

PGY  1  2  3  4  5

RESOURCES:
What 3 resources do you need to accomplish your goals in this specific amount of time?
1. 
2. 
3. 

Conference attendance
How often do you attend conference? _______ GOAL: 98 %
If you are not attending conference, why not? Are there barriers to conference attendance?

Evaluations & Milestones
Do you understand the ACGME milestones and how you are being assessed?  Yes  No

Evaluations:
Are your evaluations a fair and accurate assessment of your medical knowledge and the clinical work you did this rotation?
If not, why?

Did the faculty member or staff give you ways to improve for next rotation?
Is there a way evaluations can have a more positive impact on your training?

**SYSTEMS BASED PRACTICE PROJECT**
Attach your outline for your SBPP. If your outline has been approved, please bring your project so it can be discussed.

**PRACTICED BASED LEARNING AND IMPROVEMENT (filling in knowledge gaps):**
Attach your outline for your PBLI project. If your outline has been approved, please bring your project so it can be discussed.

**PROFESSIONALISM:**
Discuss any issues you may be having with professionalism.

What have you done in the last 6 months to make the residency better?

**SCHOLARLY ACTIVITY in last 6 months or upcoming 6 months:**
What is your scholarly project for graduation? Attach outline for approval.

If you have completed your scholarly project, what research/scholarly projects are you currently working on currently?

How are you incorporating life-long learning strategies into your daily practice/schedule?

**CAREER PLANNING:**
For junior residents – Start thinking about what you like and what you do well.

For upper level residents – Fellowship Planning
What type of fellowship?

Where do I apply?

Who needs to write my letters of recommendation?
When do I need to get everything organized?

**WELLNESS**  
Am I able to make time for who and what I value?

Do I need help?

*Below this line to be filled by Program Director in at Semi-Annual Evaluation:*  
Follow up activity/meeting required in the following areas:  

<table>
<thead>
<tr>
<th>Item required to do:</th>
<th>Deadline</th>
<th>Sign off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Binder checklist:

Competency Forms: If you have done any of the following rotation(s), you should have a competency form:

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Competency Form</th>
<th>Completed?</th>
<th>Signed by IR Staff?</th>
<th>Certificate in Portfolio?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoro TMC</td>
<td>Yes/No</td>
<td>FL Competency form</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>Nuc Med QA</td>
<td>Yes/No</td>
<td>NM Competency form</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>Interventional</td>
<td>Yes/No</td>
<td>IR Competency form</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>Ultrasound</td>
<td>Yes/No</td>
<td>US Competency form</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>Pediatric Radiology end of rotation exam</td>
<td>Yes/No</td>
<td>Certificate of completion form</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>Pediatric Radiology online modules</td>
<td>Yes, 32 Jr curriculum</td>
<td>Yes, 30 Sr curriculum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PATIENT CARE:**

<table>
<thead>
<tr>
<th>Module</th>
<th>Completed?</th>
<th>Certificate in binder?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Patient care</td>
<td>Yes/No</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Online radiation safety</td>
<td>Yes/No</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Online lines and catheters</td>
<td>Yes/No</td>
<td>Yes/No</td>
</tr>
<tr>
<td>MRI safety lecture attended?</td>
<td>Yes/No</td>
<td>Yes/No</td>
</tr>
<tr>
<td>BLS/ACLS certification</td>
<td></td>
<td></td>
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</tbody>
</table>

**CASE LOGS:**

- Updated case log in binder?
  - PGY 2: Fall - Spring-
  - PGY 3: Fall- Spring-
PGY 4: Fall- Spring-
PGY 5: Fall- Spring-

Updated interventional log in binder? Yes ________ No

PGY 2: Fall - Spring-
PGY 3: Fall- Spring-
PGY 4: Fall- Spring-
PGY 5: Fall- Spring-

Thyroid treatment log in portfolio? Yes ________ No

Required to have 3 of each:
# <33mCi cases ________ # >33mCi cases

Date all 6 treatments completed:

Mammography requirements met?
PGY 5: Yes No
Number of mammograms interpreted:

COMMUNICATIONS SKILLS:
3 on line reporting modules completed (PGY1s/2s)? Yes ________ No ________

Certificates in binder? Yes ________ No ________

Annual report evaluation score?
PGY 1:
PGY 2:
PGY 3:
PGY 4:
PGY 5:

Resident lecture prepared and given? Yes ________ No ________

Topic

Included in binder? Yes ________ No ________
PEER EVALUATION

PEER EVALUATION (rev 06-16-2016)

PATIENT CARE - Resident should provide patient care through safe, efficient, appropriately utilized, quality-controlled radiology techniques and effectively communicate results to the referring physician and/or other appropriate individuals in a timely manner.

1. Develops a management plan based on radiologic findings and clinical information
2. Is helpful in orienting lower level residents new to the service or hospital

MEDICAL KNOWLEDGE - Resident should engage in continuous learning and apply appropriate state of the art diagnostic and/or interventional radiology techniques to meet the imaging needs of patients, referring physicians, and the health care system.

1. Recognizes and describes relevant radiologic abnormalities
2. Is available to and takes time to teach lower level residents when working together
3. Utilizes information technology to investigate clinical questions and for self-learning

INTERPERSONAL/COMMUNICATION SKILLS - Resident should communicate effectively with patients, colleagues, referring physicians, and other members of the health care team concerning imaging appropriateness, informed consent, safety issues, and imaging results.

1. Shows sensitivity & communicates effectively with all members of the health care team
2. Effectively teaches non-radiology residents, students, and other health care professionals
3. Takes time to explain to lower level residents how to dictate reports

PRACTICE-BASED LEARNING AND IMPROVEMENT - Resident should participate in evaluation of one's personal practice utilizing scientific evidence, "Best practices" and self-assessment programs in order to optimize patient care through lifelong learning.

1. Participates in Journal Club, Morbidity and Mortality, Interesting Case Conferences, or QI/QA activities
2. Appropriately accepts constructive criticism without taking it personally and attempts to make improvements
3. Is insightful into own character, being able to recognize personal errors and correct them

PROFESSIONALISM - Resident should commit to high standards of professional conduct, demonstrating altruism, compassion, honesty, and integrity, follows principles of ethics and confidentiality, and considers religious, ethnic, gender, educational, and other differences when interacting with patients and other members of the health care team.

1. Demonstrates a responsible work ethic including showing up on time and not leaving until the work is finished
2. Is willing to help when needed including being willing to switch rotations or take call to cover for other residents
3. Works professionally alongside other residents and faculty w/o complaining or gossiping

SYSTEMS-BASED PRACTICE - Resident should understand how the components of the local and national healthcare system functions interdependently and how changes to improve the system involve group and individual efforts.

1. Dedicates time to study

OVERALL PERFORMANCE
How would you rate this resident overall as someone you would like to work with?
American College of Radiology information

Guidelines and standards:
The ACR periodically defines new practice guidelines and technical standards for radiologic practice to help advance the science of radiology and to improve the quality of service to patients throughout the United States. Existing practice guidelines and technical standards will be reviewed for revision or renewal, as appropriate.

Each practice guideline and technical standard, representing a policy statement by the College, has undergone and thorough consensus process in which it has been subjected to extensive review, requiring the approval of the Commission on Quality and Safety as well as the ACR Board of Chancellors, the ACR Council steering committee, and the ACR Council. The practice guidelines and technical standards recognize that the safe and effective use of diagnostic and therapeutic radiology requires specific training, skills, and techniques, as described in each document. Reproduction or modification of the published practice guidelines and technical standards by those entities not providing these services is not authorized.

These guidelines are an educational tool designed to assist the providing appropriate radiologic care for patients. They are not inflexible rules or requirements of practice and are not intended, nor should they be used, to establish a legal standard of care. The ACR cautions against the use of these guidelines to litigation in which the clinical decisions of a practitioner are called into questions.

The practice of medicine involves not only the science, but also the art of dealing with the prevention, diagnosis, alleviation and treatment of disease. The variety and complexity of human conditions make it impossible to always reach the most appropriate diagnosis or to predict with certainty a particular response to treatment. It should be recognized; therefore, that adherence to these guidelines will not assure an accurate diagnosis or a successful outcome. All that should be expected is that available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of these guidelines is to assist practitioners in achieving this objective.

ACR Appropriateness criteria:
ACR Appropriateness criteria are used by radiologists, radiation oncologists and referring clinicians throughout the United States to help make well-informed decisions about initial radiological tests and therapeutic procedures. Ten expert panels, comprising physicians from 15 medical specialties, participated in their development.
ACR in-training examination:

Residents are required to take the ACR In-Training Exam every January during the PGY2-4 years. The in-training exam is optional to PGY5 residents in good standing. Registration for the exam is paid by the UMKC Graduate Medical Education Office. Scores are released to the Program by the ACR, reviewed, and are released to the resident. Scores are used by individual residents to track trends in radiology subspecialties in order to determine his/her strengths and weaknesses. This may be used to guide areas of focused study.

Scores are used by the Education Committee as an objective measure of resident progress during residency training. There is no pass or fail designation from the ACR. The Education Committee has set a score of 20% or greater as an indicator that the resident has achieved an adequate level of performance for level of training. Overall scores <20% are considered by the Education Committee to be inadequate for the level of training. Any resident with a score of <20% may receive a letter of reprimand/consultation from the PD, and will be required to meet with the PD to discuss their score. Residents with repeated poor performance (<20%) on the in-service exam may be put on academic probation, required to extend their training, or in rare cases this information may be used as part of a decision to dismiss a resident from the program. Each low score will be considered on a case by case basis by the PD and education committee. The resident’s scores will be considered in the context of level of training, overall performance on all exams, conference attendance, and 360 degree evaluations. Residents may be required to demonstrate improvement on the next in service, to avoid, or end periods of probation.

The American College of Radiology yearly in-service examination scores are tabulated comparing programs on a national level with other similar level radiology residents. The scores of the examination are received in spring and reviewed by the program director and education committee.

THE AMERICAN BOARD OF RADIOLOGY

The American Board of Radiology (ABR) conducts the core and certifying exams for Diagnostic Radiology. Board certification is not required for completion of the Diagnostic Radiology residency. Currently all residents take and pass the core exam before leaving residency. Residents entering the program after 2010 take the core exam at the end of the R3/PGY4 year and sit for ABR certification 15 months after residency graduation.

Please check the ABR website at www.theabr.org for further information regarding the boards. Be sure to comply with application deadlines.
Residents as Teachers: Methods

Teaching and learning in Radiology occur in many different ways. The most important is probably during one-on-one or small group discussions at the view box or in the procedure room. The resident is encouraged to develop his/her teaching skills by gradually assuming the role of teacher with medical students, technologists, clinicians, patients, and families. Effective teaching staff should be used as role models. Skill in this type of teaching will be useful to residents after they finish the program and practice in an academic or private practice setting. Your progress in developing teaching skills will be evaluated monthly.

Formal didactic lectures are also used to deliver information. This type of lecture is issued at many noon conferences. Residents will gain experience with this type of educational method by preparing a 1 hour lecture to medical students and residents beginning in the spring of the 1st year.

In addition, each resident is required to prepare and present an M&M, and/or research conference on the topic of his/her choice to be given to the department during his/her fifth year. Scheduling is done by the Chief Residents. Evaluation and feedback is provided by the Program Director. Some job interviews request formal conference presentation. This lecture may come in handy when you interview.

Case presentations are also effective teaching tools in radiology. Residents develop case presentation skills while presenting at interdepartmental conferences.

If any resident desires to take formalized courses in Educational Methods, these are available at UMKC and time to attend will be arranged.
**Time off policies:**

Residents at all levels should expect to be pulled to cover co-residents from time to time. This is most likely to be needed when a resident calls in sick, when several other residents are away (sick, vacation, meeting, maternity, paternity leave, unexpected emergency) at the same time, when more than one resident is absent from the same rotation, or when several residents are absent from the same institution at once.

**Sick leave:** The Radiology Department follows the UMKC GME sick leave policy in addition to ABR, ACGME, and UMKC Radiology Department specific parameters as follows.

Residents are expected to cover for one another’s sick days.

*Sick time may be used to care for routine illness of a family member* (i.e. spouse, child, parent). Sick days are accumulated at a rate of 1 per month. These may be used for maternity and/or paternity leave.

For the UMKC GME policy, please refer to URL: www.med.umkc.edu

**Rotations at Saint Luke’s Hospital:** If a resident assigned to a Saint Luke’s Hospital rotation is sick, he or she must notify **by email or verbally** the radiology residency coordinator (Julie McCollum at 816-932-2237 jmccollum@stlukes.org), and the faculty he/she is working with that day. The resident must also verbally notify the on call chief prior to 7:30 a.m. so that appropriate coverage can be arranged. If this communication is not performed in a timely manner, a vacation day may be utilized. If the resident does not have any additional vacation days available, this may be considered a no-show for work and an extra call shift may be assigned to compensate for this incident.

**Rotations at TMC, CMH or KCVA:** If a resident assigned outside of Saint Luke’s Hospital is sick, he or she must notify **by email or verbally** the radiology residency coordinator (Julie McCollum at 816-932-2237 jmccollum@stlukes.org), and the faculty he/she is working with that day. The resident must also verbally notify the on call chief prior to 7:30 a.m. so that appropriate coverage can be arranged. If this communication is not performed in a timely manner, a vacation day will be utilized. If the resident does not have any additional vacation days available, this will be considered a no-show for work and an extra call shift may be assigned to compensate for this incident. The administrative assistant for the appropriate hospital must also be contacted at the following:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Name</th>
<th>Phone Number</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMH</td>
<td>Teri Carver</td>
<td>816-234-3273</td>
<td><a href="mailto:tcarver@cmh.edu">tcarver@cmh.edu</a></td>
</tr>
<tr>
<td>TMC</td>
<td>Andrea McQueen</td>
<td>816-404-0751</td>
<td><a href="mailto:andrea.mcqueen@tmcmed.org">andrea.mcqueen@tmcmed.org</a></td>
</tr>
<tr>
<td>KCVA</td>
<td>Rachel Brantley</td>
<td>816-861-4700, ext 52425</td>
<td><a href="mailto:rachel.brantley@va.gov">rachel.brantley@va.gov</a></td>
</tr>
</tbody>
</table>
**Vacations, meetings, personal, interview, and other time off:**

The Radiology Department follows the UMKC GME sick leave policy in addition to ABR and UMKC radiology department specific parameters as follows. Please refer to the UMKC GME website at www.med.umkc.edu

1. **Vacation time off:**
   - Resident Vacation Policy (updated 2/28/18)
   - Residents must schedule 2 weeks (14 days) of their vacation once the next year’s schedule is released. Scheduling of vacations will be done by seniority.
   - PGY1 and PGY2 residents must schedule a majority (at least 12 days) of their vacation to be taken during the first 6 months of the academic year. This is to protect time later in the year for more senior residents for fellowship interviews, boards, and graduation.
   - Vacation during the SLH neuro rotation will be approved on a case by case basis by Dr. Holloway.
   - Vacation may NOT be scheduled during Physics week.
   - No vacations (other than conference attendance) will be allowed during RSNA and ARRS conference weeks.
   - Only one resident may be absent from TMC at a time. Exceptions will be made for RSNA, ARRS, and physics week attendance to allow as many residents to participate as possible. TMC vacations must be approved by Dr. Lewis.
   - Other vacations must be requested on a quarterly basis (e.g., by October 1 for vacations beginning January 1). We will obviously allow flexibility for medical procedures, emergencies, etc, but will not approve last minute non-emergent vacations.

2. **To schedule vacation or meeting time off:**
   - Residents must fill out a vacation request form and submit it to the residency coordinator (Julie McCollum).
   - Vacation will be granted on a seniority basis.
   - These will then be submitted to the appropriate person for approval.
   - Residents should review the residency online conference/vacation calendar prior to submitting requests in order to avoid weeks where too many residents are already off or there is inadequate coverage. The residency calendar can be found at [http://med.umkc.edu/radiology/news/] under Dept. Calendar (Google).

3. **Meeting time off:**
   - Residents receive five (5) working days to attend a national conference approved by the program director in advance of attending the meeting.
   - Residents may use their educational stipend for meeting attendance if desired.
   - Additional meeting time, up to 5 working days per year, may be approved for scholarly activity/research/presentations, for which residents may apply for additional GME funds. Residents must be 1st author on abstracts to apply for GME funds.
   - A conference which is less than five days in length will merit those (<5) days leave, plus up to two travel days (if meeting starts and/or ends on weekdays), one to and one from the meeting.
   - Travel days may only be used if there is no way the resident can get to and from the meeting on the day it starts and ends. For example travel days are NOT given if the meeting starts after 12:00pm or ends at or before 12:00pm.
   - Conferences longer than 5 days may be attended by using additional vacation days.
5. Time off for interviews:
   - Residents in their PGY3, 4 and 5 years of training may elect to use up to a total of five (5) days of training for interviews/visits to other institutions. Interview days not used for interviewing for fellowships or employment cannot be used as vacation time.
   - Additional days needed for such activities should be scheduled using resident vacation days as necessary.

6. Time off for in Service and ABR exams:
   - Residents will be given 1/2 day off to take in service exams locally.
   - If a resident chooses to take in-service exams in a location outside of Kansas City, he/she will be given only the day of the exam off. Residents who repeat either exam will be given 1/2 day for the exam as described above.
   - Residents will be given 2 days off for the ABR core exam as well as 1 additional travel day (total of 3 days) since the exam is currently only offered in Tucson or Chicago.
   - Any additional travel days can be scheduled using vacation days if available.

7. Time off to attend AIRP
   - To reinforce diagnostic radiology basics and patho-physiology of disease processes, each resident attends a four (4) week AIRP Pathologic/Radiologic course at the ACR in Washington, D.C. The course allows residents to develop contacts with peers from other parts of the country, share their experiences, and learn about other programs.
   - Tuition to the AIRP is paid by the residency program.
   - A $2000 stipend is provided. Residents are responsible for arranging housing and all other travel/living related expenses while away.
   - No travel days off are given for the AIRP since it begins on Monday & ends on Friday. Weekends before & after should be used for travel.

8. Incomplete rotations
   - If a resident is absent from more than 25% of working days on any core rotation, the rotation may not qualify as core, but would rather be an "elective". See core curriculum for specific requirements per subspecialty.
   - If a resident has incomplete rotations during the senior year and has not met the core requirement, then there may be a need to extend the period of the residency program per the Program Director’s and education committee’s recommendation.

10. Maternity leave and family medical leave:
    - Please refer to the UMKC GME web site for specific policies. The URL is: www.med.umkc.edu
    - The residency program follows guidelines set forth by UMKC policies.
    - Sick time accumulates at a rate of 1 day per month.
    - Residents must use all sick days and vacation time for maternity/paternity leave PRIOR to applying for family medical leave, which can be used for an extended absence if requested more than 30 prior to the time off.

11. FML – Family Medical Leave time off:
    For more information regarding FMLA, visit the GME website at http://med.umkc.edu/ and contact the UMKC SOM HR Department, and your residency coordinator.
**Moonlighting policy:**

Please refer to the UMKC GME web site for specific and additional policies. The URL is: [www.med.umkc.edu/](http://www.med.umkc.edu/)

1. All residents are given a copy of the radiology moonlighting policy and moonlighting permission form upon arrival at UMKC. Additional copies can be obtained from the program coordinator, Julie McCollum ([jmccollum@saint-lukes.org](mailto:jmccollum@saint-lukes.org)) or 816-932-2237).

2. Residents in their first year of residency, residents on academic probation, on a study plan, or score less than 20% on their in-service exam will not be allowed to moonlight.

3. All residents who wish to do external moonlighting must fill out the moonlighting permission form specifying the date, place and medical liability coverage during the moonlighting activity. Residents must submit the request in writing to the program director for approval. The program director has discretion to decide if the resident may or may not moonlight.

4. Moonlighting residents must submit their moonlighting schedules to their program coordinator on a monthly basis.

5. Moonlighting is not an official part of the education process and the university *will not* supply malpractice insurance nor allow use of the temporary institutional medical license for such activity.

6. All moonlighting is counted in the resident’s normal duty hours. All regulations apply including 80 hour work week, 10 hours off between shifts and no more than a 24 hour work week averaged over a 3 week period.

7. The Program Director may stop a resident’s moonlighting activities for any and all reasons including dip in academic progress, signs of fatigue, etc.
UMKC Medical Resident/Fellow MOONLIGHTING APPROVAL FORM

Name: ____________________________________________________________
     Last                  First                  Middle

Social Security Number/Employee ID No. ______________ Pager No. ______________

E-mail: ______________________________ Contact Tel. No: __ Department: ____________

Requested Dates: From ___________________ To: ____________________

Place of Moonlighting: ____________________________________________

Contact Information: Name ___________________ Telephone No. ______________

Professional Liability Coverage Provided: Yes { } No { }

Name and Address of the Insurance Carrier: ____________________________

(Attach to this form a copy of the Certificate of Insurance)

Certificate: I understand that the duty hours spent in moonlighting and as a Resident/Fellow at UMKC does not exceed 80 hours per week, averaged over a four week period. I am responsible for keeping track of my duty hours.

_________________________________________    ___________________________
Resident/Fellow Signature                  Date

-------------------------------
Approval

Request Approved from ___________________ to ___________________

(begin date)                             (end date)

_________________________________________    ___________________________
Program Director                        Date

______________________________    ___________________________
Office of GME Official                  Date

** A signed copy will be sent to the resident/fellow and the department **

Approved by the Graduate Medical Education Council on September 18, 2003. Modifications incorporated on September 26, 2008.
ON CALL RESPONSIBILITY:

- On-call experience is crucial radiology resident training. On-call coverage is in-house with backup by staff radiologists. On call residents are available for consultation to other subspecialty areas while on call.
- The call schedule is prepared by the Chief residents.
- 2 night float residents cover Sun-Thurs night call in house for 2 weeks at a time.
- Weekends (Fri and Sat) will be covered by residents working 24 hour shifts.
- All ACGME duty hour guidelines are strictly followed.
- Residents are off for at least 10 hours between shifts on night float.
- On weekends, call begins at 7:00-8:00am (depending on institution and weekend day) and is an in-house 24-hours for one day.
  - TMC call includes in house radiology studies. A night hawk service reads emergency CT imaging.
  - SLH includes inpatients and neuroradiology studies. A night hawk service assists with ED study interpretation.
  - KCVA and CMH do not require call coverage.
- Residents are prepared for call by working half days on Saturday and Sunday in the first 2 years with the upper level on call resident and faculty member, and are given graded supervision.

WORK HOUR POLICY:

- Residents are required to log all work hours and follow ACGME and UMKC GME guidelines on work hours. The PD will sign off on work hours at semi-annual resident evaluations.
  - Duty hours must not exceed 80 hour work week averaged over 4 weeks
  - Shifts must not to exceed 24 hours
  - Time off between shifts must at least 10 hours.
  - Residents must be given at least 1 day in 7 free of clinical duties averaged over 4 weeks.
**FATIGUE training and policy:**

The recent focus by our certifying agencies on resident work hours is only one manifestation of a growing awareness in many sectors of the harmful effects of workplace fatigue on employee performance. In residency training, impaired performance means missed opportunities for learning and, at worst, hazards to patients.

**Fatigued residents typically have difficulty with:**
Appreciating a complex situation while avoiding distraction
Keeping track of the current situation and updating strategies
Thinking laterally and being innovative
Assessing risk and/or anticipating consequences
Maintaining interest in outcomes
Controlling mood and avoiding inappropriate behavior

**More specifically, signs of fatigue include:**
Involuntary nodding off
Waves of sleepiness
Problems focusing
Lethargy
Irritability
Mood liability
Poor coordination
Difficulty with short-term recall
Tardiness or absences at work

**High risk times for fatigue-related symptoms are:**
Midnight to 6:00 AM
Early hours of day shifts
First night shift or call night after a break
Change of service
First 2 to 3 hours of a shift or end of shift
Early in residency or when new to night call
Fatigue can be modeled as the result of forces producing fatigue and forces reversing it, i.e. recovery.

**Moves to limit fatigue-related problems include:**
The 80-hour limitation to which our programs are held will certainly help reduce the total number of hours worked.

In general, the residency workload should allow for as little variation in work schedules as is feasible. Rapid or frequent shifts from day to night work are known to increase the risk of fatigue.

Individual residents may need individualized schedules to accommodate idiosyncratic energy cycles.

Many physical illnesses can present as fatigue and should be ruled out when daytime fatigue seems out of proportion to the resident’s workload. The resident should be encouraged to consult his/her primary care physician. Sleep studies may be warranted.

Depression and other psychiatric syndromes may first be manifest as fatigue. Proper diagnosis and treatment should be recommended.
We are committed to preventing and counteracting the potential negative effects of fatigue in this training program. Faculty and residents are educated about sleep loss and fatigue. The program director and supervising faculty monitor the demands of individual rotations and call and make scheduling adjustments as necessary to mitigate excessive service demands and/or fatigue.

In the event a resident experiences fatigue severe enough to interfere with his/her ability to function normally or to impair patient care or safety, the resident, another resident, or a faculty member will contact the Program Director. If the Program Director is not available, the report may go to the faculty member in charge of the rotation, or the director of resident education at that facility (SLH-Dr. Kunin, or neuro/Dr. Holloway, TMC-Dr. Acosta).

The resident will nap in the radiology call room until he/she can return to his/her clinical duties or safely drive home. The faculty member or PD who receives the original report of resident fatigue will notify the chief resident who will arrange coverage if needed. The chief resident will also report the incident to the PD by telephone or e-mail, if the PD was not involved in the original report.

In the event a resident experiences recurrent problems with sleepiness/fatigue, the PD will refer the resident for medical evaluation or counseling as appropriate.

Policy last revised on 06/16/16.

I attest that I have read the UMKC fatigue policy.

_________________________  ______________________
Signature                                      Date

_____________________________
Print full name

Return to:
Julie McCollum
Department of Radiology
4401 Wornall Rd
Kansas City, MO 64111
816-932-2237
FAX: 816-932-5179
Resident Selection

Please refer to the UMKC GME web site for specific policies. The URL is: http://med.umkc.edu/

Selection:

- Applicants interested in the UMKC radiology residency training should enroll in the NRMP match as well as the ERAS computer-based application system. Applications outside of these national residency application service systems are not typically considered. Additional application materials include a Dean’s letter from the applicant’s medical school, official medical school transcript, national standardized board examination scores, a minimum of three recommendation letters from faculty members familiar with the applicant’s character and talents, and a personal statement from the applicant stating why they chose radiology.

- The program director will review the compiled application materials, which should be submitted by October 1. Interviews will be granted by invitation based on academic background, academic achievement, written letters of recommendation, medical school scores, class ranking, and USMLE scores. Applicants accepting and scheduling an interview will be responsible for their own transportation and housing.

- The interview process will involve meeting with at least one faculty member from SLH, TMC and CMH in addition to at least one resident. Following the individual interviews, the interviewing faculty members and selected residents will evaluate each candidate assessing the candidate’s academic record, personality/enthusiasm, communication/interpersonal skills, maturity, ability to fit into the residency team, and ‘overall score’. The resident selection committee (associate program directors, chief residents and/or resident designee) will meet and generate a rank order list of candidates for the match in accordance with NRMP guidelines. There are 6 positions available per year for our fully accredited radiology residency training program (numbers subject to change over time per ACGME approval). The interview season starts at the end of October and goes through mid-January.
Residents will progress through a core curriculum in radiology including many areas listed below. On each rotation, there are specific guidelines detailing the goals and objectives, competency milestones, and evaluation process for the rotation. Residents must meet the goals and objectives and milestones before being advanced to the next level in each section. If a resident chooses to exceed the core requirement in any area, they will be held accountable for the highest level of core rotation requirements. See website for individual rotation goals and objectives.

The Program prefers that Radiology residents pass Step 3 of the USMLE/COMLEX before their PGY2 year. Residents must pass step 3 of the USMLE/COMLEX exam prior to the end of their PGY2 year.

Residents must complete all hospital records in a timely fashion to maintain hospital privileges.

CORE Radiology Rotations (Revised: 06/16/16 by education committee)

| 1. Abdomen (GI/GU) – CT/MR and/or Fluoro/US | 6 rotations |
| 2. Chest - | 4 rotations |
| 3. Musculoskeletal - | 4 rotations |
| 4. Nuclear Medicine - | 4 rotations |
| 5. Neuroradiology & Neuro IR - | 3 rotations |
| 6. Pediatric Radiology - | 3 rotations |
| 7. Interventional - | 4 rotations |
| 8. Breast imaging - | 3 rotations |
| 9. Cardiovascular - | 1 rotation |
| 10. Emergency Radiology | 4 rotations |
| 11. Clinical rotations | 10 rotations |

Radiology residents must complete the following rotations each year. Note that the radiology rotations include the core rotations listed above.

PGY1
9 blocks Radiology - including Chest, MSK, Neuro, Body IR, US/Nuc, GI/GU, ER/Fluoro, Pediatric
2 blocks Internal Medicine – ICU and General Medicine
1 block Emergency Medicine
1 block Neurology - KCVA

PGY2
11 blocks Radiology – various rotations
1 block Orthopedic Surgery - KCVA
1 block OB - SLH

PGY3
12 blocks Radiology – various rotations
1 block Pediatrics – CMH
1 block General Surgery - SLH

PGY4
11 blocks Radiology – various rotations
1 block Pediatrics – CMH
1 block Cardiovascular – SLH
1 block OB - SLH

PGY5
12 blocks Radiology – various rotations
Resident DISMISSAL:

- Resident dismissal will be done according to the provisions and guidelines outlined in the resident employment contract. More specifically, the decision to dismiss the resident will be based on 360 degree resident monthly and semi-annual performance evaluations, ability to achieve milestones, academic performance, and compliance with institutional rules and regulations. A resident who exhibits poor performance will be counseled as to improving any identifiable deficiencies or correcting improper behaviors or attitudes. The counseling may occur at the regular semi-annual performance evaluations or may occur separately. In either case, the resident will be given an opportunity to improve his/her performance. The nature of the opportunity will depend on the exact reason(s) of poor performance and will include elements such as appointment of a mentor, reading assignments, and/or academic tasks to complete, and psychological counseling.

- The exceptions to these guidelines include residents who fail to obtain or maintain required licensure, who fail to comply with program and institutional rules/regulations, or who exhibit sufficiently unprofessional behavior. Such exceptions may be subject to dismissal without remediation.

- In the event that a decision is made to terminate a resident for academic reasons, failure to maintain licensure, non-compliance with rules/regulations, or unprofessional behavior, an opportunity to utilize the grievance procedures provided in the employment contract and participating institutions will be offered.

If the Radiology Education Committee decides to recommend that a resident be suspended for more than 30 days or dismissed outright, the Council of Graduate Medical Education at UMKC will be notified and their guidance requested. The Associate Dean for Graduate Medical Education at UMKC will review the information obtained during the grievance procedure and will make recommendations to the institution regarding adjudication of the matters, specifically determining if the grievance process is fair, appropriate, and followed correctly. In the event of a resident termination, the final determination evaluation will be completed by the program director to include dates of training and a summary of the resident's performance. This will be done for non-re-appointment or termination for cause during the program year.
Residents at all levels are always supervised by faculty, not upper level residents.

(1) Following the ACGME-mandated levels of supervision, attendings will provide “direct supervision” during performance of and interpretation of all radiology imaging studies for all PGY1-5 residents.

(a) Attendings will demonstrate to residents how to perform various radiology studies during GI/GU, interventional, ultrasound, nuclear medicine and fluoroscopy rotations. In addition, attendings will demonstrate to residents how to protocol various studies using US, CT and MR imaging. Residents will take an active role in daily protocols. Residents will demonstrate competency in these hands on areas (see goals and objectives for specific rotation milestones/competencies) and their competency will be documented as milestones in their radiology portfolios.

(b) Reading out imaging studies at the PACS station & learning how to interpret images, document results in a written report, understand when to make contact with physicians regarding imaging study protocols/results, know how to use on line resources and textbooks within a specified time period must be done with the resident & the attending working together. Residents are also taught various methods of dictation for cases and are given regular feed-back on their dictations.

(c) Residents will dictate radiology reports that will be reviewed by the supervising attending radiologist. The resident report will only be made available to the clinicians caring for patients after the attending radiologist has reviewed the study.

(d) Interventional procedures are performed with an attending present to instruct & inform the resident on exactly how to perform the procedure
safely. Residents are also taught indications for various exams, how to obtain informed consent, and how to interpret these studies.

(e) Residents will be instructed in radiation and contrast administration safety by an attending radiologist. They will be given simulation situations in order to evaluate their ability to deal with these issues if they arise.

(f) On-call supervision (Radiology residents must complete 12 months of core training prior to beginning call) on interventional radiology will involve direct communication on the telephone plus direct observation in person if performance of an interventional procedure is needed. The attending may choose the procedure alone or if may involve the resident in which case the attending will do these procedures together with the resident in person.

(2) "Indirect supervision with direct supervision immediately available" will be provided to PGY2-5 residents on emergency radiology night float rotations at Truman and Saint Luke’s Hospitals. Residents will dictate preliminary reports on in-patients overnight. These reports will be reviewed with staff the following morning and will become available at that time for clinician review. Faculty have access to radiology imaging studies from outside the hospital via the internet. This will allow faculty to address resident on call questions as they arise via telephone.

Radiology residents are assigned to TRAINING SITES to work with the divisional supervisor, faculty members and imaging technologists. An associate program director is designated, as noted above. Additionally, subspecialty faculty members are designated at each site, as listed above. Each attending teaches residents through one-on-one daily interaction at the PACS station, in the imaging suites throughout the department of radiology, as well as during morning conferences.

(3) "Indirect Supervision with direct supervision available" becomes more available to residents as they progress. This becomes especially true in performance of fluoroscopy. Resident who have passed their milestone competency in performance of fluoroscopic procedures and radiation safety training may be sent to the fluoroscopy suite alone to perform cases. The images will be reviewed with an attending radiologist in the radiology department after the exam is completed. A similar procedure is followed for residents completing milestone competencies.

(4) "Oversight supervision” in radiology pertains primarily to research. Resident work “independently,” once a project has been approved by a sponsoring attending. Residents may help develop research through preparation of IRB documents,
mentoring medical students, serving as co-author and/or co-principal investigator during submission of and preparation of abstracts, articles, posters, oral presentations and grant proposals. Residents are given final feedback on these projects via their mentors.
Updated: 6/12/2017

TO: GRADUATING SENIOR RESIDENTS

RE: HOW TO BECOME AN AUTHORIZED USER

If you think there is any chance you will read/be involved with Nuclear Medicine in your career (which will require you to write orders for radioactive material), you should become an authorized user (AU). Once you are an authorized user, it is easy to transfer your AU status from one job to another.

Being board certified, by the ABR DOES NOT MAKE YOU AN AUTHORIZED USER. However, to apply for AU status, you must pass your ABR exams (be board certified in radiology), which includes passing the RISE section of the ABR core and certifying exams.

To apply to be an AU:
1. Become board certified, including passing RISE section of ABR core and certifying exams.
   a. Your board certificate will say you are “AU eligible” right above the ABR seal. If you’re not sure if you are, call the ABR and ask them for clarification.
2. Go to www.nrc.gov and get the authorized user application from the website. Follow the instructions.
3. Fill out the following forms:
4. Give the forms to the Radiation Safety Officer or Medical physicist at the hospital where you work and say “I want to be an authorized user”. They can help with the process.
5. The Radiation Safety Officer (RSO) will take it from there.

If you need anything signed saying you had specific nuclear training at UMKC, Dr. Larry Ricci signs all those forms. You can send the forms directly to him at TMC, or send to Julie, and she’ll take care of getting Dr. Ricci to sign for you.
Per the GME Office, new information will be available July 2017.
As a Diagnostic Radiology Resident at the University of Missouri-Kansas City School of Medicine I will demonstrate the following:

**Reliability, responsibility, accountability:**
1. Fulfilling responsibilities, requirements, duties, and paperwork in a timely and reliable manner
2. Adhering to all requirement and paperwork deadlines
3. Responding to communications, including e-mails, according to policy guidelines
4. Showing up for clinical duties and didactic curricula on time and prepared
5. Efforts demonstrated to complete assigned tasks

**Self improvement and adaptability (Excellence):**
1. Accepting constructive feedback
2. Incorporating feedback in order to make positive changes in behavior
3. Recognizing limitations and seeking help
4. Actively seeks out learning opportunities—sees education as a profession; seeks to do more—participation in committees, scholarly project effort, more than the required 75% conference attendance
5. Incorporates learning into practice
6. Adapting to change for improvement in performance

**Relationships with faculty, staff, students, residents, patients:**
1. Establishing and maintaining rapport and respect for the entire healthcare team and the patients/families we serve
2. Being sensitive to the needs of patients
3. Takes “ownership” and “advocacy” for patients seriously
4. Protecting the entire healthcare team and the patients/families we serve
5. Displays unconditional regard for the healthcare team and the patients/families we serve
6. Responsibility to work as a member of the healthcare team as well as a leader of the healthcare team to promote and facilitate care

**Upholding physician principles:**
1. Maintaining honesty
2. Responsiveness to the needs of patients and society that supersedes self-interest
3. Contributing to an atmosphere conducive to learning
4. Contributing to an atmosphere conducive to quality patient care
5. Respecting the diversity of race, gender, religion, sexual orientation, age, disability or socioeconomic status
6. Resolving conflicts in a manner that respects the dignity of every person involved
7. Using professional language and being mindful of the environment
8. Protecting patient confidentiality
9. Dressing and behaving in a professional manner

By my signature I agree to the above professional conduct and agree to uphold these principles throughout my training. If I am found to have deficiencies, neglect, or omission of these standards I will be subject to remediation and/or disciplinary actions accordingly.

**Signature**

**Date**