TABLES **(**ALL additional tables from here on – are for "ONLINE ONLY")

Table 1a. Affirmative Dean Responses to, "Do you believe non-radiologist physicians can adequately teach medical imaging to medical students? Why or why not?

Category	Representative Quotation*	N (%) N=17
Basic Imaging Skills	Medical students need to know the principles of imaging study, when to order them and basic understanding of how pathology is manifested in imaging. This can be taught by non radiologist.	12 (70.6)
Own Specialty has Specific Imaging	In selected areas: Internists… can teach chest x-rays; gastroenterologists… can teach abdominal plain films and contrast studies…	3 (17.6)
Other	The teaching of radiology is more than imaging interpretation	2 (11.8)

k(3.745)=.675, p<.001, n=17 comments.

*All comments are quoted verbatim without editing except where otherwise noted. Ellipses indicate longer responses.

Table 1b. Chair Responses to, “Do you believe non-radiologist physicians can adequately teach medical imaging to medical students? Why or why not?”

Category	Representative Quotation*	N (%) N=50
Inadequate Training	Although they teach what they know in their specialty, which is often inadequately explained or too advanced. There is no building block approach.	29 (58)
Inaccurate Knowledge	Often "eminence-based" and not evidence based. "Clinical myths" are passed down from mentor to student that get propagated and incorporated into the general	8 (16)
Lack of Technology/Physics Knowledge	They generally lack an understanding of the basics of medical imaging technology	5 (10)
Lack of Safety/Radiation Knowledge	They are unaware of the bioeffects of radiation and ultrasound.	4 (8)
Lack of Utilization Knowledge	They are not sensitive to the need we have for an adequate history, and do not understand the reasons why we may need or not need oral or IV contrast.	2 (4)
Other	No excitement no passion and no representation for Radiology. Radiology not pictured as part of the clinical team.	2 (4)

$k(10.845)=.846$, $p<.001$, n=50 comments.

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Table 2. Teaching of Medical Imaging Skills

Question: In what year(s) are these medical imaging skills formally taught in your school's program (if at all)?

	Imaging Algorithms (N = 56 Chairs)	Radiation Safety (N = 55 Chairs)	Fluoroscopy (N = 56 Chairs)	Ultrasound (N = 55 Chairs)	CT (N = 56 Chairs)	MRI (N = 55 Chairs)
Year 1	6 (11%)	4 (7%)	3 (5%)	6 (11%)	11 (20%)	6 (11%)
Year 2	15 (27%)	11 (20%)	4 (7%)	9 (16%)	13 (23%)	8 (15%)
Year 3	22 (39%)	18 (33%)	16 (29%)	18 (33%)	21 (38%)	17 (31%)
Year 4	33 (59%)	25 (45%)	25 (45%)	24 (44%)	27 (48%)	22 (40%)
≥1 year	43 (77%)	37 (67%)	32 (57%)	35 (64%)	38 (68%)	29 (53%)
Not formally taught	6 (11%)	11 (20%)	18 (32%)	14 (25%)	12 (21%)	20 (36%)
Don’t know	7 (13%)	7 (13%)	6 (11%)	6 (11%)	6 (11%)	6 (11%)

Table 3. Dedicated Courses

Question: For each medical school year, how many courses (if any) are offered in which medical imaging is the primary focus – that is, stand-alone courses dedicated to medical imaging?

Year	Responses Chairs (N = 57) Deans (N = 33)	None	1 Course	2+ Courses	Don't know	Mean (SD)
Year 1	Chairs	**44 (77%)**	4 (7%)	3 (5%)	6 (11%)	0.2 (0.5)
	Deans	**28 (85%)**	3 (9%)	1 (3%)	1 (3%)	0.2 (0.4)
Year 2	Chairs	**40 (70%)**	9 (16%)	3 (5%)	5 (9%)	0.3 (0.6)
	Deans	**27 (82%)**	3 (9%)	2 (6%)	1 (3%)	0.2 (0.6)
Year 3	Chairs	**39 (68%)**	12 (21%)	0 (0%)	6 (11%)	0.2 (0.4)
	Deans	**20 (61%)**	10 (30%)	2 (6%)	1 (3%)	0.4 (0.6)
Year 4	Chairs	3 (5%)	21 (37%)	**29 (51%)**	4 (7%)	1.5 (0.6)
	Deans	4 (12%)	8 (24%)	**21 (64%)**	0 (0%)	1.5 (0.7)

Table 4. Non-Imaging Preclinical Courses With Formal Imaging Instruction

Question: In which (if any) non-imaging preclinical courses are formal instruction in medical imaging also provided?

Course	Chairs (N = 57)	Deans (N = 33)
Anatomy	**42 (74%)**	**31 (94%)**
Clinical pathophysiology (or equivalent)	14 (25%)	18 (55%)
Physiology	4 (7%)	6 (18%)
Embryology	1 (2%)	2 (6%)
Biochemistry	0 (0%)	0 (0%)
Other*	8 (14%)	12 (36%)
One or more courses	**44 (77%)**	**32 (97%)**
None	3 (5%)	0 (0%)
Don't know	10 (18%)	1 (3%)

*Other: Doctoring courses; endocrine; pulmonary; nervous system; introduction to/ essential clinical medicine; every year 1 & 2 course; integrated organ system curriculum; neuroanatomy; pathology; physical diagnosis; GI and OB/GYN in 2nd year; musculoskeletal; scientific basis of medicine

Table 5. Non-Imaging Required Clerkships With Formal Imaging Instruction

Question: In which (if any) required non-imaging clerkships ("year 3") is formal instruction in medical imaging also provided?

Course	Chairs (N = 57)	Deans (N = 37)
Internal medicine	20 (35%)	22 (67%)
Surgery	17 (30%)	16 (48%)
OB/GYN	14 (25%)	15 (45%)
Neurology	13 (23%)	13 (39%)
Pediatrics	13 (23%)	12 (36%)
Emergency medicine	10 (18%)	7 (21%)
Family medicine	4 (7%)	11 (33%)
Psychiatry	4 (7%)	1 (3%)
Anesthesia	0 (0%)	1 (3%)
Other*	3 (5%)	4 (12%)
One or more courses	33 (58%)	25 (76%)
None	12 (21%)	3 (9%)
Don't know	12 (21%)	5 (15%)

*Other: 4 hours instruction in medicine and surgery-case based; critical care/ICU; informal in all of the above; primary care; transition to clinical years course

Table 6. Methods Used to Teach Medical Imaging

Question: What methods are regularly used to teach medical imaging at your medical school (preclinical and/or clinical instruction)?

Method	Chairs (N= 54)
During an elective in radiology	48 (89%)
Integrated into other courses, such as anatomy	44 (81%)
Radiology interest group	36 (67%)
Didactic clinical lectures dedicated to medical imaging	29 (54%)
Small groups / shadowing sessions	28 (52%)
On rounds from a non-radiologist	20 (37%)
Problem-based learning sessions (PBL)	19 (35%)
Web-based teaching (e.g., Med-U/Core cases)	16 (30%)
During a required radiology clerkship	15 (28%)
In a dedicated preclinical medical imaging course	11 (20%)
Other	7 (13%)
Indicated one or more	52 (96%)
Don't know	2 (4%)

Table 7a. Desired Changes to the Teaching of Medical Imaging (Chairs' Responses)

Question: In the next ten years, what changes would you like to see (if any) to how medical imaging is taught to students?

Category	Representative Quotation*	N (%) N=86
Vertical Curriculum Integration	Complete integration of radiology into the medical school curriculum, with exposure to imaging in nearly every core topic.	22 (25.6)
Imaging Taught by Radiologists	I *ABSOLUTELY MUST* insist that we have to reserve (and return to) the time when specific gifted teachers were dedicated prolonged time periods to spend with the students. Without this "Face" of radiology, our field will perish…	16 (18.6)
Teach Utilization/ACR Appropriateness Criteria	Incorporate ACR appropriate criteria into clinical years	16 (18.6)
Radiation Safety	Increased understanding of radiation exposure	7 (8.1)
Required Clerkship	Radiology as a required rotation (even if 2 weeks).	6 (7.0)
Interactive Learning	More hands-on for students.	5 (5.8)
Earlier Exposure to Radiology	so more students will consider a career in radiology early in medical school. By the time we get them, it is too late	4 (4.7)
Online Instruction	More computer-based modules for students on imaging in clinical practice.	4 (4.7)
Other	That there would be some time or appreciation of this work	3 (3.5)
Offer Radiology Electives	…2. We will continue to offer a 4th year elective. 3. Didactic lectures, case presentations, case studies, and clinical teaching will remain our main tools of teaching at my institution.	2 (2.3)

Simulation	Use of more simulation for teaching the practical applications of radiology.	1 (1.2)

k(19.525)=.848, p<.001, n=86 comments

*All comments are quoted verbatim without editing except where otherwise noted. Ellipses indicate longer responses.

Table 7b. Desired Changes to the Teaching of Medical Imaging (Deans' Responses)

Category	Representative Quotation*	N (%) N=34
Vertical Curriculum Integration	I would like to see a coordinated medical imaging "thread" across all four years of the curriculum.	15 (44.1)
Imaging Taught by Radiologists	More involvement of radiologists.	7 (20.6)
Teach Utilization/ACR Appropriateness Criteria	More emphasis on evidence-based selection of imaging studies, strengths and weaknesses of different studies, rational use of imaging resources and less on actual image interpretation.	4 (11.8)
Online Instruction	It needs to be incoproated into online cases that can be accessed by both faculty and students.	3 (8.8)
Required Clerkship	It should be a required course	2 (5.9)
Other	More lifelong learning.	2 (5.9)
Earlier Exposure to Radiology	Increased cross sectional anatomy.	1 (2.9)

k(7.727)=.621, p<.001, n=34 comments.

*All comments are quoted verbatim without editing except where otherwise noted. Ellipses indicate longer responses.

Table 8a. Chair Responses to, “What hinders your school from implementing the approaches you desire?”

Category	Representative Quotation*	N (%) N=55
Radiology Faculty Time Availability	Availability of instructors (time)	10 (18.2)
Curriculum Time Availability	Time. Courses sna [sic] [and] clerkships have been shortened limited time for radiology integration.	9 (16.4)
Resistance from Other Departments	Pre-exisitng curridulum where other professors have "dibs" on time. Everyone thinks radiology is important but no one wants to give up time from his/her course.	9 (16.4)
Financial/Cost	We are more hounded to produce RVU's than to find time to teach.	7 (12.7)
Lack of Recognition of the Importance of Radiology	Medical School Deans do not think it is very important (contrary to what students think).	7 (12.7)
Other	Unsure.	4 (7.3)
Logistics	Logistics of a small department relative to the size of the medical school class	3 (5.5)
Radiology Faculty Interest	Departmental faculty interest in medical student teaching is low.	3 (5.5)
Student Interest	Student interest/motivation	2 (3.6)
Medical School Interest	Lack of med school interest or motivation to incorporate radiology.	1 (1.8)

k(10.845)=.752, p<.062, n=55 comments.

*All comments are quoted verbatim without editing except where otherwise noted. Ellipses indicate longer responses.

Table 8b. Dean Responses to, "What hinders your school from implementing the approaches you desire?"

Category	Representative Quotation*	N (%) N=22
Logistics	logistics of accommodating a large class of 250 students.	6 (27.3)
Curriculum Time Availability	Time in an already packed curriculum. It has a place in our pre-clinical and clinical curriculum but could be enhanced.	5 (22.7)
Radiology Faculty Time Availability	availability of instructors,	4 (18.2)
Financial/Cost	Costs of additional manpower,	3 (13.6)
Resistance from Other Departments	The 2nd year is a systems based curriculum and it is complicated to interject radiology into each part, as they are relatively independent with separate course directors. The only section that currently has radiology input is Pulmonary.	3 (13.6)
Other	Radiology is implemented as clinical correlations since the first year of the educational program…	1 (4.5)

k(6.191)=.563, p<.001, n=22 comments.

*All comments are quoted verbatim without editing except where otherwise noted. Ellipses indicate longer responses.

Table 9a. What ACR/AMSER can do (Chairs' Responses)

Category	Representative Quotation*	N (%) N= 52
Advocacy	Get students to protest or get a mandate from the highest medical education body in the country to make Medical Imaging part of the curriculum.	14 (26.9)
Curricular Resources	It would be great to have more resources like online modules for medical students on topics of general interest like imaging physics, quality & safety (like ionizing radiation, contrast material, etc.), appropriateness, etc.	13 (25.0)
National Standard Curriculum	Come to a consensus of what ALL medical students should know including findings, utilization and safety. Decide on most know findings like PTX, tubes and lines, free air, maybe blood in head and mass effect. Interpretation is fun and easy to test..at the time but does not stick and is not necessary for the non-radiologist.	7 (13.5)
Utilization tools/ACR appropriateness criteria	Improve appropriateness awareness.	5 (9.6)
Facilitate sharing experiences/ research	Improve mentorship of faculty interested in education/teaching	4 (7.7)
Collaborate with other specialties/ national societies	Interface strongly with the AAMC and COM Deans.	3 (5.8)
Provide financial support	Support research evaluating of the efficacy of various educational techniques and models in radiology education.	2 (3.8)
Nothing	nothing	2 (3.8)
Easily accessible web tools/resources	... Every time I show the site [ACR appropriateness criteria] to the med students I know they will never navigate back to it on their own….	1 (1.9)

Medical student opportunities with ACR	It would also be nice if we could get more opportunity for medical students to get involved with the ACR.	1 (1.9)

k(16.653)=1.000, p<.001, n=52

*All quotations quoted exactly. Ellipses indicate longer responses.

Table 9b. What ACR/AMSER can do (Deans' Responses)

Category	Representative Quotation*	N (%) N = 28
Curricular Resources	Shared repositories of teaching resources, e.g. Online asynchronous learning modules for students and residents.	15 (53.6)
National Standard Curriculum	Propose a 4-year radiology curriculum with online teaching of physics, imaging modalities, and case studies.	6 (21.4)
Advocacy	Encourage radiologists to be more involved in medical student teaching at their local institutions.	2 (7.1)
Finances	Grants should be offered for innovative programs that integrate ACR appropriateness criteria into teaching for both medical students and residents in radiology as well as in primary care specialties.	2 (7.1)
Vertical Integration	Help radiologists understand that integrated, longitudinal imaging teaching along with and integrated into all the core clinical disciplines provides a better learning experience for students than an isolated didactic radiology clerkship…	1 (3.6)
Provide Educational Workshops	Provide opportunities for radiology educators for training in teaching, administration, and curriculum development.	1 (3.6)
Other	AMSER is already doing a great job by sharing resources and sharing national guidelines for teaching.	1 (3.6)

k(9.289)=1.000, p<.001, n=28.

*All quotations quoted exactly. Ellipses indicate longer responses.