

Guest Editorial

Extrapolating Caplan-Fisher rules for musculoskeletal radiologists

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Due to an incredible surge in technological innovation, the field of radiology has emerged from the shadows and entered the forefront of patient care. Gone are the days when radiologists were confined to dimly lit corners of hospitals, deciphering images in solitude. Radiologists now have access to advanced digital tools such as ultrasound, computed tomography, magnetic resonance imaging, and positron emission tomography scans, which have improved diagnostic precision and expanded treatment possibilities. As we embrace an AI-enhanced future, radiologists are becoming crucial members of the health-care team, playing a key role in patient care from diagnosis to treatment with insight and innovation.

The Caplan-Fisher Rules are a set of guiding principles initially formulated by Dr. Louis Caplan to encapsulate the essence of clinical excellence, as demonstrated by Dr. C. Miller Fisher, a pioneer in the field of neurology.^[1] These rules emphasize patient-centered care, clinical observation, continuous learning, and teaching. These rules underscore the art and science of diagnosis, the importance of staying open to new information, and the need for compassion and ethics in medical practice.

Adapting the Caplan-Fisher Rules to Musculoskeletal (MSK) radiology can provide a timeless framework for radiological practice and patient care. By adapting these principles, MSK radiologists can navigate the ever-evolving landscape of medical imaging with a focus on excellence, ethics, and patient-centered care. Here are tailored guidelines that align with the spirit of the original rules and are specific to the practice of MSK radiology:

1. **The reporting rooms are your Laboratories:** Just as careful patient observation is critical in neurology, in MSK radiology, radiologists should approach each imaging study with the same rigor, curiosity, and systematic approach as a laboratory experiment. Treat every image as a unique puzzle. Take the time to review the patient's history and clinical presentation and use this information to generate hypotheses about the nature of the disease process and its location. Test these hypotheses by thoroughly analyzing the images and considering additional imaging or laboratory tests that may further clarify the diagnosis.
2. **Describe quantitatively and precisely:** When presenting imaging findings to other physicians or healthcare professionals, strive to provide a clear and accurate description of the findings. Use precise terminology and quantitative measurements whenever possible to help others visualize the images and understand the extent and severity of the disease process.
3. **Leverage detailed knowledge of known conditions:** By thoroughly documenting and studying known MSK conditions, radiologists can deepen their understanding of rare, atypical, or complex cases, enhancing their ability to recognize unusual presentations in future patients. Build a Library of Patterns. As we encounter various pathologies and

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presentations, catalog them carefully. This repository will become an invaluable resource when faced with ambiguous or complex cases.

4. Power of subtle findings: The power of paying attention to small details is crucial in MSK imaging. Even slight changes in bone texture, minor tears in ligaments or tendons, or early signs of inflammatory processes can be important for early diagnosis and treatment. Radiologists should always aim for accuracy and completeness in their interpretations. Take the time to carefully review each image and consider all possible diagnoses and differential diagnoses. Double-check your work to ensure that you have not missed any important findings. Cultivate the habit of thoroughly and meticulously evaluating images.
5. Resolving ambiguities with comprehensive analysis: Ambiguous findings in MSK radiology often require further investigation through additional imaging modalities, comparison with previous studies, or multidisciplinary consultation. This underscores the significance of clarity and certainty in diagnostic processes. When uncertain findings arise, utilize all available resources to clarify the diagnosis. This may involve additional imaging modalities or discussions with colleagues. The objective is to avoid leaving questions unanswered.
6. Track disease progression through serial imaging: Serial imaging in MSK radiology allows the monitoring of disease progression or healing processes, offering valuable insights into the efficacy of treatments and guiding future therapeutic decisions.
7. Avoid premature diagnostic conclusions: The intricate nature of the MSK system requires us to be careful about quickly matching imaging results with common diagnostic patterns. It is important to consider a wide range of potential diagnoses to avoid overlooking less common conditions. Keep an open mind and be prepared to follow the data in unexpected directions.
8. Challenge hypotheses with evidence: Actively seek evidence contradicting your initial hypothesis. This approach ensures a more robust and reliable diagnostic process, thus minimizing diagnostic errors.
9. Apply systematic diagnostic frameworks: Employing a systematic approach to common MSK conditions helps organize thought processes and ensure that imaging studies are interpreted comprehensively and efficiently.
10. Effective communication: Despite the complexity of MSK imaging findings, radiologists must strive to communicate their diagnoses in clear and concise terms that can be easily understood by referring physicians. When communicating imaging findings to patients and other health-care professionals, be honest and

straightforward about the implications of the findings. Avoid using technical jargon or medical terminology that may be confusing or intimidating to patients.

11. Curating a personal library of cases: Building a collection of interesting or challenging MSK cases creates a personal knowledge base that can serve as an invaluable reference and educational tool, fostering a culture of continuous learning and improvement.
12. Commit to lifelong learning and teaching: The rapid technological advancements in MSK imaging require dedication to ongoing education. Radiologists should also embrace their role as educators, sharing insights and findings with colleagues, trainees, and the broader medical community to elevate the practice of MSK radiology. Document and share interesting findings, case reports, and research. Your contributions can advance the field and aid others in their practice.
13. The power of collective wisdom: Keep abreast of the latest research and consensus in the field of MSK radiology. Regularly consult with colleagues and participate in case discussions to broaden your perspective and knowledge.
14. See the person behind each image: Treat images with humanity. Remember that behind every picture is a person. Each imaging study represents a unique patient with its hopes, fears, and concerns. Consistently Deliver Respect, Kindness, Interest, Thoughtfulness, Concern, Attention, and Empathy to all patients. Take the time to consider how the imaging findings may be affecting the patient's life and well-being and strive to provide compassionate and empathetic care.
15. The fundamentals of professionalism: Uphold the highest standards of ethics and professionalism. Always act in the best interest of the patient, ensuring their dignity, privacy, and well-being are protected.

Adapting the Caplan-Fisher Rules to MSK radiology presents a unique opportunity to combine timeless clinical wisdom with the advanced precision of MSK imaging. This integration enhances the practice of MSK radiology with a patient-centric and systematic approach, ultimately improving diagnostic accuracy and patient outcomes. By incorporating the Caplan-Fisher Rules into MSK radiology, practitioners can improve their diagnostic skills, deepen their understanding of MSK diseases, and contribute to the advancement of patient care.

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