

Availability of Diagnostic Resources on a 24-7 Basis to Support Emergency Care *Policy Resource and Education Paper (PREP)*

This policy resource and education paper (PREP) is an explication of the policy statement
“Availability of Diagnostic Resources on a 24-7 Basis to Support Emergency Care”

Background

Emergency physicians frequently encounter patients that require emergent diagnostic evaluation, particularly for conditions difficult to assess on history and physical examination alone. Imaging modalities such as computed tomography (CT), magnetic resonance imaging (MRI), X-ray, and ultrasound are vital in diagnosing a wide range of conditions, from neurologic and musculoskeletal injuries to abdominal and soft tissue pathology. The timely availability of these diagnostic tools directly impacts care quality, and delays can lead to worsened clinical outcomes, longer hospital stays, unnecessary procedures, out-of-system transfers, and irreversible harm.

Rationale

Emergency care is inherently time sensitive. Diagnostic delays or limitations in imaging availability can result in suboptimal care, prolonged patient suffering, and irreversible harm. While CT and X-ray remain cornerstone imaging tools, MRI and ultrasound play critical roles in diagnosing certain conditions, particularly for neurologic, obstetric, and infectious conditions, such as ectopic pregnancy, epidural abscess, cauda equina syndrome, and testicular/ovarian torsion. Delays in imaging can result in severe complications, including permanent disability and death. The 24/7 availability of diagnostic imaging modalities is essential to provide high-quality care and ensure emergency physicians can make informed, timely decisions based on accurate and comprehensive clinical data.

The American College of Emergency Physicians (ACEP) asserts the following principles:

1. **Availability of diagnostic resources and staffing:** Hospitals and healthcare systems should develop strategic plans to ensure sustainable 24/7 access to CT, MRI, and ultrasound, including staffing models, resource allocation, and regional partnerships. This reduces unnecessary patient transfers and decreases emergency department (ED) congestion.
2. **Patient safety and quality care:** These diagnostic tools are essential for patient safety and quality care. By enabling timely diagnoses, emergency physicians can mitigate risks associated with undiagnosed or misdiagnosed conditions, enhancing patient safety and reducing morbidity and mortality.
3. **Collaboration with radiology:** Hospitals should foster collaborative relationships between emergency physicians, radiologists, and radiology department staff to streamline access to imaging resources. This includes the availability of on-call radiologists to discuss appropriate imaging modalities and prompt image interpretation to minimize delays in diagnosis.
4. **Protocol development:** Hospitals should establish clear protocols for emergent imaging needs to prioritize cases based on clinical severity. If radiology staff are not in-hospital 24/7, protocols must be in place for radiology staff and technicians to facilitate emergent, on-call imaging.

5. Resource allocation: Hospitals should ensure MRI, CT, X-ray, and ultrasound are available 24/7, factoring in operational costs and staffing needs for after-hours access.
6. Critical access and low-resource hospitals: For hospitals unable to provide MRI, CT, X-ray, and/or ultrasound services on a 24/7 basis, there should be clear protocols in place with receiving hospitals to facilitate timely transfers for necessary diagnostic imaging. These protocols should prioritize clinical urgency and ensure minimal disruption to patient care for either hospital.
7. Quality assurance: Hospitals should regularly evaluate and update imaging protocols to align with best practices and emerging technologies.

Conclusion

Access to MRI, CT, X-ray, and ultrasound on a 24/7 basis is critical for delivering timely, accurate diagnoses to ensure the highest standard of care in the ED. ACEP advocates hospitals prioritize the availability of these essential diagnostic resources as a fundamental part of comprehensive emergency medical care. By investing in these resources, hospitals can improve patient outcomes, reduce medical errors, and provide optimal care for patients in critical and time-sensitive situations.

Created by members of the Emergency Medicine Practice Committee, April 2025.