

Evidence Discussion Sinus and Facial Imaging (HD 29.1)

- The American Academy of Otolaryngology – Head & Neck Surgery (AAO-HNS) recommends that clinicians should not obtain radiographic imaging for patients with suspected uncomplicated Acute Rhinosinusitis (ARS), with imaging reserved for cases with clinically suspected complication. ARS refers to inflammation of the nasal cavity and paranasal sinuses lasting <4 weeks' duration.
- Contrast CT maxillofacial is first line imaging for rhinosinusitis with suspected complications (orbital or intracranial). There is up to 91% accuracy with CT to detect orbital complications vs clinical exam alone. CT also is preferred for surgical planning. However, CT is often more useful for surgical planning and easier to perform. Non-contrast CT sinus is not preferred, but may be useful for surgical navigation. There is no relevant literature to support pre- and post-contrast CT imaging. MRI head or orbits/face/neck can be complementary with CT. MRI is more accurate than CT in the evaluation of soft tissues regarding intra-orbital and intracranial complications.
- Chronic rhinosinusitis, acute recurrent bacterial sinusitis, non-invasive fungal sinusitis, and/or sinonasal polyposis are best evaluated initially with non-contrast CT maxillofacial. CT is critical for surgical planning. Contrast is not necessary unless complications are suspected. MRI is not useful as the first-line study because of the lack of bony detail. In select cases, evaluation with MRI without and with IV contrast may be helpful to differentiate fluid secretions from inflamed mucosa and exclude an underlying obstructing mass.
- Urgent CT maxillofacial, either without or with IV contrast is first line imaging for any suspected invasive fungal sinusitis, as delay in diagnosis and surgical debridement could increase the already high risk of mortality. In cases of invasive fungal sinusitis, MRI without and with IV contrast of the head and/or orbits/face/neck is adjunctive to look for invasion into surrounding soft tissues as well as vascular complications.
- CT and MRI are considered complimentary imaging modalities in the evaluation of a sinonasal mass—localizing and characterizing the lesions to determine their extent for treatment planning. If an MRI is planned, the CT may be performed without IV contrast since the main purpose of the CT is to evaluate osseous involvement.

References:

1. Rosenfeld RM, Piccirillo JF, Chandrasekhar SS, et al. Clinical Practice Guideline (Update): Adult Sinusitis. *Otolaryngology–Head and Neck Surgery*. 2015;152(2_suppl):S1-S39. doi:10.1177/0194599815572097.
2. Expert Panel on Neurologic Imaging; Kirsch CFE, Bykowski J, et al. ACR Appropriateness Criteria® Sinonasal Disease. *J Am Coll Radiol*. 2017;14(11S):S550-S559. doi:10.1016/j.jacr.2017.08.041.
3. ACR-ASNR-SPR Practice Parameter for the Performance of Computed Tomography (CT) of the Extracranial Head and Neck Revised 2021. (Resolution 5). <https://www.acr.org/-/media/ACR/Files/PracticeParameters/CT-Head-Neck>.