

## Elements of Instruction for Functional Endoscopic Sinus Surgery

OBJECTIVE**	STANDARDS AND EXPECTATIONS
Radiologic assessment	<ul style="list-style-type: none"> <li>Assessment of disease extent</li> <li>For revision cases, determination of previous sources of failure</li> <li>Determination of anatomic anomalies such as concha bullosa, sphenoethomid (Onodi) cells, Infraorbital (Haller) cells</li> <li>Assessment of skullbase and lamina papyracea integrity</li> <li>Development of operative plan; communication of plan evening before operation</li> </ul>
Vasoconstriction	<ul style="list-style-type: none"> <li>Lateral nasal wall and middle turbinate injections, including needle selection and bending</li> <li>Greater palatine injection, including needle selection and bending</li> <li>Oxymetazoline pledget placement without traumatizing surrounding tissue</li> </ul>
Diagnostic nasal endoscopy	<ul style="list-style-type: none"> <li>Atraumatic endoscopy</li> <li>Demonstration of three “passes” (anterograde inferior meatus, anterograde middle meatus, retrograde middle meatus)</li> </ul>
Uncinectomy	<ul style="list-style-type: none"> <li>Placement of backbiting forcep without middle turbinate laceration (retrograde approach; contrast with anterograde approach)</li> <li>Bisection of uncinat process</li> <li>Removal of superior half of uncinat with lateral rotation</li> <li>Medial distraction of inferior half</li> <li>Removal of inferior half without trauma to maxillary sinus ostium</li> </ul>
Identification of maxillary sinus natural ostium	<ul style="list-style-type: none"> <li>Placement and rotation of angled endoscope without middle turbinate mucosal trauma</li> <li>Visual identification prior to palpation of ostium with seeker to avoid mucus recirculation</li> </ul>
Maxillary antrostomy	<ul style="list-style-type: none"> <li>Understanding of pros and cons of widening maxillary ostium</li> <li>Posterior and inferior widening of antrostomy, incorporating natural ostium</li> </ul>
Anterior ethmoidectomy	<ul style="list-style-type: none"> <li>Sharp entry into ethmoid bulla medially at level of maxillary sinus roof</li> <li>Complete removal of anterior and medial walls of ethmoid bulla</li> <li>Meticulous dissection of superior bulla to avoid scarring in frontal recess</li> <li>Controlled dissection laterally at lamina papyracea</li> <li>Avoidance of unwitting puncture of basal lamella of</li> </ul>

	middle turbinate
Suture medialization of middle turbinate	<ul style="list-style-type: none"> <li>Understanding of alternatives to suture medialization</li> <li>Atraumatic introduction of needle into middle meatus</li> <li>Placement of circular stitch through middle turbinates and membranous columella</li> </ul>
Posterior ethmoidectomy	<ul style="list-style-type: none"> <li>Sharp entry through basal lamella of the middle turbinate medially and inferiorly, at the level of the maxillary sinus roof</li> <li>Thorough removal of basal lamella inferiorly to avoid superiorly directed dissection</li> <li>Complete dissection of posterior ethmoid cells, avoiding a conical dissection</li> <li>Identification of superior turbinate in medial portion of posterior ethmoid</li> </ul>
Sphenoidotomy	<ul style="list-style-type: none"> <li>Identification of anterior and inferior edges of superior turbinate</li> <li>Sharp removal of inferior 3-4 mm of superior turbinate</li> <li>Visual identification of sphenoid natural ostium, if possible</li> <li>Complete removal of anterior wall of sphenoid sinus superior to ostium and lateral to superior turbinate attachment</li> </ul>
Completion of superior portion of ethmoidectomy	<ul style="list-style-type: none"> <li>Posterior to anterior dissection of partitions along skull base</li> <li>Palpation behind partitions prior to removal</li> <li>Identification of bulla lamella</li> </ul>
Frontal sinus exploration	<ul style="list-style-type: none"> <li>Identification of agger nasi cell and its posterior wall</li> <li>Identification of remaining border structures of frontal recess</li> <li>Observation of frontal sinus natural ostium</li> <li>Widening of frontal sinus drainage pathway as needed</li> </ul>

\*\*For each objective, knowledge of anatomy and of equipment is expected prior to attempting objective.