# Elements of Instruction for Functional Endoscopic Sinus Surgery

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<th><strong>OBJECTIVE</strong></th>
<th><strong>STANDARDS AND EXPECTATIONS</strong></th>
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| **Radiologic assessment** | Assessment of disease extent  
For revision cases, determination of previous sources of failure  
Determination of anatomic anomalies such as concha bullosa, sphenethmoid (Onodi) cells, Infraorbital (Haller) cells  
Assessment of skullbase and lamina papyracea integrity  
Development of operative plan; communication of plan evening before operation |
| **Vasoconstriction** | Lateral nasal wall and middle turbinate injections, including needle selection and bending  
Greater palatine injection, including needle selection and bending  
Oxymetazoline pledget placement without traumatizing surrounding tissue |
| **Diagnostic nasal endoscopy** | Atraumatic endoscopy  
Demonstration of three “passes” (anterograde inferior meatus, anterograde middle meatus, retrograde middle meatus) |
| **Uncinectomy** | Placement of backbiting forcep without middle turbinate laceration (retrograde approach; contrast with anterograde approach)  
Bisection of uncinate process  
Removal of superior half of uncinate with lateral rotation  
Medial distraction of inferior half  
Removal of inferior half without trauma to maxillary sinus ostium |
| **Identification of maxillary sinus natural ostium** | Placement and rotation of angled endoscope without middle turbinate mucosal trauma  
Visual identification prior to palpation of ostium with seeker to avoid mucus recirculation |
| **Maxillary antrostomy** | Understanding of pros and cons of widening maxillary ostium  
Posterior and inferior widening of antrostomy, incorporating natural ostium |
| **Anterior ethmoidectomy** | Sharp entry into ethmoid bulla medially at level of maxillary sinus roof  
Complete removal of anterior and medial walls of ethmoid bulla  
Meticulous dissection of superior bulla to avoid scarring in frontal recess  
Controlled dissection laterally at lamina papyracea  
Avoidance of unwitting puncture of basal lamella of |
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| Suture medialization of middle turbinate      | Understanding of alternatives to suture medialization  
Atraumatic introduction of needle into middle meatus  
Placement of circular stitch through middle turbinates and membranous columella |
| Posterior ethmoidectomy                       | Sharp entry through basal lamella of the middle turbinate medially and inferiorly, at the level of the maxillary sinus roof  
Thorough removal of basal lamella inferiorly to avoid superiorly directed dissection  
Complete dissection of posterior ethmoid cells, avoiding a conical dissection  
Identification of superior turbinate in medial portion of posterior ethmoid |
| Sphenoidotomy                                 | Identification of anterior and inferior edges of superior turbinate  
Sharp removal of inferior 3-4 mm of superior turbinate  
Visual identification of sphenoid natural ostium, if possible  
Complete removal of anterior wall of sphenoid sinus superior to ostium and lateral to superior turbinate attachment |
| Completion of superior portion of ethmoidectomy | Posterior to anterior dissection of partitions along skull base  
Palpation behind partitions prior to removal  
Identification of bulla lamella |
| Frontal sinus exploration                     | Identification of agger nasi cell and its posterior wall  
Identification of remaining border structures of frontal recess  
Observation of frontal sinus natural ostium  
Widening of frontal sinus drainage pathway as needed |

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