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## Preface

“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.”

—Albert Einstein

The concept of minimally invasive surgery has been of interest to physicians since the time of Hippocrates, but it was not until the twentieth century that technological advancements, such as the operating microscope, fiberoptics, rigid endoscopes, and lasers, allowed surgeons to begin performing operations through natural body orifices or through small incisions in the skin. In the field of modern Otolaryngology a major paradigm shift occurred in the early 1970s when Drs. Stuart Strong, Geza Jako, Charles Vaughan, and Thomas Polanyi combined the operating microscope, carbon dioxide laser, specially designed laryngoscopes, and microlaryngeal instruments to perform transoral surgery for benign diseases of the larynx and pharynx. Over the next several decades this approach was expanded to include malignant disease of these anatomic areas as well. Another paradigm shift in our field occurred with the introduction of functional endoscopic sinus surgery, developed by Drs. Messerklinger and Stamberger in Europe and popularized in the United States by Dr. David Kennedy in the 1980s. These advancements did require sacrificing certain advantages long held sacred by surgeons. In the case of transoral laser procedures surgeons had to give up the ability to see around corners and to utilize wrist action, required for important functions like sewing. In the case of functional endoscopic sinus procedures, surgeons were forced to give up two-handed surgery and stereoscopic vision. Despite these limitations, these pioneering advancements have changed forever the fundamental way we approach surgical diseases in these anatomic areas and have resulted in reduced morbidity for our patients compared to treating these same diseases with more conventional “open” techniques.

We believe that current and future advances in robotic technology will likely lead to the next major paradigm shift in minimally invasive surgery of the head and neck. Robotic technology allows two-handed, wristed manipulation of surgical instruments while preserving binocular vision and the ability to

see around corners. While currently available systems lack haptic feedback and are too large to be used in smaller anatomic areas of the head and neck, we believe these limitations will eventually be overcome as robotic technology advances.

In the 5 years since the DaVinci Robotic Surgical System (Intuitive Surgical, Inc.) was approved by the FDA for use in the head and neck, it has been applied to a variety of anatomic areas and disease processes in the head and neck. The intent of this text is to provide a comprehensive overview of robotic surgery for the practicing otolaryngologist-head and neck surgeon including anatomic considerations, operating room setup, and indications and technique for both transoral and transcutaneous robotic procedures currently performed in the head and neck.

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