Preface

Evidence-Based Procedures in Facial Plastic and Reconstructive Surgery

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While our specialty has experienced exciting successes, advances, and important contributions to patient care, evidenced by a cadre of satisfied patients and providers, we have the opportunity to take these results to the next level. Until recently, the effectiveness of facial plastic and reconstructive interventions has been evaluated primarily by subjective opinion and retrospective chart reviews. Furthermore, many physicians base patient care decisions on historical perspectives and personal experience.

Over the last several years, the practice of medicine shifted toward an evidence-based medicine (EBM) approach that "de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making and stresses the examination of evidence from clinical research."[1] Physicians have been moving away from reliance primarily on expert opinion to instead supplement their practice and clinical expertise with the other two major pillars in EBM, namely, best research evidence and patient values.[2] Sackett and colleagues[3] suggest that this is a "conscience, explicit, and judicious use of the current best evidence in making decisions about the care of individual patients."

The Oxford Center for Evidence-based Medicine introduced the "Level of Evidence" categorization to evaluate clinical evidence.[4] Within this model of categorization, the highest category of evidence,

level I, includes the properly powered and well-conducted randomized control trials or systematic reviews/meta-analysis of those randomized control trials. Level II evidence includes well-designed control trials that exist without randomization, or prospective comparative cohort trials. Level III evidence includes case control studies, retrospective cohort studies, and cross-sectional studies. Level IV evidence includes those case series that provide descriptive information about the set of patient characteristics. Level V evidence includes case reports and expert opinions and has previously been the mainstay of evaluation in Facial Plastic and Reconstructive Surgery.

Multifactorial occurrences supported the paradigm shift toward more evidence-based analysis of surgical outcomes. First, the development of technologically advanced treatments requires comparative effectiveness to determine cost-effectiveness of these over the traditional management. Next, public and private payers link reimbursement to patient outcomes and satisfaction. Last, unacceptable variation in process and outcome measures and cost exists nationally for common procedures. This combination of factors, among others, contributes to the proliferation of hypothesis testing with research question development using PICOTS (**Table 1**).

The development of high-quality outcomes research is dependent on accurate and reproducible

Table 1
PICOTS format as a framework for developing research questions

Component	Comment	Diagnosis Question Example[a]	Treatment/Harm Question Example[b]	Prognosis Question Example[c]
Population	Patient, population, or problem to which the question applies	Adults with acute upper respiratory infection	Adults with acute bacterial sinusitis	Adults with acute bacterial sinusitis
Intervention	Service, planned action, prognostic factor, or cause of interest	History, physical examination, or diagnostic test	Antibiotic therapy for 7 to 10 days	Prognostic factors, including age, illness severity, comorbid conditions (eg, allergic rhinitis)
Comparator (optional)	When applicable, an alternative intervention or comparison	None	Placebo or no therapy	None
Outcome(s)	Measurements to determine the impact of the intervention and comparator	Distinguish bacterial vs viral sinusitis	Clinical improvement of presenting signs and symptoms; harms and adverse events	Identify patients who are likely to benefit most from antibiotic therapy
Time frame (optional)	Timing or time frame of interest	Within the first 3 weeks of illness	During and after treatment	During and after treatment
Setting (optional)	Clinical care or other setting of interest	Any setting	Any setting	Any setting

[a] The PICOTS question would be the following: "For adults with acute upper respiratory infection, how can history, physical examination, and/or diagnostic tests be used to distinguish bacterial from viral infection within the first 3 weeks of illness?"
[b] The PICOTS question would be the following: "For adults with acute bacterial sinusitis, what is the impact of antibiotic therapy for 7 to 10 days vs placebo or no therapy on clinical improvement (of presenting signs and symptoms) and on adverse events during and after treatment?"
[c] The PICOTS question would be the following: "For adults with acute bacterial sinusitis, what prognostic factors (eg, age, illness, severity, comorbid conditions) can be used to identify patients most likely to benefit from antibiotic therapy during and after treatment?"

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