

RESEARCH LETTERS

Perceptions of Aesthetic and Reconstructive Facial Surgery Among Medical Students

Many different physicians perform cosmetic and reconstructive surgical procedures of the face. Limited studies have suggested that medical students are most likely to choose a plastic surgeon or an oral and maxillofacial surgeon for various facial procedures.¹⁻³ To our knowledge, these limited studies have not involved more than several hundred medical students in limited geographic areas. Owing to these limitations, a true representation of medical students' perceptions cannot be assumed. The purpose of our study was to assess the current perceptions of medical students across the country regarding the role of the facial plastic and reconstructive surgeon. In addition, we hoped to determine if the student perception of facial plastic and reconstructive surgeons has changed over time.

Methods. An institutional review board exemption was determined by the University of Wisconsin, Madison. An online survey was constructed. It consisted of 12 questions that assessed students' perceptions of which physicians were most qualified to perform various reconstructive and aesthetic procedures of the face. Physician choices were listed as *dermatologist, facial plastic/ENT sur-*

geon (FPRS), oculoplastic surgeon/ophthalmologist, oral and maxillofacial surgeon (OMFS), and plastic surgeon (PRS). In an effort to prevent biased answers, students were blinded from knowing what specialty was conducting the study. An e-mail was sent to the dean of students at 115 US medical schools. It kindly asked the deans to forward the survey to their respective medical students and also instructed them not to mention our specialty affiliation. The study ran from November 15, 2009, to January 15, 2010. Once the study was closed, the responses were analyzed. A total of 1359 responses were used in the final analysis. Student perceptions of which physicians were most qualified to perform various procedures were reported using descriptive statistics. Changes in perceptions when comparing preclinical responses (from first- and second-year medical students) to clinical responses (third- and fourth-year medical students) were reported using χ^2 analysis ($P \leq .05$ was considered statistically significant).

Results. Eighteen US medical schools agreed to distribute the survey, 28 schools declined, and 69 schools did not respond after multiple attempts. Of the 28 schools that declined, the most common reason cited was "student survey fatigue." Of the 18 schools that agreed to participate, 1366 responses were received, a response rate of 15.3% (1366 of 8910). Seven responses were determined to be of poor quality, and 1359 responses were included in the final analysis. A total of 452 responses were from first-

Table 1. Results of All of the Responses Combined Together^a

Procedure	Specialist (% of Responses)		
	First Choice	Second Choice	Third Choice
Cosmetic			
Rhytidectomy	FPRS (54.90)	PRS (47.59)	OMFS (48.98)
Rhinoplasty	FPRS (56.34)	PRS (47.69)	OMFS (68.40)
Blepharoplasty	Ophtho (57.98)	FPRS (40.50)	PRS (37.53)
Scar revision	PRS (45.62)	FPRS (41.33)	Derm (36.78)
Collagen or botulinum toxin	Derm (65.93)	PRS (41.76)	FPRS (43.93)
Laser resurfacing	Derm (70.73)	PRS (48.00)	FPRS (43.88)
Reconstructive			
Major head and neck defect	FPRS (58.74)	PRS (47.08)	OMFS (53.86)
Cancer defect of the cheek	FPRS (38.18)	PRS (34.66)	OMFS (29.94)
Otoplasty	FPRS (61.32)	PRS (58.11)	OMFS (49.85)
Cleft lip or palate	OMFS (64.81)	PRS (53.58)	PRS (63.62)
Trauma			
Orbital floor blowout	Ophtho (74.02)	FPRS (50.51)	PRS (42.35)
Mandible fracture	OMFS (88.16)	FPRS (68.80)	PRS (70.28)

Abbreviations: Derm, dermatologist; FPRS, facial plastic/ENT surgeon; OMFS, oral and maxillofacial surgeon; ophtho, oculoplastic surgeon/ophthalmologist; PRS, plastic surgeon.

^aThere were a total of 1359 responses for medical students in their first through fourth years of medical school. The responses are listed as the specialty most qualified, second most qualified, and third most qualified to perform the procedure listed with the corresponding specialist and percentage of responses for that choice.

Table 2. Results Comparing Preclinical and Clinical Responses Regarding Type of Specialist Most Qualified to Perform the Listed Cosmetic Procedures^a

Cosmetic Procedure	Specialist (% of Responses) ^b		χ^2 , P Value
	Preclinical	Clinical	
Rhytidectomy	FPRS (55.86) PRS (38.84) Not sure (2.14)	FPRS (53.51) PRS (44.14) Not sure (0.90)	.07
Rhinoplasty ^c	FPRS (58.36) PRS (37.61) Not sure (1.13)	FPRS (53.43) PRS (44.22) Not sure (0.36)	.04
Blepharoplasty	Ophtho (58.99) PRS (24.30) FPRS (12.15) Not sure (3.16)	Ophtho (56.55) PRS (25.31) FPRS (15.26) Not sure (1.62)	.30
Scar revision ^c	PRS (42.10) FPRS (33.75) Derm (20.61) Not sure (2.02)	PRS (50.63) FPRS (34.95) Derm (11.53) Not sure (0.54)	<.001
Collagen or botulinum toxin ^c	Derm (67.04) PRS (20.38) FPRS (9.18) Not sure (1.89)	Derm (64.34) PRS (23.12) FPRS (10.93) Not sure (0.54)	.03
Laser resurfacing ^c	Derm (68.22) PRS (13.57) FPRS (12.81) Not sure (4.15)	Derm (74.33) PRS (14.00) FPRS (8.44) Not sure (2.69)	.02

^aSee Table 1 for expansion of abbreviations.

^bPreclinical indicates first- and second-year medical students; clinical, third- and fourth-year medical students. There were a total of 1359 responses for medical students in their first through fourth years of medical school.

^cStatistically significant change.

year medical students, 347 responses were from second-year medical students, 268 responses were from third-year medical students, and 292 responses were from fourth-year medical students.

Several observations were made when looking at all of the responses together regardless of the year of the student (**Table 1**). Multiple specialists were viewed as qualified to perform procedures of the face. In particular, the FPRS was viewed as very qualified in all areas, with particular attention to rhinoplasty, rhytidectomy, and all of the reconstructive procedures listed, aside from cleft lip and palate repair. Less invasive cosmetic procedures were perceived by students as being the domain of the dermatologist. With regard to the cosmetic procedures listed in the survey, the perception of the PRS improved over time when comparing preclinical responses with clinical responses (**Table 2**). Perceptions of the FPRS and PRS improved over time when comparing preclinical responses with clinical responses for most reconstructive and trauma procedures (**Table 3**). In particular, clinical responses suggest that students perceive major head and neck reconstruction to be the domain of the FPRS ($P < .001$).

Comment. Our findings demonstrate a positive perception of the FPRS in performing aesthetic and reconstructive procedures of the face among US medical students. For cosmetic procedures, the FPRS was perceived as the most qualified physician to perform a rhinoplasty or rhytidectomy. This finding seems to be in line with the 2004 otorhinolaryngology-head and neck surgery workforce study which documented that American Academy of Facial Plastic and Reconstructive

Table 3. Results Comparing Preclinical and Clinical Responses Regarding Type of Specialist Most Qualified to Perform the Listed Reconstructive and Trauma Procedures^a

Procedure	Specialist (% of Responses) ^b		χ^2 , P Value
	Preclinical	Clinical	
Reconstructive			
Major head and neck defect ^c	FPRS (53.79) PRS (30.93) OMFS (6.82) Not sure (6.06)	FPRS (65.77) PRS (26.52) OMFS (6.45) Not sure (0.90)	<.001
Cancer defect of the cheek ^c	FPRS (36.16) PRS (29.96) OMFS (16.43) Derm (14.41) Not sure (2.78)	FPRS (41.04) PRS (37.99) OMFS (9.32) Derm (10.57) Not sure (1.08)	<.001
Otoplasty	FPRS (60.71) PRS (27.08) Not sure (6.93)	FPRS (62.21) PRS (29.29) Not sure (4.70)	.38
Cleft lip or palate ^c	OMFS (71.01) FPRS (20.25) PRS (7.59) Not sure (1.01)	OMFS (55.96) FPRS (27.80) PRS (16.25) Not sure (0.00)	<.001
Trauma			
Orbital floor blowout ^c	Ophtho (76.83) OMFS (12.34) FPRS (5.42) PRS (1.51) Not sure (3.90)	Ophtho (70.02) OMFS (12.39) FPRS (13.29) PRS (3.41) Not sure (0.90)	<.001
Mandible fracture ^c	OMFS (90.75) FPRS (5.32) PRS (1.27) Not sure (2.15)	OMFS (84.48) FPRS (11.37) PRS (3.07) Not sure (0.72)	<.001

^aSee Table 1 for expansion of abbreviations.

^bPreclinical indicates responses from first- and second-year medical students; clinical, responses from third- and fourth-year medical students. There were a total of 1359 responses for medical students in their first through fourth years of medical school.

^cStatistically significant change.

ive Surgery members performed 3 to 4 times more rhinoplasties than plastic surgeons.⁴ The FPRS was also perceived as being most qualified to perform various reconstructive surgical procedures, including major head and neck reconstruction ($P < .001$). The exception to this is correction of a cleft lip or palate. The perception of an FPRS performing facial trauma procedures also improved over time when comparing preclinical responses with clinical responses ($P < .001$). Similar studies have been performed in the past by different specialists.¹⁻³ Overall, these studies suggest that the PRS is most likely to perform various reconstructive and aesthetic facial procedures and the OMFS is viewed as most likely to perform facial trauma repairs. Although the study methods vary in each of the previous analyses, our findings suggest an improved perception of the FPRS surgeon compared with the previous work in this area.

A couple of strengths of this study are worthy of mention. With over 1300 responses, we believe that we were able to detect significant changes in students' responses as they progressed through medical school (Table 2 and Table 3). In the previously mentioned studies, it is unclear if the researchers blinded the participants as to who was conducting the survey. Distributing the survey online made it easy to blind the participants to who was conducting the study.

There are also several weaknesses of this study. In an effort to increase the number of responses, minimal

information was gathered about the participants. No question was asked regarding the area of medicine the students were interested in. Having such a question may have offered more information about those who responded compared with those who did not decide to participate. However, if such a question was asked, it could also induce biased assumptions about the respondents. Another difficulty we encountered was the time of the year in which the survey was distributed. More schools and students may have agreed to participate in the survey if it had been distributed earlier in the school year. Last, it should be stated that using different terms for the various specialists mentioned in the study would have most likely led to different results. For example, if the title “facial plastic surgeon” or “otolaryngologist–head and neck surgeon” was used alone instead of being combined, it can be assumed that the responses would have been different than those we received. The title “facial plastic/ENT surgeon” was originally used in the study by Rosenthal et al,¹ and we decided to include this title as well in an effort to provide continuity for comparing our results with those of previous studies.

In conclusion, this study suggests that medical students view multiple specialists as qualified to perform aesthetic and reconstructive facial surgery. Most importantly, this study suggests that the facial plastic and reconstructive surgeon is perceived as most qualified to perform multiple aesthetic and reconstructive facial procedures when being compared to other specialists. In order for the facial plastic and reconstructive surgeon to maintain its positive perception among medical students it is important for otolaryngology–head and neck programs to incorporate facial plastic and reconstructive surgery education into their medical student curriculums. The plastic surgery literature has demonstrated positive results from similar endeavors. Vallino and Brown⁵ and Kim et al³ demonstrated that exposure to plastic surgery in medical school increased the overall knowledge and the breadth of the specialty. The same idea could be applied to otolaryngology–head and neck surgery programs across the country by incorporating facial plastic and reconstructive surgery education within their medical student rotation curriculums.

W. Wesley Heckman, MD
Benjamin C. Marcus, MD

Author Affiliations: Division of Otolaryngology–Head and Neck Surgery, Department of Surgery, University of Wisconsin, Madison.

Correspondence: Dr Heckman, University of Wisconsin, K4/720 Clinical Science Center, 600 Highland Ave, Madison, WI 53792-7375 (wheckman@uwhealth.org).

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1. Rosenthal E, Clark JM, Wax MK, Cook TA. Emerging perceptions of facial plastic surgery among medical students. *Otolaryngol Head Neck Surg.* 2001; 125(5):478-482.
2. Hunter MJ, Rubeiz T, Rose L. Recognition of the scope of oral and maxillofacial surgery by the public and health care professionals. *J Oral Maxillofac Surg.* 1996;54(10):1227-1233.
3. Kim DC, Kim S, Mitra A. Perceptions and misconceptions of the plastic and reconstructive surgeon. *Ann Plast Surg.* 1997;38(4):426-430.
4. Cannon CR, Giaimo EM, Lee TL, Chalian A. Special report: reassessment of the ORL-HNS workforce: perceptions and realities. *Otolaryngol Head Neck Surg.* 2004;131(1):1-15.
5. Vallino LD, Brown AS. Assessing third-year medical students' knowledge of and exposure to cleft palate before and after plastic surgery rotation. *Ann Plast Surg.* 1996;36(4):380-387.

Evolution in Nasal Tip Contouring Techniques: A 10-Year Evaluation and Analysis

To our knowledge, there has been no formal statistical evaluation of the trends of nasal tip management in rhinoplasty. Our first objective was to evaluate the changing trends in septorhinoplasty techniques for nasal tip contouring, within a single-surgeon, private facial plastic surgery practice. Our second goal was to determine if this change in techniques has led to improvement in outcomes.

Methods. We performed a retrospective medical chart review consisting of 2 groups of 50 consecutive patients who had undergone rhinoplasty. The 2 groups spanned a 10-year period, one from 1999 and the other from 2008. The study took place at a private facial plastic surgery practice with a focus on rhinoplasty, recognized as a center for revision rhinoplasty referral, in a major metropolitan area. Data collection included patient demographics and types of tip-plasty maneuvers performed. These techniques were categorized as either (1) reductive maneuvers or (2) stabilizing and strengthening maneuvers. The usage of the maneuvers was compared between the 2 patient groups using the χ^2 test of association and Fisher exact test (where warranted by small sample size). The outcome measure was revision rate used as a surrogate measure for surgical success.

Results. There was no statistical difference between the groups in terms of age ($P = .69$), sex ($P > .99$), or percentage of primary vs revision operations ($P = .51$). The mean age of the patients was 32.5 years (range, 15-70 years) in 1999, and 31.5 years (range, 10-60 years) in 2008.

The nasal tip contouring maneuvers evaluated in this study were classified as either *reductive* or *stabilizing and*