

Factors Associated with Attrition Among Otolaryngology-Head and Neck Surgery Residents: A 10-year analysis

Uche C Ezeh, MS¹; Kenechukwu Charles-Obi², Carlos Green³, Elizabeth Nicolli¹, Amanda Gosman⁴, Zoukaa Sargi¹

¹Department of Otolaryngology, University of Miami Miller School of Medicine, Miami, FL.

²Drexel University College of Medicine, Philadelphia, Pennsylvania.

³Department of Otolaryngology, University of Michigan, Ann Arbor, MI.

⁴Department of Plastic Surgery, University of California Irvine, Irvine, CA.

Introduction

- Otolaryngology-Head and Neck Surgery (OHNS) is regarded as one of the most competitive specialties for residency matching.
- Prager et al. (2011) found an overall OHNS resident attrition rate of 6% (1.2% annually)¹.
- Haruno et al. (2023) found an overall OHNS resident attrition rate of 3.8%².
 - Underrepresented minorities in medicine (URiM) and female OHNS trainees were at highest risk of attrition.

The aim of this study was to further characterize risk factors for OHNS resident attrition.

Methods and Materials

- Study design:** Cross-sectional study
- Dataset:** Annual Graduate Medical Education (GME) Track Residency survey
- Time:** 2006-2015 (10 years)
- Subjects:** OHNS matriculants
- Variables:**
 - Matriculation year (2006-2010 vs. 2011-2015)
 - *Self-reported race/ethnicity (White, Black or African-American, Hispanic, Latino, or of Spanish Origin, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Asian, and Other)
 - Sex (male, female, decline to respond)
 - Age category (year) at time of matriculation (under 25, 26-29, 30-39, over 40)
 - Geographical location (northeast, central, south, west)
 - Medical school type (U.S. Doctor of Medicine degree (MD), U.S. Doctor of Osteopathic Medicine (DO), International Medical Graduate (IMG), Canadian)
 - Citizenship (U.S. and non-U.S. citizen)
- IRB:** This project was granted exemption by the University of Miami Miller School of Medicine Institutional Review Board.

* Underrepresented minorities in medicine (URiM) were grouped based on the 2003 AAMC definition: African Americans and/or Black, Hispanic/Latino, Native American (American Indians, Alaska Natives, and Native Hawaiians), Pacific Islander, and mainland Puerto Rican

Acknowledgements

This material is based upon data provided by the AAMC. The views expressed herein are those of the authors and do not necessarily reflect the position or policy of the AAMC.

Funding

Dr. Amanda Gosman from UC San Diego provided support and funding for this project, enabling the acquisition of the data.

Contact

Uche C. Ezeh, MS
University of Miami Miller School of Medicine
NW 12th Ave, 310, Miami, FL, 33136
uce1@med.miami.edu
925-789-0544

References

- Prager JD, Myer CM, Myer CM. Attrition in otolaryngology residency. *Otolaryngol Head Neck Surg.* 2011;145(5):753-754. doi:10.1177/0194599811414495
- Haruno LS, Chen X, Metzger M, et al. Racial and Sex Disparities in Resident Attrition Among Surgical Subspecialties. *JAMA Surg.* 2023;158(4):368. doi:10.1001/jamasurg.2022.7640

Results

• Matriculant Cohort

- 2,796 OHNS matriculants
- Male (66.1%)
- U.S. M.D. graduates (96.7%)
- Matriculated OHNS residency ≤ 29 year of age (86.8%)
- White (65.9%), Asian (21.6%), URiM (3.9%), Other/Multi-racial (8.6%).
- Southern US program (29.1%)

Overall Attrition Rate: 2%

Table 1. Matriculant count per year

Matriculation Year	Total Number of Matriculants	Total Number of Attrition Matriculants	Attrition (%)
2006	247	9	3.6
2007	278	0	0
2008	276	10	3.6
2009	272	7	2.6
2010	272	5	1.8
2011	290	3	1
2012	280	7	2.5
2013	288	7	2.4
2014	296	4	1.4
2015	297	3	1

Table 3. Univariable and Multivariable Binary Logistic Regression Model of predictors of OHNS attrition.

	A. Univariable models			B. Multivariable model		
	OR	95% CI	p	OR	95% CI	p
Sex						
Male	1.0	Ref.		1.0	Ref.	
Female	0.66	0.358-1.216	0.182	0.70	0.375-1.300	0.257
Race						
White	1.00	Ref.		1.00	Ref.	
URiM	3.37	1.375-8.258	0.008	3.51	1.411-8.708	0.007
Asian	1.19	0.605-2.325	0.619	1.55	.777-3.106	0.213
Other	1.49	0.616-3.613	0.376	1.49	0.605-3.680	0.385
Age Category (years)						
≤ 29 y	1.00	Ref.		1.00	Ref.	
≥ 30 y	2.29	1.235-4.239	0.009	2.12	1.118-4.005	0.021
Residency Program Location						
Northeast	1.00	Ref.		1.00	Ref.	
Central	0.94	0.380-2.327	0.894	0.91	0.366-2.283	0.847
South	2.75	1.327-5.700	0.007	2.87	1.367-6.019	0.005
West	1.38	0.541-3.522	0.501	1.35	0.527-3.455	0.532
Medical School Type						
U.S. MD	1.00	Ref.		1.00	Ref.	
IMG and U.S. DO	2.34	0.827-6.608	0.109	2.04	.686-6.092	0.199
Matriculation Year						
2006-2010	1.00	Ref.		1.00	Ref.	
2011-2015	0.71	0.416-1.221	0.218	0.70	0.408-1.211	0.203

Table 2. Characteristics of OHNS residents.

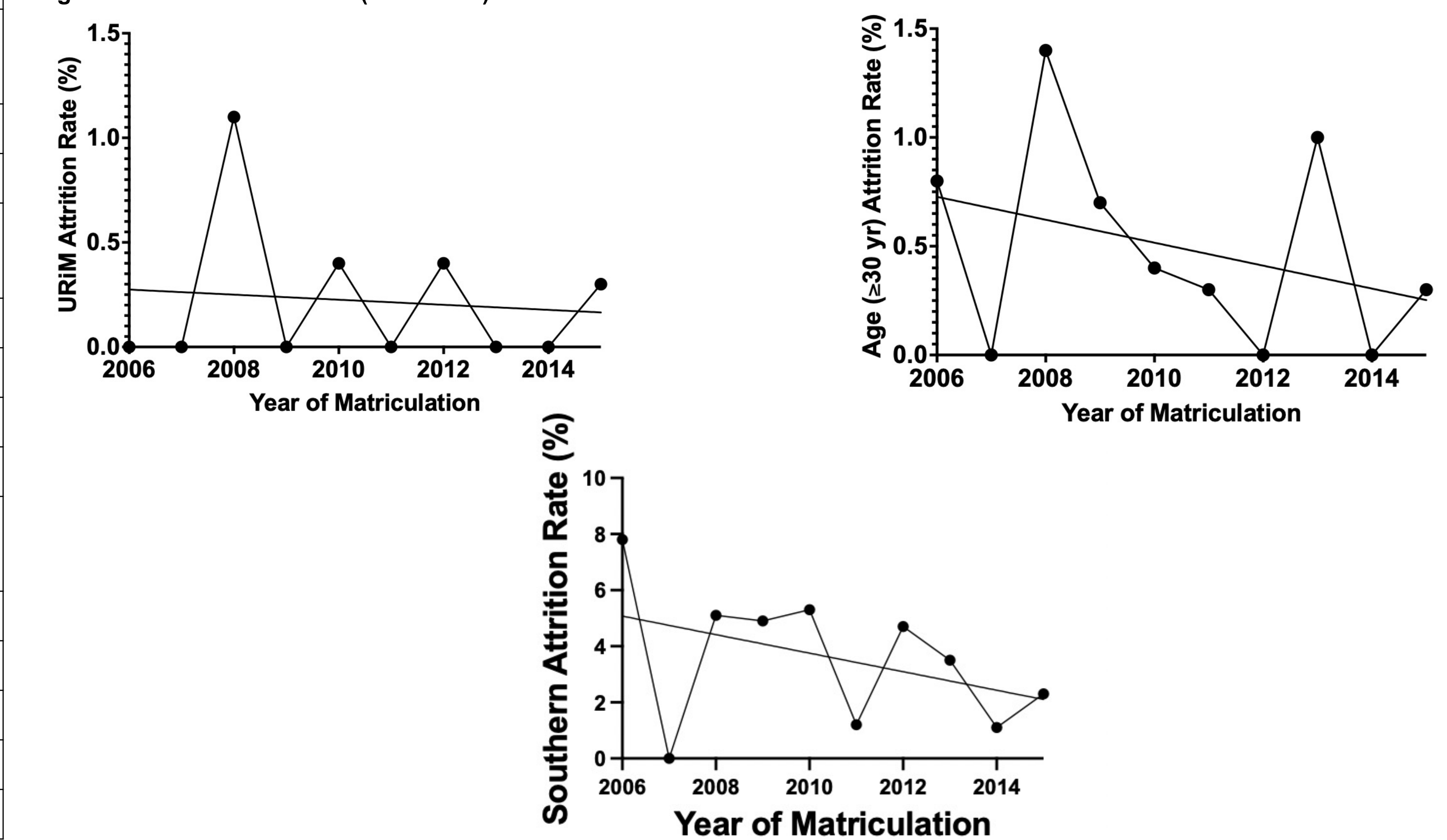
	All		No attrition		Attrition		p
	n	%	n	%	n	%	
All	2,796		2741	98	55	2	
Sex							0.179
Male	1847	66.1	1806	65.9	41	74.5	
Female	949	33.9	935	34.1	14	25.5	
Race/Ethnicity							0.045
White	1842	65.9	1811	66.1	31	56.4	
URiM	110	3.9	104	3.8	6	10.9	
Asian	603	21.6	591	21.6	12	21.8	
Other	241	8.6	235	8.6	6	10.9	
Age Category (years)							0.007
≤ 29 y	2,426	86.8	2385	87	41	74.5	
≥ 30 y	370	13.2	356	13	14	25.5	
Residency Program Location							0.004
Northeast	781	27.9	771	28.1	10	18.2	
Central	747	26.7	738	26.9	9	16.4	
South	813	29.1	785	28.6	28	50.9	
West	455	16.3	447	16.3	8	14.5	
Medical School Type							0.099
U.S. MD	2703	96.7	2652	96.8	51	92.7	
IMG and U.S. DO	93	3.3	89	3.2	4	92.7	
Matriculation Year							0.216
2006-2010	1345	48.1	1314	47.9	31	56.4	
2011-2015	1451	51.9	1427	52.1	24	43.6	

- There was a statistically significant association between race/ethnicity, age, and residency program location and OHNS resident attrition
- There was no association between sex, medical school type and matriculation year and OHNS resident attrition.

Predictors of OHNS attrition (multivariable regression analysis):

- Higher Risk
 - URiM vs. White
 - (OR 3.51 95% CI [1.411-8.708], p=0.007)
 - Matriculation at ≥ 30 years of age vs. ≤ 29 years
 - (OR 2.12 95% CI [1.118-4.005], p=0.021)
 - Southern vs. Northeast US programs
 - (OR 2.87 95% CI [1.367-6.019], p=0.005)

Figure 1. Trends in Attrition (2006-2015)



Conclusion

- URiM residents, older (≥ 30 years) age at time of matriculation, and southern OHNS programs had a higher risk of attrition.
- Sex, medical school type, and matriculation year were not predictors of OHNS attrition.
- Our findings suggest the need to develop or strengthen targeted strategies to improve resident retention.