



## Purpose

- The purpose of this Doctor of Nursing Practice (DNP) project was to educate anesthesia providers on the STAC3 disorder and its susceptibility to malignant hyperthermia (MH) in the Lumbee Native American tribe through a live education presentation at the North Carolina Association of Nurse Anesthetists (NCANA) Annual Meeting in North Carolina.

## Background/Significance

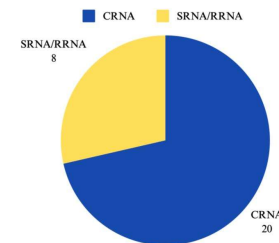
- MH is a hereditary disorder of skeletal muscle that classically presents as a hypermetabolic response to halogenated anesthetic gasses and/or the depolarizing muscle relaxant succinylcholine during anesthesia.
- The mortality rate is 70-80% if not recognized and treated; a mortality rate of 3% to 5%, when properly treated (Min et al., 2021).
- STAC3 disorder, variant p. Trp284Ser, is an autosomal recessive condition formerly known as Native American Myopathy (NAM) and Bailey-Bloch congenital myopathy.
- The Lumbee Tribe is the largest Native American tribe in North Carolina and the ninth largest in the United States. STAC3 disorder is estimated to affect 1 in 5,000 Lumbee Tribe members (Webb et al., 2019).
- Significant barriers regarding access to rare disease diagnosis for Indigenous populations due to limited technologies, location, cost, availability, and cultural appropriateness (D'Angelo et al., 2020).
- 36% of patients with STAC3 disorder die by 18 years of age from respiratory complications and MH (Stamm et al., 2008).
- If anesthesia providers reduce the number of susceptible individuals to a triggering agent by 75% then anesthesia providers can reduce the mortality rate of MH by 75% and deaths by more than 90% (Biesecker et al., 2020).
- Increasing anesthesia provider knowledge about the STAC3 disorder in this population can lead to a more tailored anesthesia plan to avoid complications from undiagnosed MH.

## Methodology

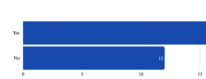
- 30 minute live educational PowerPoint was presented at the North Carolina Association of Nurse Anesthetists (NCANA) Annual meeting.
- A demographic, pre-post Likert scale survey, and post survey questionnaire was administered after the presentation via a QR code provided at the end of the presentation.
- Wilcoxon signed-rank test was used for the pre-post Likert scale survey along with median, mean, standard deviation, minimum, and maximum values.
- Participants included certified registered nurse anesthetists (CRNAs) and student registered nurse anesthetists (SRNAs).

## Results

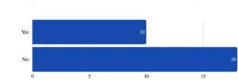
- Total conference attendees= 411, author's live presentation included 50 attendees (12%) with several hourly concurrent presentations or workshops.
- Responses ranged from 28 to 21 respondents.



First Time Learned About STAC3 Disorder in The Lumbee Tribe



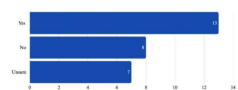
Taught STAC3 Disorder in Anesthesia Program



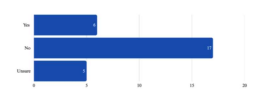
Facility STAC3 Disorder & MH Policy



Provided Care to a Lumbee Patient



Provided Anesthesia for a Lumbee Patient with a History of STAC3 Disorder or MH



Questions	n=	Pre-Survey			Post-Survey			Mean difference	P value
		Mean (SD)	Median (min, max)		Mean (SD)	Median (min, max)			
1. I know about STAC3 disorder	21	2.24 (1.66)	2 (1, 5)		4.76 (0.44)	5 (4, 5)		+2.52	<0.001
2. I know those with STAC3 disorder gene are an increased risk for a MH crisis	21	2.38 (1.57)	1 (1, 5)		4.95 (0.22)	5 (4, 5)		+2.57	<0.001
3. I know how prevalent STAC3 disorder is in those who identify as Lumbee natives	21	1.81 (1.17)	1 (1, 5)		4.90 (0.30)	5 (4, 5)		+3.09	<0.001
4. I know STAC3 disorder can affect patients without Lumbee ancestry	21	1.71 (1.01)	1 (1, 4)		4.81 (0.53)	5 (3, 5)		+3.10	<0.001
5. I know another name for STAC3 disorder is Native American Myopathy	21	1.52 (1.21)	1 (1, 5)		4.76 (0.54)	5 (3, 5)		+3.24	<0.001
6. I know the physical characteristics of those with STAC3 disorder gene	21	1.29 (0.56)	1 (1, 3)		4.62 (0.59)	5 (3, 5)		+3.33	<0.001
7. My anesthesia plan will change when recognizing a patient of Lumbee origin suspected of having STAC3 disorder	21	2.90 (1.51)	3 (1, 5)		4.86 (0.36)	5 (4, 5)		+1.96	<0.001
8. If a Lumbee patient has had anesthesia in the past with no complications, I have no concerns.	21	1.62 (1.07)	1 (1, 5)		2.38 (1.83)	1 (1, 5)		+0.76	0.089

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## References

