

CURRICULUM VITAE



Dr. Martin Nweeia is a Lecturer at the Harvard School of Dental Medicine and an Assistant Professor at Case Western Reserve University/Cleveland Clinic. He serves as a Global Fellow of the Polar Institute at the Wilson Center for International Scholars, and Research Scientist Associate at the Smithsonian Institution and the Canadian Museum of Nature. His publications have appeared in the Journals, *Nature*, *Science*, *Proceedings of the National Academy of Science*, *The Anatomical Record*, and in four books from the Smithsonian. He is co-curator of the Smithsonian Exhibit, **Narwhal: Revealing An Arctic Legend** and co-author of the William Mills Award Winning book with the same title. His research has been the subject of four documentaries from National Geographic, two from the BBC, and one from French Discovery, Decouverte.

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
Case School of Dental Medicine	D.M.D.	2004	Doctorate of Dental Medicine
Branemark Clinic, Goteborg, Sweden	Certificate	1990	Osseointegration
Case Western Reserve School of Dentistry	D.D.S.	1984	Doctorate of Dental Surgery
Trinity College, Hartford, CT	B.A.	1977	Biology & English

RESEARCH/FELLOWSHIPS

INSTITUTION AND LOCATION	POSITION	YEAR	FIELD OF STUDY
Smithsonian Institution, NMNH Department of Vertebrate Zoology	Post-Doctoral Fellowship	2015	Vertebrate Zoology
Laboratory for Informational and Translational Technologies, Harvard Medical School	Research Scientist working under Winston Kuo, Director	2008 - 2012	Tooth Genomics and Transcriptomics
Harvard Museum of Comparative Zoology, Dept. of Integrative and Organismic Biology	Research Associate, Dept. of Mammals	2008 - 2011	Integrative and Organismal Biology focused on teeth
Hauschka Bone Laboratory, Harvard Medical School, Dept. of Orthopedic Surgery	Research Scientist working under Peter Hauschka, Director	2006 - 2011	Narwhal Tooth Tissue Sensory Markers
Smithsonian Institution, Marine Mammal Program Department of Anthropology	Research Associate Research Associate	2004 - 2021 2021-2024	Marine Mammal Program, Dept. of Zoology
Smithsonian Institution, NMNH Department of Anthropology	Graduate Fellowship, Div. of Physical Anthropology	1981	Dental Paleopathology
Woodrow Wilson Center for Scholars	Global Fellow	2022-24	

A. Positions and Honors

Positions and Employment

1995- Private Practice, Sharon, CT

1985-1995 Private Practice, Honolulu, HI
 2000- Clinical Instructor, Advanced Dental Rotation, Department of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine, 2000-present
 2003- Principal Investigator: Narwhal Tusk Research, Narwhal Genome Initiative
 2012- Board Member, Sharon Community Foundation, Sharon, CT
 2003-2005 Board of Directors, Foundation for Community Health, Sharon, CT
 2003-2005 Dental Director, Volunteers in Medicine Clinic, Great Barrington, MA
 2016- Assistant Professor for Innovation Programs, Case Western Reserve University, School of Dental Medicine.

Professional Fellowships and Memberships

2019 Fellow, Royal Canadian Geographic Society
 1999- Fellow, Explorers Club, World Center for Exploration
 1997- Fellow, Academy of General Dentistry
 1994- Fellow, International College of Dentists
 1993- Fellow, Academy of Dentistry International
 1992- Fellow, Pierre Fauchard Academy
 1991- Fellow, American College of Dentists
 1984- Member, American Dental Association

Appointments and Positions in Dental Organizations

2004-2006 Board of Governors, Connecticut State Dental Association
 2004-2006 Editor, Journal of the Connecticut State Dental Association
 1996-2000 Editor, Region 14 Journal
 1993-1995 Board of Trustees, Hawaii Dental Association
 1993-1994 National Public Information Council, Academy of General Dentistry
 1991-1993 President, Hawaii Academy of General Dentistry
 1990-1995 Editor, Hawaii Dental Journal

Honors

2017 Lowell Thomas Award, Arctic Exploration, The Explorers Club World Center or Exploration
 2016 Distinguished Alumnus of the Year Award, Case Western Reserve University, School of Dental Medicine
 2003-2015 Thirteen "Flag" Award Honors, Narwhal Tusk Research, Narwhal Discoveries, Explorers Club, World Center for Exploration
 2012 Explorer of the Week, National Geographic Society
 2007 Distinguished Service Award, Connecticut State Dental Association
 2006 Cine Golden Eagle Award, Wild Chronicles, National Geographic Society
 1999 Editorial Award of Excellence, Academy of General Dentistry
 1993 Golden Pen Literature Award, International College of Dentists
 1992 National Award for Media Relations, Academy of General Dentistry
 1991 Medical Writing Award, Hawaii Medical Association
 1990 National Community Based Award for services to Hawaii's homeless, Academy of General Dentistry

B. Published work (in chronological order)

Peer-reviewed publications

1. K. Grandfield, N.L.T. Chattah, S. Djomehri, N. Eidelmann, F.C. Eichmiller, S. Webb, P.J. Schuck, **M.T. Nweeia** and S.P. Ho. 2014. The Narwhal (*Monodon monoceros*) Cementum-Dentin Junction: A Functionally Graded Biointerphase. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 228(8), 754-767.
2. M.T. Nweeia et al. 2014. Sensory Ability of the Narwhal Tooth Organ System. The Anatomical Record, 294(4):599-617
3. M.T. Nweeia et al. 2012. Vestigial Tooth Anatomy and Tusk Nomenclature for *Monodon Monoceros*. The Anatomical Record, 295(6):1006-1016.

4. J.E. Fontanella, J.E. Fish, N. Rybczynski, **M.T. Nweeia** and D.R. Ketten. 2011. Three-dimensional geometry of the narwhal (*Monodon monoceros*) flukes in relation to hydrodynamics. *Marine Mammal Science*, 27(4): 889–898 (October 2011).
5. M.T. Nweeia, ELOKA Partner. Exchanging and Sharing Knowledge: Toward an International Network Supporting Community-Based Monitoring and Local/Traditional Knowledge of the Arctic. State of the Arctic Conference, Miami, March 2010.
6. M.T. Nweeia. 2010. Heartbeat, Drumbeat, When Will Science Learn to Dance? State of the Arctic Conference, Miami, March 2010.
7. M.T. Nweeia. 2010. Narwhal Tusk Research: discovering the function of the male tusk. *Polar Science and Global Climate, An International Resource for Education and Outreach*, pp. 191-192, Pearson Education Ltd., Edinburgh Gate, Harlow, Essex CM 20 21E.
8. M.T. Nweeia, F.C. Eichmiller, C. Nutarak, N. Eidelman, Giuseppetti et al. 2009. Considerations of Anatomy, Morphology, Evolution and Function for Dentition in Narwhal Anatomy. In *Smithsonian at the Poles*. In: Krupnik I, Lang MA, Miller SE, editors. Washington, D.C.: Smithsonian Institution Scholarly Press. pp. 227–228, 233–234, 238.
9. M.T. Nweeia., J.F. Thackeray, F. Eichmiller et al. 2008. A note on isotopic analysis of sectioned tusks of the narwhal (*Monodon monoceros*) and tusk growth rates: scientific notes. *Annals of the Transvaal Museum*, 45(1), pp. 138-142.
10. M.T. Nweeia. 2007. The Narwhal Tusk, Potential as an Arctic Water Probe and Weather Station: Collaborative and Integrative Studies of Science and Inuit Traditional Knowledge. *Arctic Forum Abstracts 2007, Water in the Arctic: International Collaborations and Understanding Environmental Change*, pp. 15-16. Arctic Research Consortium of the U.S., 3535 College Road, Suite 101, Fairbanks, AK 99709.
11. M.T. Nweeia, F. Eichmiller, C. Nutarak, J.R. Orr, J. Mead and P. Hauschka. 2006. Inuit and Scientific Descriptions of the Narwhal. *Arctic Forum Abstracts 2006*, pp. 50-51. Arctic Research Consortium of the U.S., 3535 College Road, Suite 101, Fairbanks, AK 99709.
12. M.T. Nweeia, J. Meehan, C. Nutarak, E. Ootova and J. Orr. Traditional knowledge of the narwhal: oral observations of elders assisting tusk researchers. Accepted for presentation at the October 2006 meeting of the National Institute for Oriental Languages and Civilisations at the 15th International Inuit Studies Conference in Paris.
13. E.M. Tyler, **M.T. Nweeia**, B.R. Whitaker et al. 2006. 3D Visualization of the Dental Anatomy of the Narwhal, *Monodon monoceros*. *Jbiocommunication.org*, 2008, Vol. 34, No. 3, pp. E44-E48
14. M.T. Nweeia, J. Mead, J. Orr, C. Potter and E. Tyler. Developmental and anatomical considerations of the vestigial teeth in the maxillary jaw of narwhal, *Monodon monoceros*. Accepted for presentation at the May 2006 meeting of the Canadian Society of Zoologists.
15. M.T. Nweeia, N. Eidelman, F. Eichmiller, C. Frederick, A.A. Giuseppetti, Y. Jung and Y. Zhang. Hydrodynamic Sensor Capabilities and Structural Resilience of the Male Narwhal Tusk. The 16th Biennial Conference on the Biology of Marine Mammals, December 2005.
16. N. Eidelman, F.C. Eichmiller, Y. Zang, Y.G. Jung, A.A. Giuseppetti and **M.T. Nweeia**. Position resolved structural and mechanical properties of male narwhal tusk dental tissues. Accepted for publication in 2005, *International Journal of Dental Research*.
17. M.T. Nweeia and D.C. Johnsen. 1985. Caries in Micronesian children. *The Ohio Dental Journal*, 59(1), pp. 43-46.
18. M.T. Nweeia and D.C. Johnsen. 1984, March. Enamel Hypoplasia and Caries Experiences in the Primary Dentition of a Pacific Island Culture, *International Journal of Dental Research*.
19. M.T. Nweeia and D.C. Johnsen. 1984, January. Enamel Hypoplasia and Caries Experiences in the Primary Dentition of a Pacific Island Population. *Journal of Dental Research* (Vol. 63, p. 196). 1619 Duke St, Alexandria, VA 22314: American Association of Dental Research.
20. M.T. Nweeia, D.J. Ortner and D.C. Johnsen. March 1983. Tooth Discolorations and Enamel Hypoplasia in Three Historic Indian Populations, *American Journal of Dental Research*.
21. M.T. Nweeia, D. Ortner and D.C. Johnsen. January, 1983. Tooth Discoloration and Enamel Hypoplasias in 3 Historic Indian Populations. *Journal of Dental Research* (Vol. 62, p. 184). 1619 Duke St., Alexandria, VA 22314: American Association of Dental Research.
22. M.T. Nweeia and E.F. Harris. 1980. Oral hyperostosis in Colombian Ticuna Indians. *Revista de la Federacion Odontologica Colombiana*, 28(134):42-45.
23. E.F. Harris and **M.T. Nweeia**. 1980. Tooth Size of the Ticuna Indians of Colombia with Phenetic Comparisons to Other Amerindians, *American Journal of Physical Anthropology*, Volume 53, pp. 81-91.
24. E.F. Harris and **M.T. Nweeia**. 1980. Dental Asymmetry as a Measure of Environmental Stress in the Ticuna Indians of

Colombia, *American Journal of Physical Anthropology*, Volume 53, pp. 133-142.

Public Health Publications

1. M.T. Nweeia, Editor. 2006. *Crossing the Dental Divide, A Collection of Reports and Essays on Access to Dental Care in Connecticut*, Connecticut State Dental Association, 86pp.
2. S. Akilesh, F. Husain, **M.T. Nweeia** et al. 2006. Oral Health Screening for Third Grade Students in Selected Schools in Connecticut and New York. Department of Oral Health Policy and Epidemiology, Harvard School of Dental Medicine, Boston, MA.
3. M.T. Nweeia. More than 500 health columns for the Honolulu Star Bulletin, Gannett-USA Today, 1988-1995, syndicated 1994-1996.
4. M.T. Nweeia. Prepared weekly health stories for the Five O'Clock News. KGMB TV, CBS affiliate, 1988-1992.
5. M.T. Nweeia. *Baby Bottle Tooth Decay*. Public education pamphlet prepared for the Hawaii State Department of Health and the World Health Organization, Pacific Region, 1989.

Books and Chapters

1. W. Fitzhugh and M.T. Nweeia. *Narwhal: Revealing an Arctic Legend*. International Polar Press and Arctic Studies Center Books, Smithsonian Institution, 233 pp
2. M.T. Nweeia et al. *Arctic Crashes: Integrating the Voices of Inuit Knowledge and Science in a Discussion of Narwhal Biology, Behavior and Population*. Smithsonian Scholarly Press, scheduled for publication May 2018.
3. M.T. Nweeia. 2014. *Narwhal Tusk Discoveries*, Hitchcock Press, 120 pp.
4. Nweeia et al. 2011. *Smithsonian at the Poles, Considerations of Anatomy, Morphology, Evolution, and Function for Narwhal Dentition*. 223-240.
5. M.T. Nweeia. 2007. *Dental Issues for Expedition Medicine*. Chapter prepared for *Expedition Medicine*, Cambridge University Press.
6. M.T. Nweeia. 2002. *Treating Dental Emergencies on Field Expeditions and in Remote Areas*. Chapter prepared for the *Expedition Medicine Manual Explorers Club World Center for Exploration*.
7. M.T. Nweeia. *The Whole Tooth*. 1989. Randall Morita Press 187 pp. *The Whole Tooth 2nd Edition*, Book Sales, 2004. 217 pp.
8. Nweeia, M.T. and Harris, E.F. 1979, January. Tooth size and bilateral asymmetry of Ticuna Indians. *American Journal of Physical Anthropology* (Vol. 50, No. 3, p. 468). Div. John Wiley & Sons Inc, 605 Third Ave, New York, NY. Wiley-Liss.

Lectures by Invitation

1. "How Indigenous Voices Can Transform Science." In person and connecting with audiences in Calgary, Quebec City and Iqaluit via videoconference. U.S. Embassy, Ottawa, February 2017.
2. "Using Inuit Qaujimagatuqangit, Traditional Knowledge, to Guide the Development of Hypotheses," Keynote Speaker, Harvard University School of Dental Medicine Donor Appreciation Dinner, May 5, 2016.
3. "The narwhal: a marine mammal with a mythical tusk." Science for the Greater Good Series, Trinity College, Hartford, CT, November 2016.
4. "Arctic Crashes: Human, Climate and Habitat Agency in the Eastern Arctic and North Atlantic," Smithsonian's Arctic Studies Center, Washington, D.C., January 2016.
5. "The Extraordinary Narwhal Tooth Organ System, Sensing the Arctic Environment." Rutgers School of Dental Medicine Research Seminar Series, October 2014.
6. "The Unicorns of the Sea." The Maritime Aquarium at Norwalk, CT, April 2014.
7. "Learning from the Top of the World," New Approaches for Linking Science and Indigenous Knowledge: Toward a More Complete Story of the Arctic System. 18th Inuit Studies Conference, Symposium Leader, Washington, D.C., October 2012.
8. "Transformative Narwhal Tusk Research." Mystic Aquarium Science Seminar, Mystic, CT, 2009.
9. "Narwhal Tusk Discoveries: Evolution to Revolution." The Jane Boswell Toomey and Lewis Cole Toomey, DDS Memorial Lecture in Dentistry, University of Maryland, May 1, 2008.
10. "Narwhal Tusk Micro-structure and Composition: Form, Function and Evolutionary Adaptation." Harvard Forsyth Research Symposium, Harvard School of Dental Medicine, Boston, Massachusetts, April 7, 2006.
11. "Narwhal, the Arctic Unicorn." Hubbs-SeaWorld Research Institute Science Seminar Lecture Series, San Diego, California,

December 15, 2005.

12. "Uncovering the Mysteries of Narwhals." Honda Lecture Series, Aquarium of the Pacific, Long Beach, California, February 1, 2005.
13. "Narwhal, Unicorn of the Arctic Ocean." Baird Lecture Series, Smithsonian Institution, Washington, DC, June 4, 2004.

C. Museum Exhibits

1. M.T. Nweeia, Content Curator. Narwhal: Revealing an Arctic Legend, at National Museum of Natural History, Smithsonian Institution. Scheduled to open August 2017.
2. M.T. Nweeia, Contributor. 150th Celebration of Canada, sponsored by the U.S. Embassy and coordinated lecture on narwhal research in Ottawa, Canada. Scheduled for February 2017.
3. M.T. Nweeia, Contributor. Arctic Voices, a traveling exhibit in Canada featuring original narwhal research, 2014.
4. M.T. Nweeia, Contributor, Arctic Exhibit, featuring narwhal tusk research in collaboration with the Vancouver Aquarium.
5. M.T. Nweeia, Contributor. Crittercam: The World Through Animal Eyes, 2009.

D. National Science Foundation Grant Awards

Grant #(s)	Date	NSF DIVISION	PROJECT TITLE
1744179	5/8/2017	Arctic Social Sciences	Narwhal HoloLens Experience
1551190	7/28/2015	Integrative Organismal Systems	Inuit Collaborative Workshop in Preparation for the Smithsonian Exhibit: Narwhal, Inuit and Ice in a Changing Arctic, 2017
1025981	1/26/2010	Integrative Organismal Systems	Neuroanatomy, Neurophysiology of the <i>Monodon Monoceros</i> tooth organ system: testing the sensory function hypothesis
1021689	1/12/2010	Integrative Organismal Systems	Neuroanatomy, Neurophysiology of the <i>Monodon Monoceros</i> tooth organ system: testing the sensory function hypothesis
0922052	1/16/2009	Integrative Organismal Systems	Neuroanatomy, Neurophysiology of the <i>Monodon monoceros</i> Tooth Organ System: Testing the Sensory Function Hypothesis
0839989	6/16/2008	Integrative Organismal Systems	Field Testing to Confirm the Sensory Hypothesis of the Male Narwhal Tusk
0739858	6/8/2007	Integrative Organismal Systems	Testing Opportunity of the Sensory Hypothesis in the Narwhal Tusk
0756708	9/17/2007	Office of Polar Programs	Using Inuit <i>Qaujimaqatuqangit</i> , Traditional Knowledge, to Guide the Development of Hypotheses on Narwhal Tusk Function
0701534	10/5/2006	Office of Polar Programs	Inuit and Scientific Descriptions of the Narwhal, Connecting Parallel Perceptions: Interdisciplinary Studies of the Narwhal with a Focus on Tusk Function
0646872, 0630561	4/6-8/2/ 2006	Office of Polar Programs	Inuit and Scientific Studies of the Narwhal: Connecting Parallel Perceptions

E. Additional Grant Awards

- 2021 Fullbright-U.S. Scholar Program: Formulating Policy for Global Pandemics in the Arctic: Understanding Potential Environmental and Human Impacts To Support Preventive Action in the Eastern Canadian Arctic
- 2020 USAID, Establishing Greenlandic Inuit Community Engagement to Foster American Eco-Tourism Efforts in Greenland
- 2019 U.S. Embassy Grant, Isumaqatigingniq: Building an Educational Bridge of Inuit Knowledge and Science
- 2015 Smithsonian Institution Grants, Global Genomics Initiative narwhal sample and anatomical collections.
- 2012 World Wildlife Foundation, NSF filed report
- 2010 Scott Pearlman Award, Explorers Club.
- 2007 Scott Pearlman Award, Explorers Club.
- 2007 National Geographic Society Grant for Research and Exploration to study the narwhal tusk.

- 2006 The Connecticut Health Foundation
- 2006 The Connecticut Dental Health Foundation
- 2006 The Connecticut State Dental Association, grants to fund the book *Crossing The Dental Divide*
- 2004 Smithsonian Institution Grant.
- 2004 Harvard Museum of Comparative Zoology.
- 1983 Cleveland Foundation and Biomedical Research Grant, Case Western Reserve University, to document childhood dental diseases among Ulithi Atoll children in Micronesia.
- 1977 Explorers Club grants to study the migration patterns, dental disease and dental asymmetry as an indicator of environmental stress of living Ticuna Indians through studies on their teeth.

F. Synergistic Activities

1. M.T. Nweeia, Principal Investigator, Narwhal Genome Initiative, in collaboration with Broad Institute; Global Genome Initiative, Smithsonian Institution; Ocean Genome Legacy, Northeastern University; Instituto Sirio-Libanês de Ensino e Pesquisa; and UZ Brussel University Hospital Center for Medical Genetics. 2011-ongoing.
2. M.T. Nweeia, Principal Investigator, Narwhal Tusk Research, in collaboration with Harvard School of Dental Medicine, Smithsonian Institution, Fisheries and Oceans Canada, Nunavut Wildlife Management Board, Polar Continental Shelf Project, and MIT Media Lab. 2002-2012.
3. M.T. Nweeia, Principal Investigator, Hololens Narwhal, in collaboration with Case Western Reserve School of Dental Medicine and the Hololens Laboratory. 2016-ongoing.
4. BBC Nature Series "Secrets of Bones," 2014.
5. BBC Film Features, "Unusual Curiosities with David Attenborough," 2013.
6. Minnesota Public Radio, "A Beautiful World: Keep Narwhals Real," 2013.
7. Convenor, International Polar Year Oslo Science Conference, 2010.
8. "Piliriqatigiingniq, Integrating Inuit and Scientific Knowledge to Understand Narwhal Tusk Function." Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC) International Polar Year (IPY) Open Science Conference, St. Petersburg, Russia, 2008.
9. M.T. Nweeia, "Integrating Inuit and Scientific Observations of the Narwhal to Understand Tusk Function," Scientific address presented at New Horizons in Polar Science, Philip Hauge Abelson Advancing Seminar Series, AAAS Auditorium, Washington, D.C., October 2007.
10. M.T. Nweeia, P. Nielsen and I. Jeremiassen. 2007. Scientific address to the International Polar Year Conference in Barrow, Alaska. Proceedings from the Inuit Circumpolar Conference.
11. National Geographic Television and Film, *Wild Chronicles*, Season One, Episode 117, 2007. International release.
12. National Geographic Television and Film Documentary, *Masters of the Arctic Ice*, 2007. International release.
13. Featured speaker, International Polar Year, Live Stream Educational Classroom in five time zones for both Oceans Day and People's Day, 2007.
14. Ten-part interview series, *Pulse of the Planet*.
15. *Decouverte*, French Discovery Documentary on the Narwhal, 2006.
16. Case Study, Exchange for Local Observations and Knowledge of the Arctic (ELOKA), 2006.
17. Feature article in "Science Times," *New York Times*. "Really. It's Sensitive: Narwhal Yields the Secrets of Its Tusk," December 2005.

G. Graduate Students Under My Direction - Seven.