

INVITED REVIEW

Mirdza E. Neiders: A pioneer in oral pathology, oral health science research, and education

Frank A. Scannapieco 

Department of Oral Biology, School of Dental Medicine, University at Buffalo, Buffalo, New York, USA

Correspondence

Frank A. Scannapieco, Department of Oral Biology, School of Dental Medicine, University at Buffalo, 3435 Main Street, Buffalo 14214, New York, USA.

Email: fas1@buffalo.edu

Abstract

Over her near 60-year career, Mirdza E. (Mitzi) Neiders has served as a teacher, dentist, researcher, mentor, role-model, friend, and critic for thousands of faculty, students, and patients of the University at Buffalo School of Dental Medicine. One of the first women to serve on the dental school faculty, this article describes her journey and the great impact that she has made on dentistry and her community on the occasion of her retirement.

KEYWORDS

mouth, mucosal, oral pathology, periodontal disease, *Porphyromonas gingivalis*

To the students, faculty and patients of the University at Buffalo School of Dental Medicine, Mirdza E. (Mitzi) Neiders is an absolute legend. Over her near 60-year career as a teacher, dentist, researcher, mentor, role-model, friend, and critic, Mitzi has done it all and done it well indeed. She is a prime example of a woman who was determined, and persevered, to forge a full and varied career in dental academia. This article seeks to review her accomplishments over her long career, and the impact she has made on dental education and the School of Dental Medicine on the occasion of her retirement (Figure 1).

1 | A BRIEF REVIEW OF HER CAREER

This biography is derived from study of Mitzi's CV, primary published sources, and an interview conducted on December 7, 2020. Her very lightly edited quotes are indicated by quotation marks.

Mitzi was born in Riga, Latvia on August 21, 1933, and immigrated to the United States on March 3, 1950. She attended Marshalltown Junior College, Iowa from 1951 to 1952, and the Ohio State University from 1952 to 1954. She then earned the D.D.S. from the University of Michigan School of Dentistry in 1958. Her training continued at the University of Chicago from 1959 to 1961 in the Department of General Pathology, where she earned her M.S. degree, and completed a Residency in Oral Pathology at the Zoller

Dental Clinic. She later earned a certificate in Periodontics at the State University of New York at Buffalo.

Mitzi was hired in 1962 as an Assistant Professor into the newly organized Department of Oral Pathology at the then School of Dentistry, University at Buffalo, where she remained for the duration of her career. She soon became boarded in Oral and Maxillofacial Pathology. She won many prestigious awards during her career, including the State University of New York at Buffalo Dean's Medal, School of Dentistry, Teacher of the Year from Alpha Omega, and the SUNY Chancellor's Award for Excellence in Teaching. She was promoted through the ranks and finally promoted to SUNY Distinguished Teaching Professor in 2002.

Mitzi provided extensive service to the school and university throughout her career, having served twice as Acting Chair of the Department of Oral Diagnosis, and as the director of the Oral Pathology Graduate Training Program for 4 years, and the Breath Disorders Clinic. She also served as a primary consultant to the Salivary Gland Dysfunction Clinic and the Oral Medicine Clinic at the school and as a member of many of the school's committees. She served as a member of the Biomedical Sciences Study section for the National Institutes of Health (NIH) for 8 years.

In 2004, Mitzi was one of three initial recipients of the newly created award for Outstanding Contributions to International Education at UB in recognition of her involvement in the University's relationship with Latvia. Beginning soon after Latvia gained independence



FIGURE 1 Mirdza Neiders, 2002

from the former Soviet Union, Neiders assisted the Latvian Academy of Medicine, advising its Dental School and hosting faculty for short-term visits to UB. She returned frequently to Latvia to lecture and to provide assistance to the Institute of Stomatology in Riga (Anonymous, 2004).

For many years, Mitzi served as a consultant to IMMCO Diagnostics, which specializes in immunologic tests, primarily for the diagnosis of bullous, vascular, connective tissue, and inherited skin diseases. She collaborated on several studies exploring the role of immediate and delayed hypersensitivity in experimental periodontitis (Asaro et al., 1978, 1983) with IMMCO founder Ernst H. Beutner, one of her early mentors at the University of Buffalo. Dr. Beutner also discovered the role of autoimmunity in pemphigus and pemphigoid.

2 | WHY DENTISTRY?

“When I came to United States at age 18, I wanted to be a college professor. I was determined that I wanted a PhD, but my father would not let me go and get my PhD in microbiology. He told me he would disown me! I had already a scholarship in hand to Ohio State, but he said women should not be professors. He had figured out that because my mother was a dentist in Latvia (at that time, dentistry was dominated by women in Latvia), I should be a dentist”.

3 | WHY BUFFALO?

Following graduation from dental school, Mitzi enrolled at the University of Chicago as a resident in pathology and studied for

a Master's Degree in experimental pathology at the Zoller Dental Clinic (note: the clinic closed in 2009). Unfortunately, the program director died during Mitzi's first year as a resident. “So, the three of us (residents) that were in the oral pathology program, Dr. Blozis, Dr. Goepp and I, designed our own program for training. We used the medical school and hospital resources. The general pathology department was available to us, and we also could attend all the dermatology seminars in the medical school.” They designed a program that prepared them very well for the fellowship examination in oral pathology. “At that time, a student didn't need to be in a formal program, and I actually spent only 3 weeks with oral pathologists before I took the fellowship exam. I went one week to Dr. Shafer in Indiana, and I went to the Armed Forces Institute of Pathology for two weeks”.

While such an approach would be impossible today, as residency training programs are tightly regulated and monitored by the Commission on Dental Accreditation (CODA), it is interesting to note that the program they organized was obviously effective.

“George Greene, who was the new chairman of Oral Pathology at UB, was an examiner for the national fellowship examination in oral pathology. Dr. Whistler, who was the chair of General Pathology at the University of Chicago, recommended me to Dr. Skelton, who was the chair of General Pathology at UB. I was hired to join the dental school in Buffalo in August of 1962 when UB shifted from a private to a state-supported university. I arrived in Buffalo and the school was in flux. The school was hiring new faculty left and right, and it was an interesting school because (Dean) English was hiring very many people from the Navy and other dental schools.”

The University of Buffalo was merged into the State University of New York system in 1962 (Clark, 2010). A large sum of money was invested in the development of the university over the following years, with the dental school hiring many new full-time faculty under the leadership of Dean James English (Mohl et al., 2013).

4 | ROLE MODELS

A major challenge she faced early in her career was finding a niche in research and scholarship. For this, she sought the help of many mentors in dentistry and medicine in Buffalo and at the NIH. “The two people at UB who served as great role models for me were Evelyn Jung and S. Howard Payne”.

Evelyn L. Jung, D.D.S., was the only woman in the University of Buffalo dental school 1930 graduating class (Hill, 2011). She joined the school's faculty in 1931 and became a full-time professor in 1950. “Evelyn Jung was in radiology. She did an outstanding job. She took jaw bones and put them in plastic and then the students took an X ray of them. This allowed the student to compare the model to the X ray. She took her teaching very seriously. She was the first woman that was ever hired as an instructor in the school. And I was the second.” PubMed listed eight articles with Jung as an author, describing various illustrative cases on the subject of supernumerary teeth. Her grandfather, Daniel Jung, her father, Emil, and his brother, Elmer, all

were dentists, as were her two brothers and two of her first cousins. After graduating from the dental school, Jung practiced in her father's offices and later with her brothers, frequently working until 11 p.m. during the World War II years. She died in 1987 at age 80.

"And then the other person ... was S. Howard Payne. He was a dentist and prosthodontist of national repute, because I think he was in various societies that were associated with prosthodontics." S. Howard Payne was a graduate of the UB School of Dentistry, class of 1937 (Anonymous, 2009). He soon joined the school's faculty as a professor and later became assistant dean. He was elected president of the Academy of the Board of Dental Prosthetics in 1966, lectured nationally and internationally, and published several papers and book chapters and served as section editor and consultant to the International Journal of Prosthetic Dentistry for more than 30 years. He played a pivotal role in establishing the department of dentistry and maxillofacial prosthetics at Roswell Park Cancer Institute.

5 | ON RESEARCH AND SCHOLARSHIP

"The faculty at the University of Chicago that were my supervisors for my master's thesis in the pathology department, had already informed me that the most important component of an academic career is to publish. When I came to Buffalo, I could not somehow incorporate myself in the Oral Biology Department (a newly-formed research department for the school). But, Roswell Park and University of Buffalo were trying to develop a PhD program in experimental pathology. So, I connected to a lab there in experimental pathology with Leonard Weiss".

L. Leonard Weiss, was chief cancer research clinician and director of experimental pathology at Roswell Park Cancer Institute for 30 years. He made contributions to understanding the fundamental mechanisms of the metastatic spread of cancer. He was the author of two definitive texts concerning the process of metastasis and was editor of numerous scientific journals and books. He published more than 400 articles in national and international medical and scientific journals (Anonymous, 2000).

"They were doing cell attachment. I saw this as the right time to do cell attachment for epithelial cells on teeth because at that time there were arguments on how the cells are attached. I worked in cell attachment for quite some time." This work supported her tenured associate professorship, which she said at that time was very easy to obtain. Promotion to full professor was more difficult, requiring many more publications and grant funding. Indeed, over the course of her career, Mitzi served as the principal investigator for several NIH research grants, and as a coinvestigator on a substantial number of federal and commercial grants. This work examined the effects of diverse compounds on the attachment of epithelial cells to apatitic surfaces, for example, chlorhexidine, endotoxin, and sialic acid (Neiders et al., 1970; Neiders & Weiss, 1970a, 1970b, 1971, 1972a, 1972b, 1972c, 1973; Weiss & Neiders, 1970, 1971) (Figure 2).

Mitzi's research focus changed in 1974 when she took a sabbatical leave in the Department of Microbial Immunity, National



FIGURE 2 From the left: Fred Emmings, Mitzi Neiders, Richard Gangloff, and George Greene (circa 1965)

Institute of Allergy and Infectious Disease, National Institutes of Health Bethesda, Maryland. Several substantial papers were published from the work she conducted there (McKeever et al., 1979, 1980).

"I have enjoyed being part of this school. It has been up and down, but I really don't have any regrets. If I wanted to do something, the school never said no. If you want to teach that course, go ahead. Nobody would be interfering if you wanted to write a grant. I wrote a grant in bacteriology, because I decided that *Porphyromonas (Bacteroides) gingivalis* is an interesting organism. And I wrote a grant. Now this was really risky, because I could not do any of the techniques that I proposed. And somebody from NIH, when they gave me the grant said, "you did a good job".

This funding enabled subsequent work that characterized fresh isolates of *P. gingivalis* in an established mouse abscess model, with laboratory strains of *B. gingivalis* as controls (Neiders et al., 1989). Remarkably, eight fresh isolates produced secondary lesions on the abdomen, with seven causing septicemia, while only two of seven laboratory isolates produced disseminated disease. This work, which has been well-cited, was among the first to provide evidence that *P. gingivalis* may be more virulent than other anaerobes isolated from periodontal pockets.

6 | THE ORAL PATHOLOGY PROGRAM AT UB

In 1963, George Greene was recruited from the Georgetown University School of Dentistry to serve as founding chair of UB's

Department of Oral Pathology and Director of the Oral Pathology residency. After receiving his BS degree from Notre Dame University and DDS from Columbia University in 1944, Greene served the Armed Forces Institute of Pathology (AFIP) as Deputy Chief, Assistant Chief and Senior Oral Pathologist of the Central Laboratory of the Veterans Administration at the AFIP. He was very active in several national pathology associations, and he co-authored the Syllabus for Dental and Oral Pathology in 1956, and the Atlas of Oral Pathology (AFIP) in 1970. The first residents admitted to the program included Stuart Fischman, Allan Drinnan, and Joseph Natiella, all of whom served as professors of oral pathology at UB, along with Gene Inio, who became the director of the Buffalo Veterans Administration dental residency program.

Early in her tenure, Mitzi taught in the admissions clinic for the school. "I was the Oral Medicine person. But, there were huge arguments, whether this oral diagnosis (department) should work out treatment plans. In the beginning we had to work out treatment plans for patients, but then none of the restorative people would follow it. So, then my commitment to this Oral Medicine part stopped." And, to this day, the process of patient screening and treatment planning remains a contentious issue at times.

Prior to the 1960s and the arrival of Dr. Greene, Oral Pathology was not a separate and distinct, well-organized discipline, or departmental entity at Buffalo. "There was oral pathology, but it was very interesting oral pathology... if you had a swelling, you used leeches (laughs)...that was in 1962...a lecture how did you use a leech. If you had swelling, usually leeches on there would reduce hematomas".

7 | WORKING WITH MEDICINE

"I interacted quite a bit with the general pathology department at UB because in the beginning I also taught general pathology. At that time, we had general pathology with microscopes, so I was really the one that could be in the laboratory. Also, at the same time, I interacted with pathologists from the VA. Some of our oral pathology residents had a rotation in general pathology through the VA". One of them was Jim Wytosh, whose interest in general pathology led him to medical school and ultimately the position of medical examiner for the City of Buffalo. Another person mentored by Mitzi who followed a similar path was Billy Ballard, the first African American in the oral pathology residency program, who eventually became dean of the medical school at Meharry Medical College.

8 | WORKING AS A WOMAN IN A MALE-DOMINATED PROFESSION

One of the major challenges Mitzi confronted early in her career were the difficulties resulting from working in a male-dominated profession. When she arrived in Buffalo, there were few women on the faculty and no female students. "But the equality of women, you know, I absolutely felt the conservative point of view, and the male

point of view, not only from faculty, but also with respect to the student body".

Mitzi has always been a very direct person who never hesitates to encourage those with whom she agrees, nor declines to speak out when she disagrees. "I found that, because there were only two women in my dental class, if I was more abrasive, I was not attacked as many times. So, people would fear what you said. And, I did not lie. I just shot straight". Before long, she noticed that the university wanted to integrate women in the governance of the University. "I was a token person that was put on all sorts of university committees. And I thought, if I'm a token, I'm going to say what I think. And you develop this style which does sometime hurt some people". Often, this encouraged others to take bold steps that they might not otherwise have taken. In many instances this resulted in their exceeding their own expectations.

Recognizing her own struggles, Mitzi focused on becoming an outstanding teacher devoted to her students. With a well-developed sense of empathy as a product of her own struggles, throughout her career she has demonstrated a special regard for under-represented groups at UB, that included women, minorities, and international students (<https://library.buffalo.edu/archives/ubpeople/detail.html?ID=2835>). She is pleased with the progress made in dental education and academia, as there are now many women on the faculty, and women often comprise over 50% of the student body. Nevertheless, she recognizes that challenges for women remain, especially for those who choose an academic path. As a result, she recently endowed the "Dr. Mitzi Neiders Educational Fund for Woman Faculty" at the University at Buffalo, to allow women pursuing careers in oral diagnostic sciences and periodontology to attain more training. (Potter, 2022).

Indeed, her work as a mentor for younger colleagues, especially those that chose academia for their careers, stands out. She often took note of people who had talents and skills that would mesh well with the needs of academia. If she felt that a trainee belonged in academics, she explained to them what teaching means as a profession, and the importance of research. Several of these trainees wound up with careers in academia, including her colleagues Alfredo Aguirre and Jose Luis Tapia in oral pathology, and Robert Cohen in periodontics, all now long-serving full-time members of the Buffalo dental faculty.

9 | EPILOGUE

In addition to her academic accomplishments, Mitzi raised and was supported by her two children, Dr. Ruta Nonacs, currently staff psychiatrist at Massachusetts General Hospital and Harvard Medical School, and Eric Nonacs, the principal at Golden State, a Nashville-based strategic consultancy. She is the proud grandmother of Ruta's children, Sofia and Naomi Schlozman, and Eric's daughter Georgia Nonacs.

"I think I did everything I wanted. I came and I wanted to be full professor. The school was not necessarily always supportive, but

there were so many opportunities, that you could take them. And the school did not interfere with your research directions or with your teaching directions, it just did not interfere. But, you know, those are the two things that I wanted to do in life, very early, and so I got it”.

ACKNOWLEDGEMENTS

The author thanks Mitzi Neiders for graciously agreeing to be interviewed about her professional experiences and career, and the University at Buffalo Dental Alumni Association for financial support for transcript preparation.

CONFLICT OF INTEREST

The author has no conflicts of interest.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/odi.14369>.

ORCID

Frank A. Scannapieco  <https://orcid.org/0000-0002-8804-6593>

REFERENCES

- Anonymous (2000). Dr. L. Leonard Weiss, cancer researcher. *Buffalo News*.
- Anonymous (2004). *UB international newsletter*. Spring.
- Anonymous (2009). Dr. S. Howard Payne, 94, prosthodontist, UB professor. May 4, 1914 – April 29, 2009. *Buffalo News*.
- Asaro, J. P., Nisengard, R., Beutner, E. H., & Neiders, M. (1978). Experimental periodontal disease: Reverse passive arthus reactions. *Clinical Immunology and Immunopathology*, 9(4), 398–407.
- Asaro, J. P., Nisengard, R., Beutner, E. H., & Neiders, M. (1983). Experimental periodontal disease. Immediate hypersensitivity. *Journal of Periodontology*, 54(1), 23–28.
- Clark, J. (2010). *SUNY at sixty: The promise of the State University of New York*. State University of New York Press.
- Hill, D. (2011). *Making their mark. A look at UB women in dentistry in the early years*. UB Dentist Summer.
- McKeever, P. E., Neiders, M. E., Nero, G. B., & Asofsky, R. (1979). Murine plasma cells secreting more than one class of immunoglobulin. VI. Secretion of completely assembled IgG2b and IgA molecules with segregated heavy chains and free light chains by spontaneous myeloma SAMM 368 in culture. *Journal of Immunology*, 122(5), 1972–1977.

- McKeever, P. E., Neiders, M. E., Nero, G. B., & Asofsky, R. (1980). Murine plasma cells secreting more than one class of immunoglobulin. VII. Analysis of the IgG2B and IgA precursors within the cytoplasm of spontaneous myeloma SAMM 368 in culture shows segregation of heavy chains. *Journal of Immunology*, 124(2), 541–547.
- Mohl, N. D., Scannapieco, F. A., & Fischman, S. L. (2013). How the insightful leadership of James English transformed a traditional dental school into a leading educational institution. *Journal of the History of Dentistry*, 61(3), 143–148.
- Neiders, M. E., Chen, P. B., Suido, H., Reynolds, H. S., Zambon, J. J., Shlossman, M., & Genco, R. J. (1989). Heterogeneity of virulence among strains of *Bacteroides gingivalis*. *Journal of Periodontal Research*, 24(3), 192–198.
- Neiders, M. E., & Weiss, L. (1970a). The contribution of sialic acids to the surface charge of human tooth particles. *Archives of Oral Biology*, 15(11), 1015–1024.
- Neiders, M. E., & Weiss, L. (1970b). Isolation of viable epithelial cells from human gingiva. *Journal of Periodontology*, 41(6), 325–332.
- Neiders, M. E., & Weiss, L. (1971). The electrical charge at the surfaces of isolated, human, epithelial gingival cells. *Journal of Periodontology*, 42(12), 761–765.
- Neiders, M. E., & Weiss, L. (1972a). The effects of chlorhexidine on cell detachment in vitro. *Archives of Oral Biology*, 17(6), 961–967.
- Neiders, M. E., & Weiss, L. (1972b). The effects of chlorhexidine treatment on the electrokinetic characteristics of enamel and cell adhesion to human enamel in vitro. *Archives of Oral Biology*, 17(6), 949–960.
- Neiders, M. E., & Weiss, L. (1972c). An in-vitro technique for the quantitative detachment of cells from tooth surfaces. *Archives of Oral Biology*, 17(12), 1731–1736.
- Neiders, M. E., & Weiss, L. (1973). The effects of endotoxin on cell detachment in vitro. *Archives of Oral Biology*, 18(4), 499–504.
- Neiders, M. E., Weiss, L., & Cudney, T. L. (1970). An electrokinetic characterization of human tooth surfaces. *Archives of Oral Biology*, 15(2), 135–151.
- Potter, G. (2022). "A fund to help women climb the dental academic ladder." UB dentist Summer: 8–9.
- Weiss, L., & Neiders, M. E. (1970). A biophysical approach to epithelial cell interactions with teeth. *Advances in Oral Biology*, 4, 179–260.
- Weiss, L., & Neiders, M. E. (1971). A biophysical approach to the adhesion of human gingival epithelial cells to tooth and glass surfaces. *Journal of Periodontal Research*, 6(1), 28–37.

How to cite this article: Scannapieco, F. A. (2022). Mirdza E. Neiders: A pioneer in oral pathology, oral health science research, and education. *Oral Diseases*, 00, 1–5. <https://doi.org/10.1111/odi.14369>