TRADITIONS

Genesis of Residency Programs in Dental Public Health: Reflections of the First Dental Public Health Resident?

Viron L. Diefenbach, DDS, MPH

A gamble by Dr. John Knutson 45 years ago possibly resulted in the prototype for today's residency programs in dental public health. The gamble was to convert a young clinical dentist to a public health dentist through field training experiences. The word residency was never mentioned. I doubt anyone involved was thinking about a residency at the time. In the fall of 1951, it is more likely the leaders in dental public health were congratulating themselves on having been officially recognized by the American Dental Association as an approved specialty. Among the founders of the American Board of Dental Public were Walter J. Pelton, John W. Knutson, Robert Downs, and Philip Blackerby, all of whom directly influenced my career.

Having served 18 months in the Public Health Service (PHS) and having been recently appointed to the Regular Corps (December 1950), I submitted an application for graduate training in public health. In truth, I did not fully understand what I was applying for, and my dental and medical colleagues at the time were equally ignorant, being involved only in clinical practice. Rumor had it that headquarters was interested in supporting a few young dentists to be trained in public health outside the service. The reply to my application was " ... Since you have been in the Service so short a time, the Committee (on Training) feels that other equally well-qualified candidates are entitled to prior consideration. The Committee urges you to apply again (next year)."

Subsequently, word of my interest got to Dr. John Knutson, director of the Division of Dental Health. He arranged for my transfer from the Division of Hospitals to the Division of Dental Health after moving from Los Angeles to the hospital in Cleveland, then to the Richmond, Indiana Demonstration Unit, and finally to Kansas City, all within six months.

On orders from Washington, I reported to the Regional Office of the Federal Security Agency in Kansas City on September 6, 1951. There I found Dr. George A. Nevitt. I had no idea what public health was, but I was about to find out. Dr. Nevitt extended his hand and asked, "How do you pronounce your name?" After I articulated each syllable he asked, "Do people call you Viron, Leroy, or what?" I replied that my nickname, "Dief," would be fine and he just chuckled. Dr. Nevitt cupped his hand around his left ear and said, "You have a hearing problem, Dief?" Ha, Ha! Oh boy, I wondered, what have I got here?

"Lee-roy" Diefenbach, 1952

Over a cup of coffee Dr. Nevitt said, "Well, I am glad you are here, but you should know that I didn't ask for you. Dr. Knutson thinks you might work out in public health and asked me to train you. Actually, the office is too small for a second desk. You are going to have to work off the end of this conference table. I might have trouble remembering your name. In Kentucky where I come from, your middle name Lee-roy is a popular name. I hope it will be all right if I call you Lee-roy." With a thin smile I nodded.

Dr. Nevitt added, "From the information Dr. Knutson sent me I see that you received an excellent rating in your hospital internship at Norfolk and you have done well in your clinical assignments before coming here. That's fine, but being a hot-shot clinician won't be of much use." From a file cabinet he brought out a small stack of journals and a few books. "First thing you do is read all the articles I've marked in these journals and Dr. Pelton's book 'Dentistry in Public Health' [1]. Just sit here and read everything until you know it. A week from now we'll find out how much Lee-roy knows about dental public health." The readings included the history of fluorides and major scientific studies on fluorine and dental caries. What a challenge! From the lofty pedestal of clinical accomplishment I had been reduced to chopped liver! After numerous discussions, debates, and arguments, Nevitt and I got along fine. He enjoyed confrontations, but he never let me forget that his pet name for me was Lee-roy.

In the months that followed, I learned more about Dr. George Nevitt. A native of Hardin County, Kentucky, he prided himself in being a good ole boy not inclined to pretensions. During his early years he was a close friend of Philip Blackerby. George often talked fondly about their similar philosophies of the dental profession and public health. I suspect Nevitt might have talked with Blackerby about the kinds of things that would be useful to convert a clinical dentist to public health thinking. George introduced

Dr. Diefenbach, retired assistant surgeon general, US Public Health Service, is dean emeritus and professor emeritus at the School of Public Health, University of Illinois at Chicago. Send correspondence to 22 Vista Ridge Drive, Galena, IL 61036-9256.

At the dedication of the Dental Health Center in San Francisco, a special ceremony honoring the "Father of PHS dental public health training," included the presentation of a gold finished portable dental chair and air compressor to the center's director, Dr. George A. Nevitt (standing left of chair), July 25, 1963, attended by several former trainees and the center staff.

me to Phil Blackerby during the meeting of the American Dental Association in 1952. At that time the newly formed American Board of Dental Public Health was getting its house in order and studying qualifications and standards of performance for diplomates of the board. Most of the talk was about who to "grandfather into board certification" and what eligibility requirements should be developed for future examination and certification. At the time I had no real understanding of these discussions and only learned about them from overhearing conversations others had with Nevitt, who had me continually in tow.

By the fall of 1951 the Grand Rapids, Michigan, and Newburgh, New York, community water fluoridation programs had been in operation for over five years. One part per million (ppm) of fluoride in water supplies was the accepted optimum amount. Higher levels of fluorides naturally occurring in drinking water were known to prevent dental caries, but had the negative effect of causing mottled enamel among people drinking the water. Less than the optimum level of fluoride in drinking water resulted in higher caries rates in children. Daily intake was known to be affected by climate and therefore the dental effects of small differences in amounts of fluorides ingested from drinking water in different climate zones warranted further study. Dr. Nevitt's idea was for the two of us to study this problem in Missouri, Kansas, the Dakotas, and Nebraska.

One morning Dr. Nevitt gave me a road map of the state of Missouri and said, "Leroy, we are going to begin our studies in Missouri for three reasons: (1) Dr. Presnell, the State Health Director, has invited us; (2) the Missouri Dental Society wants to promote fluoridation in St. Louis, Kansas City, and elsewhere; and (3) Dr. Presnell wants specific dental health data on Missouri children to use in promoting fluoridation in the 'show-me state.'" Nevitt told me to outline a plan for his approval and presentation to Dr. Presnell and the president of the State Dental Association. In those days attention to protocol and professional etiquette were the hallmarks of Public Health Service–state relations. State agencies jealously guarded their jurisdictions and federal people were *invited* to provide consultation and technical assistance. Unless protocol was followed, the Feds could be barred from activities in the states. Accordingly, correspondence from the Public Health Service regional offices was routed through the entire chain of command at both regional and state levels.

In October 1951, the project that resulted in the scientific publication entitled "A Study of Dental Caries Experience and the Fluoride Content of the Drinking Water of 3,206 White Children in Nine Selected Cities of Missouri" (2) was begun. The nine cities were located in a geographic band stretching across Missouri from Kansas City to St. Louis. Each city had a different fluoride level in the drinking water. The lowest level was 0.1 ppm.

While I was conducting examinations on schoolchildren in Missouri, the local newspaper reporter sometimes would appear unexpectedly, ask questions, and take pictures for a story. Frequently reporters inquired, "Is there something different about the teeth of our children? How does tooth decay in our children compare with kids in other cities? Is there something wrong with our water? What is this fluoride thing people are talking about?" And the local PTA or Kiwanis

club would ask me to speak at meetings to explain the study. In each city the local health director, superintendent of schools, principals, school nurses, dentists, and others needed to be informed and coopted through discussions. In Sedalia, Missouri, the piano player failed to appear for the Rotary Club Tuesday lunch. I volunteered to substitute at the regular piano and played the National Anthem and several sing-along songs as was their custom. Later I gave my little spiel about the dental study.

Regional office equipment available for the field study was a 1948 Ford station wagon, two portable dental chairs, two portable air compressors, two portable inspection lamps, and about eight dozen each of dental examining mirrors and explorers. The adjective "portable" is erroneous, as anyone will declare after carrying this type of equipment from a parking lot to a third floor school room. This assignment was another subtle way of determining a trainee's fitness for dental public health.

Dr. Trendley Dean, director of the National Institute of Dental Research (NIDR), learned of the project and believed that only NIDR investigators were capable of conducting such field studies. The Division of Dental Health was invading his turf. His objections were overruled, but he ordered Dr. Francis A. Arnold Jr., his deputy director, to meet with Nevitt and myself in Concordia, Missouri, to be "standardized in NIDR's DMF and Dean's fluorosis examination criteria and procedures." When this task was accomplished, Dean was appeased, but relations between NIDR and the Division of Dental Health were strained for many years thereafter over disagreement on turf. The Missouri study was completed by September 1952.

During the two years of training in the Kansas City Regional Office there were numerous opportunities to learn about public health, including health department organization at the state and local levels, program planning, administration and evaluation of program and personnel performance. In the 1950s state health departments received federal formula block grants for general program operations and categorical grants for specific program emphasis. Dental programs usually were a small part of the general formula grant that states received after a written description of plans were approved by the regional office staff and final approval by the Bureau of State Services in Washington. In addition, grant funds for programs aimed at mothers and children and their special needs including dental needs were available from the Children's Bureau, which was a separate federal agency.

Dr. Nevitt arranged for me to work directly with state dental directors when they were developing and writing their program plans and budget requests. Also, I was asked by directors of maternal and child health programs in Iowa and Missouri to help write their requests for funds from the Children's Bureau. In providing such assistance, I learned inside maneuvers of state health department personnel and how priorities and staffing patterns were set. Strengths and weaknesses of county and local health departments were discussed as part of the strategy. Subsequently, back in Kansas City, I participated in the Regional Office review of the grant applications, holding my breath while others were reading words I had written out in the states. This situation was a delicate one for a trainee learning the ropes. When it suited Dr. Nevitt's fancy, he would ask me to write letters for his signature, a ghostwriting exercise that would serve me many years later.

In the fall of 1952, the Annual Meeting of the American Dental Association (ADA) was held in St. Louis. Dental health insurance was the major subject of interest because hospital and medical insurance was being promoted and widely accepted. Could or should dental care be covered under insurance plans? This being my first ADA meeting, I attended all scientific programs and House of Delegate sessions that I could. A special bonus for me was seeing Dr. Frederick McKay recognized for his pioneering research on fluorides, dental caries, and mottled enamel. That evening in the hotel I came upon Dr. McKay sitting alone at the side of the lobby. I introduced myself and for the next 30 minutes had the distinct privilege of talking with him about his research, but especially about his interests in music and symphony conducting. That conversation left an indelible impression on me.

The dental directors in states neighboring Missouri heard about the study and invited Dr. Nevitt and me to conduct similar studies in their states. We obliged North Dakota next because of the cold climate and natural high fluoride content of several community water supplies. Beginning in November 1952, we studied the effects of natural fluorides in drinking water on dental caries and mottled enamel in children in 10 cities with fluoride levels of from 0.1 to 4.4 ppm (3).

During the course of these studies on the teeth of schoolchildren who had used water supplies having different concentrations of fluoride naturally present, I observed that the appearance of dental enamel in children drinking water with optimum levels of fluoride was unmistakably enhanced. The teeth appeared whiter, more pleasing in appearance and reflected light with a radiance. There was no question in my mind that optimal fluoride in drinking water resulted in beautiful white teeth, superior in appearance in a number of the children, though not all. Also, I realized that my observations were very subjective. Nonetheless, I developed criteria for a new classification of the appearance of teeth. The idea was frowned on, doubted, and belittled by my colleagues at the time. But Dr. Nevitt thought I was on to something and later he and I, along with Dr. John Frankel, tested the hypothesis in four communities in 1964–65 (4).

In December 1952, I once again applied for training outside the PHS and in February 1953, my application was approved for training in public health. In the meantime arrangements were made to conduct a dental study similar to the ones described above in 21 cities of Iowa beginning in January 1953 and concluding in April of that year (5). Concurrently, a study was designed to compare the dental caries experience of a selected sample of white and black children in Kansas City, Kansas (6). To satisfy pubic health officials in Nebraska, children in the city of Beatrice were examined to promote dental health and regular dental care in conjunction with the state dental society; however, the exercise merited only newspaper coverage.

Although there was no prepared list of tasks or written requirements for my apprenticeship in dental public health, there was an orderliness and a purpose to things I was assigned to do. The field studies on the relationship of fluorides in drinking water and dental

caries in children required extensive reading of the literature; comprehension of previous dental research; conceptualization of research design; learning dental public health indices and examination techniques; planning and organizing resources; and public relations with news media, state and local health departments, dental societies, and public school authorities. Processing the data, applying statistics, and preparing the reports for publication followed along with presenting the findings at public and professional meetings.

All these activities contributed to my learning specialized skills for the practice of dental public health. Along the way I learned many lessons about protocol, health policies, legal constraints, and the politics of health affairs. These lessons would serve me in the years to come. The opportunity for field training was offered after my proven capabilities as a student and dental clinician and were a prerequisite for the PHS to support my graduate education in public health.

That concluded the field training experience of the first dental public health trainee. In September I enrolled at the University of Pittsburgh Graduate School of Public Health and received an MPH degree in June 1954. My next assignment was the PHS Regional Office in Chicago, where my first job was to help the Board of Health and Mayor Richard J. Daley implement the new water fluoridation program for the city of Chicago by conducting a prefluoridation dental caries study of Chicago schoolchildren.

Being pleased with the success of "Lee-Roy," George Nevitt promoted the idea of training young dentists in PHS Regional Offices. Subsequently, Dr. Nevitt was the preceptor who trained Drs. John Frankel, John Greene, Sherman Cox, Robert Hansen, Donald Johnson, and others. Field training became Nevitt's shtick. An approved Residency Program was formally initiated at the Dental Health Center in San Francisco in the mid-1960s. After Dr. Nevitt was named director of the New Dental Health Center, several of his former trainees presented him with a portable "gold" dental examination chair and a portable air compressor at a special ceremony on July 25, 1963.

Today the guidelines for residencies in dental public health contain many of the elements that were mandatory in George Nevitt's training regimen. Eligibility requirements for board examination are based on standards that were developed in 1951–53. Some of the dentists who wrote the original guidelines were the same people responsible for Lee-Roy's career development. Chances are the original guinea pig without portfolio who served the apprenticeship in Kansas City was the genesis for the residency in dental public health.

But then again, I can't prove it.

References

1. Pelton WJ, Wisen JM, eds. Dentistry in public health. Philadelphia, PA: W. B. Saunders Co, 1949.
2. Nevitt GA, Diefenbach V, Presnell CE. Missouri's fluoride and dental caries study. A study of the dental caries experience and the fluoride content of the drinking water of 3,206 white children in nine selected cities in Missouri. J Mo State Dent Assoc 1953;33:10-26.
3. North Dakota State Department of Health. Relation of fluorides to dental decay. Health News of North Dakota State Department of Health. 1953;8:1, 3-4.
4. Diefenbach VL, Nevitt GA, Frankel JM. Fluoridation and the appearance of teeth. J Am Dent Assoc 1965;71:1129-37.
5. Henshaw CH. Twenty-one city study in Iowa shows fluoride in water reduces dental caries. Iowa Dent Bull 1953;39:227-31.
6. Bellinger WR. A study of the dental caries experience and the fluoride content of the drinking water of 1,472 white and 418 Negro children in Kansas City, Kansas. J Kan State Dent Assoc 1953;37:120-6.