



Forty Years of Behavioral Diabetes Research: A Personal Journey

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Editor's note | This article was adapted from the address Dr. Delamater delivered as the recipient of the American Diabetes Association's Richard R. Rubin Award for 2022. This award recognizes a behavioral researcher who has made outstanding, innovative contributions to the study and understanding of the behavioral aspects of diabetes in diverse populations. Dr. Delamater delivered the address in June 2022 at the Association's virtual 82nd Scientific Sessions. A webcast of this speech is available for viewing on the DiabetesPro website (<https://professional.diabetes.org/webcast/stigma-diabetes-care%E2%80%94evidence-and-solutions-richard-r-rubin-award-lecture>).

I was deeply honored to receive the 2022 Richard R. Rubin Award from the American Diabetes Association (ADA) at its 82nd Scientific Sessions last June and consider this recognition to be one of the highlights of my career. As I thought about what I would say in my talk at the meeting, I reflected on the fact that it had been exactly 40 years since I first began working in the field of behavioral diabetes and published my first article. So, I thought I would do two main things in the presentation: 1) tell my personal journey of work in the field these past 40 years and 2) review some of the most significant highlights of behavioral science in diabetes over these years.

Undergraduate Years

I did not set out to be a behavioral diabetes researcher; in fact, I took quite a circuitous route to get there. To provide some context, I spent my undergraduate years at Carnegie Mellon University (CMU) from 1971 to 1975. Growing up in central Pennsylvania, Pittsburgh was both far enough away from and yet close enough to home that it seemed like a good choice. Of course, it also was and is a first-rate university. I went there with an interest in psychology, but I thought I would eventually become a medical doctor. During the second semester of my freshman year, however, I enrolled in an innovative program—the Medieval Semester—that was an integrated approach to history, literature, philosophy, and consciousness studies. Twenty students (mostly juniors and seniors) took all of the classes together with five faculty members in one room that we decorated in the spirit of the times. Each student adopted a persona (complete with

costumes) from that era. I was a jongleur and learned how to play the recorder in a medieval band with some other students. My parents were chagrined that I was engaged in such an esoteric academic pursuit that seemed completely impractical, having rejected the pre-med curriculum for which I had initially registered that semester. However, it turned out to be one of the most significant experiences of my life and became the place where I learned to learn and where my thirst for new knowledge and discovery was reinforced.

I truly enjoyed and benefited from the strong liberal arts foundation I gained at CMU, where I earned a bachelor's degree in psychology. During my senior year, I decided to apply to graduate school in clinical psychology but was rejected from all of the schools to which I applied. It was a rude awakening at the time, *but I learned that, without some failures, success is usually not achieved.*

A few months after graduation, I remember sitting on Flagstaff Hill adjacent to the campus with one of my psychology professors to discuss my uncertain future. I was lost. He asked me to imagine my future, to imagine what was possible and what I ideally could do in this next phase of my life. As I looked at the skyline of the University of Pittsburgh, I realized that I wanted to work as a research assistant to gain some experience before attending graduate school. My professor asked me to be more specific: who did I want to work with? I remembered going to a lecture by a psychologist at Pitt a few months before and being very impressed. I thought he might be the

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person for whom I would like to work as a research assistant, but I could not remember his name!

I went to the University of Pittsburgh's Western Psychiatric Institute and Clinic (WPIC) on a mission to find that psychologist. After talking with several people, I eventually tracked down C. Keith Conners, PhD, the person who gave the lecture that had so impressed me. It was good timing; we sat and talked for about an hour and had a great conversation. Although he did not have a job for me at the time, he encouraged me to put together a research proposal and then volunteer with him. I did exactly that: went to the library like a good student and wrote a research proposal. After several months of volunteering, he one day told me that he had just received a new grant from the National Institutes of Health (NIH) to study food additives in children with attention deficit hyperactivity disorder (ADHD) and would now be able to hire me as a full-time research assistant. From this, *I learned that imagining what is possible, taking the initiative, and putting energy into a project sometimes pays off.*

My time at WPIC with Keith Conners (1975–1977) was very significant for my career development. Everyone needs a great mentor at some point in life, and he was the one for me. *I learned from him some important lessons about conducting clinical research: ask a good research question that is based in the literature; have a solid research methodology; do your work with integrity and without attachment to the results; make a contribution even with null results; develop a track record of programmatic publications; have balance in your life; and—last, but not least—the academic lifestyle is a really good one!* Based on my work with Keith, I began publishing scientific articles (1).

Graduate School

In 1977, I was ready for graduate school in clinical psychology and decided on the University of Georgia (UGA), where I was going to continue research in ADHD. Graduate school at UGA was intense and lots of hard work, but also fun. I completed my master's thesis, a psychophysiological study of children with ADHD, with Ben Lahey, PhD (2,3). I did my clinical internship at the VA Medical Center in Palo Alto, CA (1979–1980), where I had the opportunity to work with Stuart Agras, MD, at Stanford University, one of the early leaders in the field of behavioral medicine. I conducted a study with his group on cardiovascular reactivity in hypertensive adults (4), and that study became my dissertation research. My interest in behavioral medicine was solidified, and *I learned from Dr. Agras to take a broad view of the process of clinical research* (5).

Washington University

After completing my doctorate in 1981, I moved to Washington University in St. Louis, MO, for my first faculty position as an assistant professor in the Psychology Department. I was able to use a psychophysiology laboratory to continue my work in ADHD, and I also had an automated blood pressure monitor to begin work on cardiovascular reactivity in children. This was an exciting time for me professionally, as I had a number of excellent graduate students to work with, and we began a series of studies. Before I got very far in these studies, however, one of my colleagues, Ed Fisher, PhD, asked me to coauthor a review paper on the psychological aspects of diabetes for a special issue of the *Journal of Consulting and Clinical Psychology* focused on behavioral medicine. I agreed to write the section on children and adolescents. As it turned out, this was a major turning point in my career.

We took the big view in this review article, which was my first publication in diabetes—just 40 years ago (6). It was clear to me that the field of pediatric behavioral medicine research in diabetes was wide open, with many important research questions to ask. *I learned that when great opportunities arise, it's a good idea to take them,* and this was an opportunity I could not resist. I can thank Ed for steering me in this direction.

One of the first things I did was to set up a practicum for my graduate students at the diabetes clinic at St. Louis Children's Hospital to learn first-hand about the clinical issues faced by children with diabetes and their families. *I learned that getting involved clinically was the best way to learn how to frame good research questions.* My students and I went after the low-hanging fruit and did some unfunded research projects documenting dietary skills and adherence (7) and a lack of utilization of blood glucose monitoring data (8). Based on clinical observation, we recognized the importance of coping styles (9), social demand characteristics in reports of blood glucose monitoring (10), and learned helplessness (11).

The second thing I did was apply for a pilot and feasibility grant from the Washington University Diabetes Research and Training Center (DRTC). I proposed a study to examine the role of psychological stress as a contributor to sub-optimal glycemic control, and I received the grant (12). I was fortunate to have the support and active involvement of Julio Santiago, MD, an incredible physician-scientist who was instrumental in my career development. I talked with Julio about an idea I had to study a family-based self-management program for children with newly diagnosed type 1 diabetes, and he encouraged me to submit a grant application to the NIH. This was my first NIH grant application,

and I did not receive a fundable score. From this experience, *I learned that when it came to obtaining external support, one should expect challenges and failures, but that it is important to persist.* Julio believed in the study and agreed to provide some support through the DRTC, and we ran the study anyway. This was a very ambitious undertaking: a randomized controlled trial (RCT) with a 2-year follow-up period. It took several years to complete, but the results showed that the children who received the intervention had significantly improved glycemic control 2 years after their diagnosis than those who received standard care (13). It was one of the first demonstrations in the literature of behavioral interventions having a positive impact on glycemic control.

Wayne State University

In 1987, I moved to Detroit, MI, to take a position as associate professor in the Psychology Department at Wayne State University. (I had just gotten married, and my wife, Julie Long, MD, had matched for a fellowship in pediatric surgery at the Children's Hospital of Michigan.) I continued my work in pediatric diabetes, first focusing on health disparities. We conducted a retrospective chart review study and found that Black youth with type 1 diabetes had significantly higher A1C levels than White youth, after statistically adjusting for socioeconomic factors (14). This was one of the first studies documenting this health disparity in pediatric diabetes. I was fortunate to again have some great graduate students to work with, plus some funding from the Michigan Department of Public Health to support my research. There, we conducted a study showing that stress management training for ethnic minority youth with diabetes reduces their diabetes-related stress (15).

University of Miami

An opportunity arose in 1991 to move to the University of Miami in Florida, where I joined the faculty of the Department of Pediatrics as director of clinical psychology, based at the Mailman Center for Child Development. Being in the medical school in pediatrics had access advantages for my research program and fewer formal teaching responsibilities. As in Detroit, my colleagues and I conducted a retrospective chart review, again demonstrating significantly greater risks for metabolic control problems in ethnic minority youth with diabetes, including Hispanic youth (16). With another cadre of terrific graduate students, we continued studies examining factors accounting for health disparities in this patient population, including parenting styles (17), health beliefs (18), insulin pump therapy and quality of life (19), family involvement and acculturation (20), prescribed regimen

intensity (21), relationship satisfaction with the health care team (22), and intrinsic motivation for diabetes management (23). Fortunately, I was able to obtain NIH grants to support many of these studies, including a T32 research training grant (1998–2013) that provided funding for graduate students and postdoctoral fellows. I am still at University of Miami as a professor of pediatrics and psychology and director of clinical psychology in pediatrics.

Involvement With Professional Organizations

During the 1990s, *I learned that many opportunities arise for one's research career through activities and involvement with professional organizations.* Chief among these organizations has been the ADA. From 1994 to 1997, I was program chair for the ADA's Council on Behavioral Medicine and Psychology; I was a member of the Scientific Sessions Planning Committee from 1995 to 1997; and I served on the Research Policy Committee from 1998 to 2000. I also got involved with ADA publications, serving on the editorial board of *Diabetes Spectrum* (2000–2002) and as an associate editor for *Clinical Diabetes* (2002–2006). There were also opportunities to be involved as an author on ADA consensus reports (24,25).

The International Society of Pediatric and Adolescent Diabetes (ISPAD) has also been instrumental in my career. I was elected to serve as a member of the ISPAD Advisory Council (2006–2008) and was conference president for its annual scientific meeting in Miami Beach, FL, in 2011. Beginning in 2007, I was responsible for the ISPAD Consensus Guidelines on Psychological Care of Children and Adolescents With Diabetes (26), with updates published in 2009, 2014, 2018, and, most recently, 2022 (27).

Multisite Collaborations

Progress in research depends on having sufficient sample sizes to provide generalizable results. *It became clear to me that participation in multisite collaborative studies not only was essential for achieving scientific aims, but also had many benefits such as building new relationships and leading to ancillary studies and increased scholarly productivity.* In retrospect, I am very grateful for having participated in several multisite studies in which we made many important research contributions.

One of those NIH-funded studies was with Dr. Margaret Gray at Yale University in New Haven, CT. We conducted a study called TEENCOPE, testing an Internet version of coping skills training for youth with type 1 diabetes (28). This study was not only fun to conduct, but was also among the

first to demonstrate the benefits of Internet-delivered behavioral interventions for youth with diabetes (29).

Another successful NIH-funded collaboration was with Dr. Denny Drotar at the University of Cincinnati in Ohio. We designed a study to examine psychosocial factors associated with glycemic control in the transition from late childhood to early adolescence (30). With funding from a subsequent grant, we followed the cohort as they made the transition to late adolescence/early adulthood. For example, we learned about executive functioning (31), fathers' involvement in diabetes management (32), and self-management patterns (33) and tested a predictive model of diabetes management and glycemic control (34). Although Dr. Drotar died a few years ago, we are still actively analyzing findings as the cohort aged into early adulthood.

I also had the opportunity to work with a great team of investigators on the NIH-funded Study of Latino Youth (SOL-Youth), an ancillary study to the Hispanic Community Health Study/Study of Latinos. In SOL-Youth, we examined factors associated with cardiometabolic risk in a large sample of 8- to 16-year-old youth sampled from the epidemiologically based parent study (35,36). In this collaboration, we reported on many factors related to cardiometabolic risk, including sex differences (37), physical activity (38), chronic stress (39), insulin resistance and endothelial dysfunction (40), and resilience and mental health (41), among many other factors. Data analyses are ongoing from the incredibly rich data set resulting from this highly productive research team.

I was delighted to collaborate with Drs. Elizabeth Mayer-Davis, Dana Dabelea, and Katherine Sauder in another NIH-funded study to prevent type 2 diabetes in Native American children. The pilot study demonstrated the feasibility of the community-based approach (42). We are now conducting final data analyses on the subsequent larger RCT, which was disrupted by the coronavirus disease 2019 pandemic (43).

One more example of a multisite collaborative research group in which I participated is the Greenlight Study, an NIH-funded low-literacy obesity prevention program delivered in well-child clinic visits during the first 2 years of life. The results showed that the program was efficacious in reducing overweight during the first 18 months of life (44). Many ancillary studies from this project have been published, including studies showing, for example, the importance of acculturation and infant feeding styles (45), bottle size in infant weight gain (46), breastfeeding intentions (47), and food insecurity (48) in relation to early childhood obesity. We were able to obtain a competitive renewal to follow this cohort of children through the age of 5 years and subsequently obtained a grant from the

Patient-Centered Outcomes Research Institute to conduct a comparative effectiveness study evaluating the added benefits of a text messaging intervention to help families meet individually tailored goals. Many publications have resulted from this collaborative research program, and more are in process.

Major Achievements of Behavioral Diabetes Research

In reflecting on the achievements of the field of behavioral science in diabetes, there are several examples to discuss. Perhaps the most recognizable study in modern diabetes research is the Diabetes Control and Complications Trial (DCCT) (49). Although this study was recognized to be a major achievement in demonstrating the importance of glycemic control in preventing health complications, it also demonstrated the importance of behavior change. In discussing the DCCT findings, Ed Fisher (50) noted that the DCCT was a model of behavioral intervention, showing how to promote sustained adherence. He further recognized that the DCCT essentially provided social support for diabetes acceptance, as well as support for adherence to intensive therapy regimens. Thus, the DCCT was actually one of the best examples of behavioral science in diabetes, although perhaps not initially recognized as such.

The Diabetes Prevention Program (DPP) was another landmark study in diabetes clinical science (51) and was clearly a major achievement for behavioral science in diabetes as well. The intervention consisted of a lifestyle change program with the goals of 150 minutes/week of moderate to vigorous physical activity and a 7% body weight loss. The DPP used a standardized curriculum plus tool kits that were implemented by various interdisciplinary providers on an individually tailored basis. It was, at its heart, a resourceful behavioral trial to meet specific goals for patients, and it showed that behavior change really matters. Participants receiving the lifestyle behavioral intervention demonstrated a reduction in type 2 diabetes risk of 58%, compared with a 31% reduction provided by a pharmacologic intervention alone (with metformin).

Another significant event in behavioral diabetes research occurred in 1999, when the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) convened a conference on behavioral science research in diabetes. Four working groups discussed psychosocial therapies; lifestyle changes related to obesity, eating behavior, and physical activity; diabetes prevention; and health care delivery. Each group identified key findings and barriers to progress, recommended research priorities, and published their reports in *Diabetes Care*. I was cochair of the psychosocial therapies working group for that effort (52).

The work of these four groups summarized the state of the science and outlined next steps. At that time, there were many solid research findings about the significance of behavioral factors in diabetes, but more work was needed. Recommendations for pediatric populations included 1) longitudinal cohort studies with larger samples to determine causal relationships among psychosocial factors, adherence, and glycemic control; 2) intervention studies with larger samples from specific patient populations; 3) more multisite studies; 4) a focus on high-risk patients, including those with chronic sub-optimal diabetes management as well as low-income, single-parent families, ethnic minority patients, and patients with psychopathology (e.g., depression and eating disorders); 5) research focused on effective means of regimen intensification; 6) consideration of cultural sensitivity in intervention design and delivery; 7) integration of behavioral and psychosocial services into routine diabetes care; and 8) analysis of the cost-effectiveness of psychosocial interventions.

Recommendations for work with adult populations included 1) identification of specific psychosocial factors that influence adherence and glycemic control in large patient samples using longitudinal designs; 2) inclusion of ethnic minority, low-income, and elderly individuals; 3) placing focus on social and family support, individuals with psychiatric disorders, and/or health complications; 4) establishment of effective interventions for patients with depression, anxiety, and eating disorders; 5) assessment of how to improve self-management and coping skills to promote long-term health and quality of life for specific patient populations; 6) more multicenter trials to document the efficacy of findings drawn from smaller, single-site studies; and 7) evaluation of the integration of psychosocial interventions into disease management by targeting high-risk patients and demonstrating cost-effectiveness in real-world settings.

Fortunately, the NIDDK heard these recommendations, and, in the following years, a number of requests for applications and program announcements based on them set the agenda for behavioral diabetes research at the NIH.

Another major achievement of behavioral science at this time was the description and promotion of the RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) framework, which understood diabetes as a public health problem that needed a population-based solution (53,54). This perspective pointed out that “the characteristics that cause an intervention to be successful in efficacy research are fundamentally different from and at odds with programs that succeed in population-based effectiveness settings” (55). From this point of view, it was clear that intervention results may be efficacious under specific circumstances, but may not

replicate across other settings, casting doubt on generalizability. Effectiveness research is different from efficacy research. The essential questions concern identifying the characteristics of interventions that can reach populations, be adopted in different settings, be consistently implemented by various staff members, and produce replicable and sustained effects at a reasonable cost (55). This was a major contribution that helped us focus on translation of research into applied settings with practical real-world effects and shaped the research agenda accordingly. The NIDDK followed by making translational research a funding priority.

Another achievement in the field of behavioral diabetes was the ADA position statement “Psychosocial Care for People With Diabetes” (56). This statement concluded that psychosocial care should be integrated with collaborative, patient-centered medical care and provided to all people with diabetes, with the goals of optimizing health outcomes and health-related quality of life. This recommendation was consistent with consensus guidelines published by the ISPAD for the psychological care of children and adolescents with diabetes, emphasizing the significant role of psychological and social factors in diabetes management.

The ADA then partnered with the American Psychological Association to develop a diabetes education program for mental health providers. This program was designed to address the growing need for mental health professionals to be trained in the complexities of diabetes management and effective treatment strategies specific to people with diabetes. The program includes a two-part, 12-unit diabetes continuing education program for licensed mental health providers and is building capacity for psychologists and other mental health professionals to be knowledgeable about diabetes management and skillful in working with people with diabetes.

There have been many advancements in behavioral diabetes during the past two decades, including a number of longitudinal cohort studies and multisite RCTs, in both pediatric and adult populations. Much of this work is summarized in *Behavioral Diabetes: Social Ecological Perspectives for Pediatric and Adult Populations*, a 2020 book I edited with David Marrero (57). The book was organized into pediatric and adult sections, each providing a social-ecological approach examining individual, social, community, and policy levels of influence, including prevention and intervention studies, and consideration of cultural factors and health disparities, all written by leading researchers in the field.

The field has continued to move forward in recent years, with more studies focused on the integration of behavioral health into routine clinical care of patients with diabetes. For example, in pediatric diabetes, intervention studies have

shown the efficacy of brief in-clinic family teamwork interventions (58), and psychological screening programs for depression (59) and anxiety (60) have been shown to be feasible. My colleagues and I recently reported on our use of a comprehensive psychosocial screening program demonstrating that there is a high rate of such problems and that youth who screened positive had insulin adherence issues and suboptimal glycemic control (61). Having pediatric psychologists integrated with the interdisciplinary health care team has benefits for patients as well as insurers; patients who met with psychologists during their clinic visit were shown in a recent study to have better subsequent glycemic control and reduced health care costs (62).

We have also seen tremendous recent advances in technologies for diabetes management, including the development and more widespread uptake of new insulin analogs, insulin pens, better insulin pumps, basal-bolus insulin regimens, better blood glucose meters, and continuous glucose monitoring (CGM) systems. Despite these advances, however, optimal glucose control remains an elusive goal, with the majority of youth in the T1D Exchange not meeting the general A1C goal of <7% (63). In fact, it is fair to say that, despite all of these new technologies, patients today are facing the same issues they did 40 years ago: difficulties with psychological adjustment (i.e., dealing with the loss and lifestyle impact of having a chronic condition); how to manage interpersonal relationships with family and peers (i.e., dealing with conflict vs. finding social support); learning diabetes self-management skills and how to adhere to a treatment plan to achieve glycemic goals; and figuring out how to use glycemic data from glucose meters, CGM systems, and insulin pumps. One of the big issues for us is to better understand how, at the health care system level, we can effectively help patients achieve these goals; this remains the real challenge of translating the DCCT. For both patients and providers, there is a recognition that diabetes distress is the norm and that complete self-care autonomy is not realistic (despite the benefits of autonomy support).

Significant Issues for Future Research

We still face a number of significant research questions. Here are eight key issues from my perspective. Not surprisingly, chief among these continues to be the translation of the DCCT and the DPP to specific populations. Second, we need interventions to help meet glycemic targets using social-ecological, person-centered approaches. We also need to increase the use of advanced technologies such as the automated insulin delivery (AID) systems, as well as expanding the use of digital health technologies (telehealth) and social marketing strategies to increase reach to various patient populations. A fifth issue is to

increase the inclusion of high-risk patients in psychosocial and behavioral intervention research. Additionally, we need to conduct more research in real-world settings to increase the external validity of findings. This means using flexible, adaptive research designs and appreciating the need to be both evidence based and evidence informed. We also need integrated behavioral health care models that address costs and benefits, including stepped-care approaches. Finally, we need to focus on closing the disparities gap so that low-income and ethnic minority patients can attain optimal diabetes management and avoid health complications. Clearly, until diabetes is effectively prevented and/or cured—and that appears to be in the distant future—psychosocial and behavioral issues will remain significant factors in diabetes care.

My Next Steps

I am still very engaged in behavioral diabetes research. One of my current collaborations is with Stuart Chalew, MD, in New Orleans, LA. Funded by an R21 grant from the NIDDK, we are attempting to close the loop on health disparities in type 1 diabetes by conducting a feasibility study with Black youth who are using AID systems (64). We have conducted focus groups and interviews with parents and youth and run a field trial, and we are now conducting a controlled pilot test to demonstrate the efficacy of this approach with this patient population.

In Miami, my colleagues and I are continuing our work on integrated behavioral health care for youth with diabetes, including quality improvement studies using our comprehensive psychosocial screening program. We are also conducting studies to learn more about the role of mindfulness in diabetes management and are planning a study to understand more about how ADHD affects diabetes management. This last study signifies that the wheel has come full circle for me, considering my early days as an ADHD researcher. We are applying for a grant to fund a postdoctoral fellow to conduct this study in collaboration with the T1D Exchange.

Of course, there are many studies completed, with data yet to analyze and articles still to write from the various multi-site studies, as well as single-site studies, in which I have been involved through the years. I look forward in the next year to moving many of these reports off my plate and finding them homes in various peer-reviewed journals.

Richard R. Rubin

In closing this article, I want to reflect a bit on Richard R. Rubin, a man whose legacy is reflected in this behavioral diabetes research award. I got to know Richard in the mid-1980s,

when the group that became BRIDGE (Behavioral Research in Diabetes Group Exchange) first began to meet. In those days, the meeting was a fairly small invitational event, with no formal presentations, but rather lively discussions about research plans (as it still is, but now on a slightly larger scale). Although we were not close friends, we were friendly colleagues and got to know each other and enjoy our times together at various professional meetings.

In 2007, I was asked to write a letter on Richard's behalf to support his promotion to full professor at Johns Hopkins University in Baltimore, MD. I did so gladly and will include here an excerpt from my comments:

“Dr. Rubin has made very significant contributions to the research literature in the field of diabetes. In particular, he has demonstrated his expertise in several areas within the field, including depression, diabetes education, quality of life, and psychosocial and behavioral intervention research As a lecturer, he is outstanding. In fact, I would consider Dr. Rubin to be among the best public speakers I have ever heard in the scientific community. He has a unique talent in this area and is an extremely articulate and engaging speaker Many of Dr. Rubin's publications and presentations are directed to patients, and he therefore has made very substantial contributions to dissemination of scientific knowledge to the public through books, columns, articles in lay magazines, newsletters, the Internet, and invited speeches He has made very substantial contributions to the field of diabetes, not only through his original research, but also through leadership in multisite trials and professional organizations such as the ADA and outstanding teaching of professionals and dissemination of scientific knowledge to the community of patients and public at large through his expert public speaking. He has clearly established himself as one of the leading experts in the country, and indeed internationally, regarding the psychosocial and behavioral aspects of diabetes.”

I can only add to that that Richard was an individual of impeccable personal integrity.

Conclusion

As I reflect back over the course of the past 40 years, I am amazed by how quickly time has passed. The field of behavioral diabetes has grown exponentially from the time Ed Fisher and I first wrote a literature review in 1982 on the psychological aspects of diabetes. The field of diabetes management has also grown tremendously, with incredible technological advances and an expansion of medical knowledge. However, the same psychological issues remain for patients, and the same challenges remain for us as health care

professionals: How we help patients manage diabetes effectively, attain glycemic targets, reduce their risk of health complications, and enjoy an optimal quality of life.

Although I did not plan a career focused on behavioral diabetes research, my professional life certainly worked out that way. My personal journey consisted of many eagerly taken opportunities, many lessons learned, ongoing personal involvement in working with patients with diabetes, programmatic research, and success in securing the external funding to support that work. Getting involved with professional organizations such as ADA and ISPAD enhanced my career significantly and led to many new opportunities, friendships, projects, and travels. I am tremendously grateful for the many graduate students and postdoctoral fellows I have had the privilege to work with, and to the many incredible colleagues with whom I have had the pleasure of collaborating through the years within the close and prolific community of professionals in behavioral science in diabetes.

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