

PETER ANDREW MCCULLOUGH, MD, MPH: An Interview With the Editor



Peter Andrew McCullough, MD, MPH^{a,b,*}, and William Clifford Roberts, MD^a

Peter McCullough was born in Buffalo, New York, on 29 December 1962. When a teenager, his family moved to Texas (Wichita Falls and later to Grapevine). He graduated from Baylor University in May 1984 and from the University of Texas Southwestern Medical School in June 1988. His residency in internal medicine was at the University of Washington School of Medicine in Seattle, Washington. Upon completion of his 3 years training in June 1991, he moved to Grayling, Michigan, and served as an internal medicine attending at Mercy Hospital for 2 years. From there he enrolled in the University of Michigan School of Public Health and received a Master in Public Health in August 1994. From July 1994 until June 1997, he was a fellow in cardiovascular diseases at the William Beaumont Hospital in Royal Oak, Michigan. He then joined the Henry Ford Heart and Vascular Institute in Detroit where he remained until August 2000, when he moved to Kansas City, Missouri, to be Section Chief of Cardiology of the University of Missouri – Kansas City School of Medicine, Truman Medical Center. In October 2002, he returned to the Detroit area and to William Beaumont Hospital as a Consultant Cardiologist and Division Chief of Nutrition and Preventive Medicine—where he remained until August 2010, when he became the Chief Academic and Scientific officer of the St. John Providence Health System, also in Detroit. In February 2014, Dr. McCullough joined Baylor Scott & White Health as Vice Chief of Internal Medicine at BUMC, Chief of Cardiovascular Research of the Baylor Heart and Vascular Institute, and Program Director of the cardiovascular disease fellowship program at BUMC.

Dr. McCullough's career has been adventurous and incredibly productive. He is an internationally recognized authority on the effect of chronic kidney disease on cardiovascular disease. He has >1,000 publications to his credit, and received several honors, mainly for his outstanding contributions to the understanding of the cardiorenal syndrome. Currently, he is chair of the National Kidney Foundation's Kidney Early Evaluation Program (KEEP), the nation's largest community screening effort for chronic kidney diseases. Peter is also co-editor of *Reviews in Cardiovascular Medicine*. He is one of medicine's best speakers and his presentation topics have varied widely. He is a wonderful teacher and mentor, a marathoner of extraordinary proportions, the proud father of 2 teenagers, and a great guy. During the several months he has been at BUMC he has



Figure 1. Peter A. McCullough, MD (PAM) in 2012.

shown his star brightly. He has had a terrific impact on the cardiovascular training program at the Baylor Heart and Vascular Institute and on its staff. We are most fortunate to have attracted him to Baylor Scott & White Health.

William Clifford Roberts, MD (hereafter ROBERTS): *Dr. McCullough, I appreciate your willingness to come to my house for this interview. Could we start by my asking you to describe your early life, some of your early memories, your parents, siblings, and your growing up period?*

Peter Andrew McCullough, MD, MPH (hereafter MCCULLOUGH): Dr. Roberts it is a privilege to be here. I was born in Buffalo, New York. My parents are Thomas Leslie McCullough and Mary Ruth McCullough. I have 2 siblings, Thomas McCullough, Jr, my older brother and my younger brother, Matthew McCullough.

ROBERTS: *What was your mother's maiden name?*

MCCULLOUGH: Zimmerman. My mother was adopted so we don't know anything about her biological family. Both of my father's grandparents came from Northern Ireland. My early life was a happy one. We lived in a small house in Tonawanda, New York, which is just outside of Buffalo. My dad worked in a Western Electric factory as a supervisor. My mother stayed at home and raised the boys. I went to elementary school, junior high and one year of high school in Buffalo, New York. In 1975-1976, there was an economic recession in the industrial north including Buffalo, Pittsburgh, and Cleveland, and the factory that my dad worked at was shut

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Figure 2. Parents, Thomas and Mary McCullough, 1974.



Figure 3. PAM in backyard playing football, age 16.

down. After several unsuccessful attempts at getting another job that was sustainable, we sold the home and moved to Wichita Falls, Texas, in 1976. My father worked at Sprague Electric on the third shift and worked as a factory line supervisor. We lived in Wichita Falls where I went to S.H. Rider High School as a sophomore. We stayed there for a year. My father then obtained work in facilities management at Abbott Diagnostics in Irving, Texas. Our family then moved again to Grapevine where finished my junior and senior high school years.

ROBERTS: *How did you do in high school with all the moving around?*

MCCULLOUGH: My brothers and I did fairly well adjusting. I went to 3 high schools in 3 years so that really broke up any opportunities for friendships but I stayed active. I played club soccer in the Buffalo area, soccer for Rider High School, and then club soccer in Grapevine. I also

ran track in Buffalo. Sports helped. My brothers and I were naturally academically focused. We didn't need or get too much pushing from our parents.

ROBERTS: *When were your brothers born?*

MCCULLOUGH: Thomas was born on February 23, 1960, and Matthew, February 26, 1966.

ROBERTS: *What do your brothers do now?*

MCCULLOUGH: Thomas is a senior vice president at Xanitos, which is a hospital consulting company, and Matthew a senior vice president at Fidelity Investments.

ROBERTS: *How many students were in your graduating high school class?*

MCCULLOUGH: About 200.

ROBERTS: *How did you stand among those 200?*

MCCULLOUGH: I was third.

ROBERTS: *Did your brothers do similarly in their graduating classes?*

MCCULLOUGH: My older brother ranked second and my younger brother was in the top 25%.

ROBERTS: *Did either of your parents go to college?*

MCCULLOUGH: Yes. My father graduated from the University of Buffalo with a degree in geology. It was always unclear what he would do with that degree and he ended up taking a job in the factory following in his father's footsteps. My paternal grandfather, who I never knew, died of rheumatic heart disease at age 52 when I was a toddler. He had mitral stenosis and had an attempted open commissurotomy but afterwards died of heart failure. The Irish diaspora during the great potato famine of 1850 brought many Irish to the USA. It's been said that 25% of people in the USA have Irish blood in them. New York City and Boston are heavily Irish. My maternal great-grandmother died in the tenements in New York of Bright's disease (post-streptococcal glomerulonephritis). The streptococcus wasn't too kind to the crowded Irish after they arrived on the boats and were processed through Ellis Island and settled in to "Hell's Kitchen"—as evidenced by two affected generations of my family.

ROBERTS: *Where is the Hell's Kitchen area?*

MCCULLOUGH: It's about 44th or 45th Street in Manhattan. It's a nice area now. Hell's Kitchen was an incredible melting pot from Western European countries. My mother was adopted by childless parents and went to college at Bowling Green University in western Ohio, and graduated with a degree in English. Only about 20 of my graduating high school class went to college. I knew through high school that I wanted to go into medicine.

ROBERTS: *Were there any other medical people in your extended family?*

MCCULLOUGH: One physician married into our family, and that was when I was in grade school. *Al Santos, MD*, is now a retired cardiologist. He is Brazilian and married my paternal aunt. He spent most of his career in a community/academic role in Rochester, New York. He was the chief of cardiology at St. Mary's Hospital until it closed and then at Highland Hospital. He helped Dr. Brad Berk unite the community hospitals with the University of Rochester — Strong Memorial Hospital.

ROBERTS: *Did you spend much time with him?*

MCCULLOUGH: I did. Al was a positive role model. He took me to the hospital several times on rounds in which he taught students and residents.

ROBERTS: *How far is Rochester from Buffalo?*

MCCULLOUGH: About an hour.

ROBERTS: *In high school, did you and your brothers have part-time or summer jobs?*

MCCULLOUGH: We worked incessantly. In Buffalo the very first thing my brother and I did at the age of 10 and 12 years old was become paperboys. At that time, paperboys were the ones who delivered newspapers. We worked for *The Courier Express*. We delivered papers during grade school and would get up early, organize the papers, put them in the bag and walk our paper route to deliver the newspapers. We did this for years. On the weekends we would strap on the coin holder to our belts and go around and collect the money. Typical payment was in dimes and quarters. When we moved to Wichita Falls, my older brother got a job at the Wichita Falls Country Club picking up golf balls and I got a job for the Wichita Falls Newspaper delivering newspapers. The distances were greater in Texas and I could no longer walk and used a bicycle with a giant basket on both sides of my back wheels. In Texas the papers did not have to be taken up to the front door but thrown up. I became adept at riding without hands on the handlebars and throwing the papers. When moving to Grapevine, at ages 15 and 16, my brothers and I bought cars and auto insurance with the money we had saved from our paper routes. I worked in the laundry room and kitchen at a nursing home and then got a job at DFW airport where I worked in the candy/newspaper stores. Then I worked in the warehouse that supplied the stores and pack all the delivery boxes and deliver them to the stores. In high school I spent hours working.

ROBERTS: *You never required a lot of sleep?*

MCCULLOUGH: No. I have always gotten 6 to 8 hours of sleep each night.

ROBERTS: *You mentioned soccer and track in high school. Did you start running for exercise while you were in high school or did all that come later?*

MCCULLOUGH: All that came later.

ROBERTS: *How did you decide on Baylor University for college? How did you pay for college?*

MCCULLOUGH: I finished high school at age 17. Baylor University offered a terrific financial aid package which covered for all my expenses through a combination of grants and scholarships.

ROBERTS: *You had a car to drive back and forth to Waco?*

MCCULLOUGH: Yes. I had a Dodge Charger, which lasted all through college.

ROBERTS: *Were there any teachers who had a particular influence on you?*

MCCULLOUGH: Yes. In elementary school the gym teacher, *Bruce Radka*, taught us a sense of fairness, especially with the more aggressive games.

ROBERTS: *What was the atmosphere in your home. Did all of you eat dinner together at night? What was a typical conversation at dinner?*

MCCULLOUGH: My father was reliably home by 5:00 pm at night. We always had dinner together. The conversations were largely lead by my father and were largely directed at my mother. The general environment encouraged the kids to be silent—seen but not heard.

ROBERTS: *Did they ask you much about your activities at school and how they were going?*

MCCULLOUGH: No.

ROBERTS: *They just took it for granted that all 3 of you were going to do pretty well.*

MCCULLOUGH: There just wasn't much of a discussion about expectations. There was an unspoken emphasis on proper behavior.

ROBERTS: *What did your parents talk about?*

MCCULLOUGH: My father was always chronically frustrated with his career and with what he had done professionally. My sense was that given his intelligence he could have done a lot more. Conversations were largely based on his frustrations with his supervisors, his job, and financial pressures.

ROBERTS: *Was the atmosphere of your home pleasant? Did your father and mother fuss at the kids very often?*

MCCULLOUGH: I would characterize it as a fair amount of tension. It encouraged us to get out of the house.

ROBERTS: *Were there books around the house? What did your father and mother do at night?*

MCCULLOUGH: They watched television.

ROBERTS: *They didn't spend a lot of time expanding their intellectual powers?*

MCCULLOUGH: No, my dad had some interesting hobbies that didn't really spill over to the kids. He was a talented chess player. He played chess by mail, where they would mail post cards across the world. He had a US ranking in chess. He played chess tournaments on the weekends. He also painted with some oils but mainly water colors. He would go through spurts painting many canvases in short amounts of time. He displayed his art in local art shows.

ROBERTS: *Do you play chess? Or paint or draw?*

MCCULLOUGH: No.

ROBERTS: *Did you play any musical instrument in school?*

MCCULLOUGH: I learned to play guitar. Today I can play an A, C and G and that's about it.

ROBERTS: *Did you like your time at Baylor University?*

MCCULLOUGH: I loved Baylor. I made the soccer team in college. I came off the bench and played relatively infrequently. I traveled all around the Southwest Conference schools so I have good memories of play against schools like SMU and Rice. Soccer was considered an NCAA sport in the Southwest Conference but it didn't have any type of stature in the University.

ROBERTS: *Were you a walk-on?*

MCCULLOUGH: Yes. Those were fond memories my freshman year but also we had daily practices, and all the weekend road trips really curtailed study time. I was not very successful my first semester so it became clear to me

that something had to go. I couldn't balance both athletics and academics to the degree that was really needed to be successful. About half of the undergraduates that enrolled were pre-medical, but the 1200 fell to about 200 who actually applied to medical school. The final group that applied to medical school was virtually 100% accepted. I was accepted at UT San Antonio and planned on going there. Then I got a call from Brian Williams, dean of UT Southwestern, indicating there was a spot for me in July. Naturally, I was thrilled and accepted. I think I was the last one of 201 students accepted to UT Southwestern.

ROBERTS: *How did you come out at Baylor University?*

MCCULLOUGH: My rank was 29 of 131 among the pre-meds. I got my degree in biology and psychology. I was 127 of 1152 among the total graduating class.

ROBERTS: *You entered Southwestern Medical School in 1984?*

MCCULLOUGH: Yes.

ROBERTS: *Were there any surprises after entering medical school?*

MCCULLOUGH: No. I felt very well prepared. I have to give credit to the professors and to the whole program at Baylor University. There were some wonderful professors at Southwestern: *Dr. Maximillian Buja* in pathology; *Al Gilman*, pharmacology, who later won the Nobel Prize, and *Vinay Kumar*, an editor of our pathology textbook. UT Southwestern had an absolutely superb faculty during my first two years. It was a very competitive atmosphere. The professors fostered that competitiveness. *Donald Seldin*, chief of internal medicine, was very influential. He held teaching conferences on the wards during my third and fourth years. The students were very intimidated by his teaching style. He pimped for information. *Jim Willerson*, chief of cardiology, with a very soft voice, was very persuasive in encouraging us to know all the information about our patients. The emphasis at Southwestern Medical School was putting in as much time as possible. The care of patients at Parkland Hospital at that time was almost exclusively provided by students, interns, and residents from Southwestern. The attendings taught on the medicine wards. The emergency department care of patients was exclusively by residents. Parkland emergency room was organized into "pits": medicine, surgery, psychology, and Ob-Gyn. A student could be called down to any one of these "pits" to assist. This time was before there was computerized medical information. Our daily routine was to get to the floors early, draw blood samples on patients, and get them to the labs. Around 10:00 or 11:00am, we would go get the lab results and put them in the patient's chart.

ROBERTS: *Were there any professors who had a particular influence on you?*

MCCULLOUGH: I was influenced by *Pat Claggett*, a vascular surgeon at the Veteran's Administration Hospital in Dallas. He was a terrific teacher. Dr. Claggett would explain to the patients, usually sitting on the side of the beds in their hospital gowns, where the blockages were. He would start drawing a giant aorta and the common iliac arteries on the bed sheet where the blockage was. Then, the other veteran

bed mates would come over and be amazed at the drawings and start giving their opinions. Pat went on Christian mission trips for as long as a year deep in the jungles of Africa. When returned, he would give a slide show of astonishing illnesses he had seen. He would describe how they worked there with minimal equipment, medicines and used rudimentary lighting during operations. His talks were mesmerizing.

I was lucky enough to be a student at Baylor University Medical Center in Dallas, one of the last to get the 2-month BUMC medicine rotation. Students at Southwestern spent 2 months at Parkland and then 2 months at either the VA Hospital or BUMC. When I was at BUMC, *Bob Hootkins*, now a nephrologist in Austin, was my senior resident. He was a terrific senior resident. I also had exposure to *John Fordtran*, the co-editor of *Slesinger and Fordtran*, the major textbook in gastroenterology. I have terrific memories of BUMC. Even as a student at Southwestern I was interested in learning in community hospitals and learning from the physicians who maybe were more engaged in patient care than in research. There was a young pulmonologist at St. Paul who was a terrific teacher, *Randy Rosenblatt*, so I signed up to do pulmonary medicine under him, and it was terrific. My experience under all three — Parkland, VA Hospital and BUMC — was exceptional. I met my future wife during medical school. She was going to the School of Nursing at Texas Women's University. We lived in the same dormitory in Dallas. She finished nursing school before I finished medical school and returned home to Toronto, Ontario, to live with her parents while I finished medical school. On my elective I went to Toronto to the Hospital for Sick Children, to be on the orthopedic service with *Robert Salter*. He is known for the *Salter-Harris fracture classification* for hip fractures. When I arrived, they asked me what I wanted to do. I said I wanted to operate. They told me they didn't have students operating but that I could observe. I told them down at Parkland as students we scrubbed in and operated. I convinced them to let me be a part of the operating team. So, I scrubbed in on an enormous number of cases as a student, largely holding the retractor, getting to do at least do some part of the case. I also met *Tony Bobechko* who invented the "Bobechko hook" which could be attached to rods and these rods would go along the spine to correct for severe kyphoscoliosis. The Hospital for Sick Children orthopedic service was incredible.

ROBERTS: *When did you decide that internal medicine was the area for you?*

MCCULLOUGH: I nearly went into surgery. I really liked surgery and I was good at it. I think it was the sheer depth of internal medicine made me realize in my fourth year — infectious diseases to cardiovascular — that I loved medicine. I also knew what I didn't want to do — psychiatry, obstetrics and gynecology, and pediatrics.

ROBERTS: *When did you get married?*

MCCULLOUGH: I met my wife, *Maha Buyuk*, in 1984. She is from Jerusalem and is a Palestinian Christian. We got married in 1988, the year I graduated from medical school.

ROBERTS: *Where did you intern?*

MCCULLOUGH: Although I applied at Parkland Hospital, I wanted to leave Dallas and I applied to Harvard, Johns Hopkins, Yale, Penn and then University of Washington (Seattle). I interviewed at all of them and liked them all. Seattle was the only one in which I took my fiancé with me. The day was bright, sunny, and cool. We saw Mt. Rainier. We decided that Seattle was the best combination. The other unique quality is its basically one residency program for the entire city. The University of Washington residents in medicine and surgery covered the 5 hospitals — University Hospital, the VA Hospital (which was the VA hospital for Washington, Alaska, Montana and Idaho), Harbor View Hospital (the county hospital), Providence Hospital, and the Swedish Hospital. The training experience in Seattle was absolutely spectacular. *Robert Petersdorf* the chief of medicine had just retired the year I started my residency. We had a terrific faculty at all 5 hospitals. We also had the excitement in Seattle of being where the Nobel Prize was awarded to one of our faculty — *E. Donal Thomas* — who won for bone marrow transplantation. One of the other hospitals we covered was the Fred Hutchinson Cancer Research Center. During my time there the nuclear disaster at Chernobyl, Russia, occurred and they flew some of these poor fellows who had been exposed to radiation to our cancer center. At this stage I was influenced by *Michael Copass*, neurologist, and the emergency room director, *J. Ward Kennedy* and *W. Douglas Weaver*, both future presidents of the ACC. They devised the “Medic One Unit”. This was the premier paramedic response program in the U.S. Seattle is an interesting town because it’s very hilly, compact and surrounded by water and has bridges. They devised a response program where the nearest fire house would send a fire truck and then follow with a paramedic unit. They made Seattle the best place to have a cardiac arrest because the response was so fast and organized. They were the leaders in early defibrillation. The big firehouse, where the paramedics were stationed was next to Harbor View Hospital where *Michael Copass* was the director its emergency room. The paramedics enormously respected Dr. Copass. The rotation both feared and loved by all the residents was his Harbor View emergency room rotation. *Michael Copass* was a military man and wore a brush cut and wore the old style glasses with a white sleeved button-down shirt, blue tie and khaki pants every day. He wore a belt loaded down with 6 beepers, because he kept communications on all the emergency transfer traffic in the entire Pacific Northwest. We had Airlift Northwest coming from Alaska and Idaho. The Harborview emergency room was run by second-year residents so the highest ranking person in medicine was called the “Medic-One doc” and the highest ranking surgeon was “Trauma One doc”. We would see all patients in ER with no attending and a beeper would go off with message “Medic-One doc go to the phone room” so we would have to leave what we were doing and go into a closed room with a battery of phones, pick up the call regarding the emergency. I distinctly remember several cases where the patient had a ruptured abdominal aneurysm.

Part of the work there was to get the patient transferred to the correct hospital and get the hospital alerted. On one case I incorrectly approved a suspected triple AAA patient being taken to the Ballard Community Hospital and immediately the red phone (who was *Michael Copass*) called and questioned my decision and corrected my mistakes. There were many Harborview emergency room stories. One concerned mass cyanide poisoning on the docks. Some big canister of cyanide that was used for industrial reasons had broken and many men had been exposed. I was in a panic from all ready dealing with a busy night in the ER and while the paramedic was talking to me the red phone rang at around 3:00 am. I knew it was *Copass* and he started barking out instructions on what to do. Instead of making me feel intimidated he enabled me by telling me what I needed to do: call police to help gather all cyanide treatment kits across the city; organize the hallways at Harborview to triage all the patients; call the surgery residents and get blood gases on every single patient; figure out quickly who needs to be intubated or who just needs oxygen and who needs the cyanide reversal injections kits. He helped me organize the whole thing and we ended up treating 25 people with only 3 needing intubation. Cyanide is toxic so we had to take all clothing away, put it in bags to dispose, and all the workers wore the paper gowns.

ROBERTS: *What was your standing in your medical school class when finishing?*

MCCULLOUGH: I finished number 1 in the clinical years and twelfth of 199 during the entire 4 years.

ROBERTS: *When did you decide you wanted to be a cardiologist?*

MCCULLOUGH: When I finished in Seattle, I was completely lost. When I finished the medicine residency I didn’t know what to do. I was offered the chief residency position at Harborview but my wife didn’t want to stay another year in Seattle. She felt we were too far away from family. I signed up with World Health. I applied to a few towns that were advertising for physicians. I ended up in Grayling, Michigan, with a population of about 2,000 people. The service area was approximately 4,000 people. The unique thing about Michigan is that it is surrounded by water. We were about an hour away from Traverse City, Michigan. The closest specialist we had was about 2 hours from Petoskey, Michigan. A fellow from Duke University, *Chuck Williamson* and I agreed to come to Grayling and be the internal medicine physicians. There was a handful of family physicians, 2 surgeons, and one ob-gyn specialist. We had a very busy office and were responsible for about 80% of patients in the 100-bed hospital. We took turns covering the emergency room. They gave us a house, they gave my wife a job at the hospital, and I signed up for a 3-year tour of duty. In return, I got all my Texas-guaranteed student loans paid off. I got a signing bonus and at the time received a pretty handsome salary. Thus, fairly soon after residency I was financially stabilized.

ROBERTS: *How did you enjoy that experience?*

MCCULLOUGH: Those were the hardest working years of my life! I got to the office as soon as humanly



Figure 4. PAM filming TV commercial at Beaumont Hospital.

possible in the morning and did not stop until 10:00 or 11:00 at night. So many patients to see: no students, no residents, no helpers, just a massive amount of work — all the history & physicals, spinal taps, intubations, Swan-Ganz catheterizations, stress tests, gastroenterology procedures, and bone marrow biopsies. I was the first person up in northern Michigan to give streptokinase for acute myocardial infarction. I was the first one to diagnose a case of HIV and report it to the Michigan Department of Community Health. It was a terrific experience. I really enjoyed working with Chuck Williamson. He was the only African-American person in the town. After 2 years, Chuck decided to go back to Duke for a residency program in orthopedic surgery. I decided during the experience that at least half of internal medicine was cardiovascular disease. The other thing I realized was that I craved any type of academic interaction. If a doctor came to town to give a lecture I really broke my back to get there to maintain some connection to academic medicine. The other thing I learned was that there were too many terms that I had no understanding about — relative risk, hazard ratio, odds ratio, and regression analysis. So I negotiated to leave Grayling and go to Ann Arbor, Michigan, for my third year and attend the University School of Public Health. Then work on a public health degree in epidemiology and statistics. I did emergency room coverage and to make an income to keep supporting my family. Then I made my application to cardiology fellowship.

ROBERTS: *Where did you go for your cardiology fellowship?*

MCCULLOUGH: My uncle, Al Santos, suggested I apply to William Beaumont Hospital in Michigan. I told him I was not familiar with that program. He said that William O'Neill left the University of Michigan and went to Beaumont Hospital and that they are turning cardiology upside down. Cindy Grines was there and she had just published in the *New England Journal of Medicine* the primary angioplasty vs. thrombolytics trial and it took the country by storm. My

fellow fellows were top of the line graduates of US medical schools and of very good residencies. My fellowship class included Jim Schafer (from Southwestern), Joe Redle, and Rick Thompson. We had a terrific fellowship. Beaumont had a core group of 8 to 10 clinically busy physicians who were top-of-the-line academicians. The cardiology training was the best possible. The cath lab was a magical place where several new techniques were being developed including primary angioplasty with the angioplasty balloon, and the very first use of stents in cardiology. And my fellowship class designed, conducted, and published 5 randomized trials including the use of amiodarone to suppress atrial fibrillation after cardiac surgery, medicine vs. angiography in thrombolytic exclusion patients, fluid management to reduce contrast injury, and bleeding management trials.

The first item I published was a letter with data in the *New England Journal of Medicine* with Bill O'Neill. The piece discussed regional variation using angiography in acute myocardial infarction. It made the point that technology and evidence were changing in the US. That Beaumont Hospital was influencing the whole country to change from thrombolysis to primary angioplasty as a mode of treatment for acute myocardial infarction. The credit for this change belongs to Bill O'Neill, Cindy Grines, Robert Safian, and the dedicated interventionalists at Beaumont.

ROBERTS: *The Beaumont group was criticized enormously for doing angioplasty rather than thrombolysis in acute myocardial infarction patients, but they kept at it and proved that primary angioplasty was the better of the two?*

MCCULLOUGH: It took a lot of hard work, persistence, perseverance, and resilience. I'll never forget Bill O'Neill's arguing at meetings with the old guard and others who had sided on thrombolytics. Cindy Grines, both beautiful and intelligent, and a great debater, would frustrate Topel. John Webb, a fellow from Vancouver, Canada, wanted to learn how to do balloon valvuloplasty and Bill O'Neill taught him. Later on Bill performed the very first TAVR in America. Beaumont Hospital under Bill O'Neill's leadership became the nation's busiest, cardiovascular hospital. In the *US News & World Report* the Beaumont Hospital ranked #12, and the first 11 were full medical schools. O'Neill's leadership style was very autocratic and decisive—I have tremendous respect for him. Our cath lab was run in a very standardized way. The other rule that he had was if a private practitioner ever had a problem in the cath lab of any type that he could call for help — Bill O'Neill, Cindy Grines, Rob Safian, Jim Goldstein, or one of the experts and they would drop what they were doing and help out. That support system for the private practitioners provided by O'Neill's administration was masterful. Doctors from all over wanted to bring their patients to Beaumont Hospital because he created a rich environment for learning, innovation, and the highest level of patient care. He had 8 interventional fellows (2-year fellowship), and 16 clinical fellows to support the cath lab. Patients came to Beaumont from all over the world. At that time some university fellows graduated with a catheterization case experience of ~250; at Beaumont, I finished with >1700 cases.

ROBERTS: *How did that break down eventually? Why did Bill O'Neill leave?*

MCCULLOUGH: I think it was the arrogance of the administrators. Beaumont had become the nation's busiest and most highly ranked hospital in most areas of medicine. In 2007, the administration decided that it wanted its own medical school, but without funding or faculty plans. This desire tore the institution apart with the arrival of a new Dean and no plan to leverage the academic excellence of the institution. Many of the major medical leaders left. I left in 2010 and in the wake of multiple division chiefs who would leave the institution.

ROBERTS: *Is it still a medical school?*

MCCULLOUGH: The Oakland University William Beaumont School of Medicine exists today but at a great cost to Beaumont hospitals and the doctors who brought it to greatness. Hospitals and medical schools are not substantiated by brick and mortar, but by people! It's about people. Hospitals cease to exist without people. My personal view is the people who invest decades of their lives, and build great institutions as Bill O'Neill did in the end do not reap the rewards or the credit they deserve.

ROBERTS: *When you left William Beaumont Hospital, where did you go?*

MCCULLOUGH: When Doug Weaver moved to the Henry Ford Hospital in Detroit he offered me a staff job in 1997.

ROBERTS: *How did that work out for you?*

MCCULLOUGH: I had a terrific experience. I shared office space with Sid Goldstein, a giant in heart failure. They had a NIH project program grant in heart failure, led by Tony Sabah, PhD, and Doug Weaver was the new chief of cardiology. I quickly became the director of the cardiology fellowship. I helped start the interventional program doing the administrative work. I spent 3 years there. President Clinton was in office at the time and he had reached out to the CEO of Henry Ford to be on the advisory panel for healthcare. He couldn't make it to all the meetings so he went to Weaver and asked him to go but he was unable and suggested that I go in his stead. I ended up making a lot of trips to Washington and as such was a very junior person on Clinton's advisory panel. It gave me a chance to see how legislation was written. It was a failed attempt. I pushed for free information exchange so hospitals could send information to each other. The idea was drowned out by privacy concerns and private groups that thought medical information would be too free. In the end we never wrote legislation that could be voted on. Literally, a few days after we were dismissed, the HIPPA legislation was written without any physician input, without any input from the advisors, and to this day we are left with legislation that markedly restricts our ability to send records to others. It was created at tremendous expense and resulted in endless complaints about inability to get patient information. I had a great experience at Henry Ford, but I was recruited to be the new chief of cardiology at the University of Missouri — Kansas City where we had 2 hospitals — Truman Medical Center (County hospital) and the Mid-America Heart Institute.

ROBERTS: *When did you move to Kansas City?*

MCCULLOUGH: September 2000. I was the young chief with a small staff. I loved that medical school because it is one of the few 6-year medical schools. They took students right out of high school. They interviewed the parents and made sure they were mature and psychologically stable. I loved working with the "docent" model, which is terrific. These kids were enthusiastic and rapid learners. The docent team always had a pharmacologist on the team — Pharm D. I loved rounding because we spent much time discussing drugs. I had a great experience there. But there is a balance of life and family — my wife was very happy in Detroit and Michigan through the years because she was close to her family in Canada. She did not like Kansas City. We had been unable to sell our house in Michigan. In fact when we left the pipes burst and major flooding caused expensive repairs. I was on an academic salary trying to pay 2 mortgages and financially couldn't swing it. Regrettably, I resigned after 2 years.

ROBERTS: *Its not that you didn't like the job?*

MCCULLOUGH: I loved it. Best barbecue ever, even better than Texas. Kansas City is a great city to have fun in and to raise a family. I had exposure there to *Ben McAllister*, who directed research at the time. I also got a taste of administration as chief of cardiology. I turned 40 in Kansas City, and was honored in their business magazine in the *Top 40 Under 40*.

In 2002 I returned to Beaumont as a cardiologist and also ran the Division of Nutrition and Preventive Medicine. In that unit we had internists, endocrinologists, behavioral psychologists, and dieticians. We had an exercise physiology group and cardiac rehabilitation. I met *Barry Franklin, PhD*, in exercise physiology. He is one of the best podium speakers we have in the world. He publishes books for lay people, has done TV shows, and is world class. Barry has taught me a lot about life, being persistent, always being positive. Barry always knew how to manage himself. I was still young and trying to make my way so at times would come across as being too brash and Barry helped coach me. I think the greatest thing that Barry gave me was to teach me how to write. Barry worked so hard on his writing and when we did a paper his editing would be so extensive our manuscripts would bleed red ink. It was not just science but it was about sentence structure, syntax, vocabulary and being concise. Barry would go through every table and make sure the numbers reconciled. If we had numerators or nominators he made sure the percentage in parentheses was correct. Barry was probably one of the top examples of how a PhD working with cardiologists can really elevate our academic game. I held that position and was kind of a partner with Barry from 2002 to 2010. By 2010, Bill O'Neill had left, Cindy Grines was about to leave, and things were really disintegrating at Beaumont Hospital. We had gone through the recession in 2008 when the economy started to drop and all of us had our salaries reduced. I'll never forget they called us into a room and said the economy is crashing and the administrator said that the hospital is losing money and our first step is to trim the salaries of physicians. Beaumont only employed 500 doctors and had 3600

physicians on staff and had 15,000 nurses but their first step was to get the 500 doctors. The second thing we were asked to do is buy bonds in the hospital. I took a salary cut and bought bonds in the hospital. To this day I own bonds in William Beaumont Hospital.

ROBERTS: *Do they pay anything?*

MCCULLOUGH: 4.125%. By 2008, by 2010 we had become so administratively mired in trying to start the new medical school in a bad financial environment that I think everyone was scrambling. There was a neighboring community health system, St. John Providence Health System that was part of a national health system called Accession Health, who offered me the top physician-administrator position and I accepted even though I loved the time I had working with Barry but saw a lot of things dissolving and there was a chance quite honestly to move up considerably in pay and rank. I was the Chief Academic and Scientific Officer of the St. John Providence Health System and was essentially an academic dean. I was in charge all of our graduate medical education programs for the entire health system. We had 56 residencies and fellowships, and 612 residents and fellows. I learned about senior administration and how to execute and grow revenue from various sources for education programs. Our revenue was \$110 million. I learned how to organize and run dental training programs. We had a dental clinic that I was responsible for in partnership with the dental school. I managed research across 20 research centers. I was in charge of the credentialing and verification office, in a sense the chief medical office for the health system. All the doctors who applied for privileges and their applications I was responsible for overseeing. At that time I had one day a week in clinic and occasional hospital rounds. I maintained clinical cardiology practice in the office and in-patient rounds on internal medicine at 2 of our hospitals. I was enjoying the senior executive life. I had clawed my way up community health systems, academics and administration.

ROBERTS: *When were your children born?*

MCCULLOUGH: Haley was born on April 28, 1995, and Sean on September 29, 1996, both at Beaumont Hospital. Our children grew up in a suburb of Detroit. They had a great childhood and attended public schools. My daughter had finished high school and just started Michigan State University when my world was rocked when we had a leadership change in the health system. The health system CEO, who was a part of recruiting me, moved on to be the national CEO and then a new CEO came in triggering a "regime change." One of the first commands given to me was to fire one of my directors of medical education who had been there for nearly 20 years, without strong justification. It made me feel very uncomfortable. The director was a DO and ran osteopathic programs and I really needed him because these are very different than MD training programs. I started to see this happen where in the physician world we just don't fire each other but in the administration world firing does happen in order to establish authority and dominance in administrative hierarchies. For the first time in my life as

I started to see this play out I learned some important lessons - how to manage an attack that was forcing me out of the organization — and how to negotiate the terms of leaving because there is an opportunity for severance, health care and financial security.

But in July 2013, after a three-year term as chief academic and scientific officer I left the St. John Providence Health System. At that point and time I had basically concluded that I had done everything I possibly could in Michigan. There wasn't another personal step for me to take there. I had watched both my brothers stay in Texas and raise their families and be very successful. Detroit was on the verge of declaring bankruptcy. The one thing that was very clear was that all our friend's children were finishing college, and none were staying in Michigan because there were no jobs. I looked at jobs across the US and was thrilled that BUMC under the leadership of Mike Emmett recruited me to return to Texas and help as part of an academic staff. Baylor is a excellent health system after recently merging with Scott & White health system. The Baylor Scott & White system is the largest system in Texas. BUMC is the flagship of the entire system and Baylor has spawned 2 dedicated heart hospitals, the Baylor Heart Hospital in Dallas and the Baylor Heart Hospital in Plano. So many exciting things are going on that I almost feel like it has the same feel as Beaumont Hospital did nearly 20 years ago. Baylor has recruited one of the nation's leading young cardiac transplant surgeons, *Gonzo Gonzales*. The Baylor Heart Hospital in Plano has probably the nation's most acclaimed senior cardiac surgeon, *Michael Mack*, and yourself, Dr. Roberts, who we view as really the world's authority on cardiac pathology, Paul Grayburn who is one of the absolute experts on echocardiography. I am filling a role that is partially void after Clyde Yancy left BUMC and went to Northwestern University in Chicago. BUMC it is absolute terrific opportunity. My action plan and family plan is to make this my last job as I move and ascended the ladder. I am very happy with where I am and want to stay at BUMC for the remainder of my career. It's interesting that I started out at Baylor University in Waco and hopefully finish out at BUMC in Dallas.

ROBERTS: *You are filling a major role at BUMC leading the cardiovascular division, the fellowship program, and cardiovascular research. What do you hope to do in the next 10 years at Baylor Scott & White Health?*

MCCULLOUGH: With the organization of Baylor Scott & White and the current 46 hospitals in the system and with the talent that is present, BSWH as a health system can be one of the dominant health systems in the USA. I want to help energize and lead those efforts in cardiovascular medicine. We have an enormous opportunity now with the convergence of electronic sources of information, modern computing, the human genome, and our understanding of molecular and cellular tissue biology. BSWH has a unique positioned because of our strength of community practice, academics, and the resources that are available to take the leadership role in Texas. I hope that we all can pull together

in our recruitment efforts and in our intellectual efforts to make that happen.

ROBERTS: *I have been very careful and precise through the years about my CV because it serves as a professional diary in so many ways. I was humbled by your CV, which contains the most exquisite detail of any CV I have ever witnessed and I have seen several hundreds of them in the last 50 years. You have been in different centers and have had a wide variety of responsibilities in each of them, in addition to the private practice of cardiology at each of them. Your research endeavors have been maintained on a very constant or increasing level. How have you been able to maintain your academic excellence in expanding our basic medical knowledge? How did you drift into the kidney realm? I realize that cardiorenal is just one of your many research areas but clearly it's a big one?*

MCCULLOUGH: I had a very deep dive on clinical exposure during my rural health years. I saw patients' morning, noon and night during rural health experience, 7 days a week, and became very clinically confident. My weakness was academic, scholarly work. At UT Southwestern I was never in an academic research lab. The University of Washington was a complete clinical residency, not an ounce of scholarly work. I was introduced to clinical research by the group at Beaumont Hospital and the degree in epidemiology and statistics from the University of Michigan gave me an understanding data and analytic frameworks and how to approach questions with solid hypothesis testing. I fortunate to enroll at University of Michigan when I did, as a few years earlier logistic regression was not even possible through modern computing. The other thing that I latched onto early on was the importance of electronics—how to type at a keyboard correctly, how to manage software, and computers. Learning to speak clearly and confidently for presentations became important. I had professional coaching on how to become a better speaker and how to carry myself in front of a big audience. I was terrified at doing that when I was younger. Now I enjoy it almost to the point of being a ham. I had the fundamentals, had a great clinical confidence as a base, and formal training in outcomes research. The only thing I needed was a research area of interest. One night at Beaumont Hospital we were doing an angioplasty on a patient and Bill O'Neill was the attending and we saved the patient by opening up the left anterior descending coronary artery. We saved his life with an acute STEMI and then we watched him slip into renal failure and die. I asked Bill how often this happened as a complication and he said it happens too often. When it happens it is a vicious syndrome. I said to myself that it sounded like a good research area. As a fellow I organized and launched a study on data from 1,826 patients with acute myocardial infarction. We chronicled what happened to them in terms of their renal function and serum creatinine and we published an article in *The American Journal of Medicine* "Acute renal failure after myocardial infarction: Risk factors and relationship to mortality." That article was frequently quoted.

ROBERTS: *What year was that published?*

MCCULLOUGH: 1997. I was stimulated by the idea that kidney function could so profoundly influence cardiac survival. I began collaborating with nephrologists. I ended up doing more research and more publishing with nephrologists than cardiologists. I've maintained my board certification in both cardiology and internal medicine. I've become the chairman of the National Kidney Foundation, the Kidney Early Evaluation program, which is a nation-wide screening program. I've had the chance to be the national chairman of that for the last 5 years. I'm on the editorial boards of about 12 journals overall and more than half are nephrology journals. I very much would call myself a *cardionephrologist*. Years ago there used to be the department of cardiorenal medicine and there is still a cardiorenal advisory board. The kidneys take a quarter of the cardiac output. Our entire important neurohormonal are our cardiorenal systems. It's really been a terrific area of research. I used to office at Henry Ford with *Paul Stein* who was a cardiologist but he became very much an expert in thromboembolism and did PLOPED 1 and PLOPED 2. He told me in academic medicine that you have to go where you are wanted—I guess I'm wanted in nephrology as I am in cardiology. Collaborations in clinical trials has led to opportunities on steering, event, and data safety and monitoring committees.

One of my more substantial contributions is in being the co-leader in the B-type natriuretic peptide (BNP) multinational study in 1999. I was approached to help organize a group of investigators to test a new blood test for heart failure - BNP. I chaired the publications committee. We started in 1999 collecting over 1,500 patients with suspected heart failure and we perspective in a blinded way evaluated BNP as a blood test. The study showed that BNP was very helpful in establishing a diagnosis of heart failure in the emergency department. In 2002, we had a late breaking clinical trial presentation at The American College of Cardiology; we had a first paper in *The New England Journal of Medicine* and a first paper in *Circulation* all on the same day. That a pivotal achievement. That was probably the highlight of my academic career. We ultimately published 25 articles over the next 2 years on all the applications of BNP. Today BNP or NT-proBNP is used as standard blood test in most hospitals in the world and it is very gratifying to play a role in the history of its development.

ROBERTS: *Of all the work that you have done, what are you most proud of?*

MCCULLOUGH: The appreciation that kidney function truly influences the natural history of cardiovascular disease. Early on, renal function was considered just a miscellaneous topic. Many of my detractors would say that patients with decreased renal function just have greater comorbidities—a problem of confounding. It was really diabetes mellitus or high blood pressure that was the problem. Most would agree today that kidney function and kidney disease do influence cardiovascular disease and vice versa. Cardiovascular disease influences renal disease. That's what we call the

cardiorenal syndromes. A real highlight was testifying before the FDA Cardiorenal Panel and the Congressional Oversight Panel on medicinal products for patients with chronic kidney disease. It was an honor to be considered an expert and have valued opinions on the topic. That testimony took months of preparation and evoked a lot of perspiration that day on C-Span. Among so many influential people in my career, Gene Braunwald and Peter Libby reached out to me early on to write the chapter on renal disease in Braunwald's *Textbook of Cardiology*, which was an enormous honor. I've done 4 revisions of that chapter. I've had a chance to meet Dr. Braunwald and travel with him to China and see him frequently at the meetings. I believe he's correctly earned the title of being the "Father of Modern Cardiology". For the remainder of my career, I can tell you that if a single therapy comes forward that improves the health of the heart and kidneys chronically or acutely, above current standard of care, I'll be enormously satisfied that my work with nephrologists over all these years has paid off.

ROBERTS: *You have kept your body in very good shape through the years. You have run marathons (26.2 miles) in every state in the US. Is that correct?*

MCCULLOUGH: When I finished high school I was 68 inches tall and weighed 140 pounds. By 1994, at age 32, when I was finishing rural health in Michigan, I weighed 206 pounds. I looked at myself in 1994 and looked down over a potbelly and told myself that if I can't solve my own health problems how could I expect my patients too? Subsequently, over time I have tried everything: starvation, different diets, exercising sporadically. It took from 1994 until 2004 (10 years) to get back to a healthy lifestyle. I now make healthy choices and control portions. Healthy choices are high sources of protein and fresh fruits and vegetables and portion control is limiting that food intake to < 1800 calories and less on days I don't exercise. I don't eat sugar, starch or saturated fat. I tell patients this all the time. Starch is basically baked goods — flour, rice, potatoes, cookies, crackers, pretzels. I've never met a patient yet that loses weight and doesn't figure that out. We do not need sugar, starches or saturated fat. They provide no essential amino acids, no essential fatty acids, and are a bad source of fiber. Nevertheless, they are the majority of calories in the human diet—particularly starch or "carbs". At a weight of 206 in 1994, I did not look good, or feel good, and I was not exercising. By 2004, I had gotten fit, and had built myself up from 5K to 10K to half marathons and in 2004 ran the Detroit marathon (3:45). My goal was to run a marathon successfully, but when I came home, I was shaking uncontrollably, cold, felt awful, and swore I would never do that again. I had gotten my weight down from 206 to 136 pounds the day of the race. I had lost 70 pounds and was running very lean. I did respectable with a 3.45. A year later, the second one was the White Rock Lake Marathon in Dallas. While racing I saw marathoner shirts with the slogan "50 States Marathon Club" affirming they had run marathons in all 50 states. I learned about this club which had been around since 1970 and there are about 3,000 members that have attempted this goal. Currently about 600 have accomplished it. It's said that more people have climbed to the top of Mt. Everest than have

finished this goal. I ultimately became part of this group and began to race around the country on weekends, which took an enormous amount of time and effort. But between 2004 and 2012, I completed all 50 states, Washington, DC, Canada, Asia, and Europe. So I have run a total of 54 marathons.



Figure 5. 50 States Marathon Finisher 2012.

The last one I finished was in Kona, Hawaii. That was like running between huge charcoal briquettes on a human grill. I have since retired from marathoning. While still racing, I was involved in a Beaumont study where at a Detroit marathon we studied a random sample of people before the marathon — magnetic resonance imaging, echocardiograms, Holter monitoring — and after they finish the race. We repeated the MRI. We were shocked to find extreme right ventricular and right atrial dilatation in about 25% of the individuals along with elevations of troponin, BNP, and evidence of acute kidney injury. Our hypothesis is that marathoning creates a tremendous right-sided chamber dilatation. There may be slippage of cardiomyocytes due to the severe right-sided cardiac dilatation. Others have found that marathon running is associated with little patches of fibrosis in the left ventricular wall at the hinge points where the right ventricle joins the left ventricle. Individuals who die during marathons die primarily because marathoning itself causes this form of a cardiomyopathy — "Phidippides cardiomyopathy". Phidippides was the first Greek herald who ran far more than a marathon distance and died as a result. This concept is controversial. Some exercise researchers believe that more running is better; I don't. A terrific runner from northern Michigan, Ryan Shey, died in the qualifying marathon for the Olympics in Central



Figure 6. PAM in China 2003.



Figure 7. PAM and Maha in Egypt 2011.

Park, New York. He died about mile 7. At the autopsy, his coronary arteries were clean, no hypertrophic cardiomyopathy, and no abnormal origins or causes of the coronary arteries. He had swirls of left ventricular fibrosis at the hinge point of the right left ventricles. Cases such as these are reported in dozens of papers around the world.

ROBERTS: *You've run 54. What is the highest number of marathons anyone has run?*

MCCULLOUGH: The most that anyone has run is about 1,300, done by a fellow from Japan. I received an award for running the 50 states in Fort Worth, Texas. A trial attorney from Austin, Larry Macon, had finished his twelfth round trip received an award. He had run a marathon in every state 12 times over!

I'm not 136 pounds anymore. I weigh 155 but I do run or do some form of exercise on a daily basis. I enjoy the anticipation and preparation for a race, and believe it is like an exam in school, it motivates me to prepare.

ROBERTS: *When you were doing all these marathons, what was the shortest time frame between races?*

MCCULLOUGH: Five days. Some club members run back to back marathons.



Figure 8. Family — Peter, Maha, Haley, Sean and Lulu the dog.

ROBERTS: *When you were running marathons, how many miles were you running weekly?*

MCCULLOUGH: I was running only 30 to 40 miles. I never put in huge amounts of mileage because I was marathoning so frequently that the marathon itself would keep me in shape. My maximum was 15 marathons in a single year. I didn't need to do very much in between the marathons.

ROBERTS: *Now how much do you run a week?*

MCCULLOUGH: I run between 20 and 30 miles.

ROBERTS: *And you also do cycling?*

MCCULLOUGH: Yes.

ROBERTS: *When you do outside cycling, how far do you go?*

MCCULLOUGH: 10 to 20 miles.

ROBERTS: *Do you swim also?*

MCCULLOUGH: Yes. A lap or two in the pool primarily just to use different muscles.

ROBERTS: *Do you do most of your running in the mornings before work?*

MCCULLOUGH: Yes. With a race coming up soon I'm intentionally running in the evenings, the hotter time of the day, to condition myself.

ROBERTS: *What time do you generally wakeup in the morning?*

MCCULLOUGH: 5:00 am every day.

ROBERTS: *What time do you get to the hospital?*

MCCULLOUGH: Normally by 7:00 am.

ROBERTS: *What time as a rule do you leave the hospital at night?*

MCCULLOUGH: As early as 4:00 pm or as late as 7:00 pm.

ROBERTS: *What time do you get home?*

MCCULLOUGH: Generally, 6:00 pm.

ROBERTS: *What time do you go to bed?*

MCCULLOUGH: About 9:00pm

ROBERTS: *Does that mean the time the light goes out?*

MCCULLOUGH: Yes.

ROBERTS: *From 6:00 to 9:00pm what do you do most evenings?*

MCCULLOUGH: Most of the time its general household items — paying bills, manage some emails; prepare slides for talks or correspondence.

ROBERTS: *When I was at NIH, I went in every Saturday unless I was out of town. I do not do that now at BUMC, although I do not twiddle my thumbs at home either.*

MCCULLOUGH: If people ask what is the key to success. I'd say to happily work on weekends. I've worked virtually every weekend of my life. I've heard people say that's not healthy, that you need to separate your work time from personal time. I've taken a different approach. My work is my life. I'm very happy with it. To me a very enjoyable weekend is to get up in the morning on a Saturday, exercise, get a cup of coffee and some breakfast, head into the office for 4-6 hours, finish and go out to dinner with the family. That's a very balanced weekend. To write, one needs a block of time. You need a long segment of time to organize your thoughts and get the data together—it's simply not conducive to working during the work week.

ROBERTS: *Do you have any hobbies outside of exercising? Do you read much outside of medicine?*

MCCULLOUGH: Medicine is my hobby. The nice thing about medicine is that one doesn't need a hobby. It's so fascinating. If you ever go to grand rounds at a hospital you will see retired physicians in their 80s or 90s still attending. I ask them what they are doing at grand rounds and they will say that it's a hobby just following the progress in medicine. I think it's a legitimate one and a healthy one. I do read literature on the plane and try to balance between fiction and non-fiction.

ROBERTS: *How many trips do you go on a year for meetings and speaking engagements?*

MCCULLOUGH: About 40 to 50.

ROBERTS: *How have you managed all the travel with your local responsibilities?*

MCCULLOUGH: In 2000 at ACC "Tutorial of the Tetons" in Jackson, Wyoming, there was an oncologist, a marathoner, who spoke on "Physicians' Mental Health." He talked about academic medicine and traveling. Stating that if you don't accept invitations to speak and collaborate and be in work groups, you are going to be left behind. If you accept many opportunities, then you have to be in excellent mental and physical shape. He influenced me because I wanted academic medicine, the collaboration, and enjoy the privilege of academic travel. A lot of young physicians don't realize this. One of the enormous benefits of going into medicine is seeing the world. Our colleagues in private practice medicine are largely chained to small businesses they are trying to run and they do not benefit from the travel and worldwide collegiality we have in academic medicine. I have tried to involve my family as much as possible on international trips. We've gone together all over the US, Europe, South America, Russia. I agree with you that I will start to wind it down because travel has become so much more difficult, the expense has increased, and one does get enormously tired.

ROBERTS: *Why do you think sitting in a meeting all day is so tiring?*

MCCULLOUGH: It's because when the brain is active it uses an enormous amounts of glucose.

ROBERTS: *Is there anything that you would like to discuss that we haven't touched on?*

MCCULLOUGH: I agree with Ben McAllister who said his most important accomplishments were his children and what all they had accomplished. My daughter, who is going to Michigan State, is on the right track and I am very proud of her. She is in the international relations program at James Madison Residential College. My son is a senior in high school and has followed in my footsteps as a runner. He is probably in the middle of the top state qualifiers in the 5K run for Michigan. He ran his first half-marathon at age ten, and at that distance he may be in the top ten in the nation, about 15 minutes off the world record pace.

ROBERTS: *What does he average per mile?*

MCCULLOUGH: At shorter distances, it's about 5 minutes and for a single mile about 4.5 minutes. At the half marathon, he's finished 75 minutes. The world's record right now is 59 minutes. He's a terrific student, been an Eagle Scout and is preparing applications to a military academy — both West Point and the Naval Academy — so I'm enormously proud of him.

We are looking forward to our transition to Texas. We hope our kids in the end will make it down here to raise their families and establish roots. My wife is a graduate of Texas Women's University and is happy to return. We are looking forward to spending the rest of our lives with my family here in Texas.

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