STEVEN JOHN PHILLIPS, PhD: a conversation with the editor with an emphasis on hospital and research safety

Steven John Phillips, PhD, and William C. Roberts, MD

Steve Phillips is the biological safety officer at the Baylor Research Institute (BRI) and at Baylor University Medical Center at Dallas (BUMC). He was born on August 5, 1949, in Chicago, Illinois, and grew up in several cities in that state. He graduated from Knox College in Galesburg, Illinois, with a bachelor's degree in chemistry and biology in 1971 and received a master's degree in microbiology from the Ohio State University in Columbus, Ohio, in 1974. In 1977, he received a PhD in microbiology from the same university, specializing in microbial genetics. From 1978 until 1980, he was a fellow in the Department of Microbiology at the University of Rochester School of Medicine in Rochester, New York. From there, he worked at the Dow Chemical Company (17 years) in Midland, Michigan, Occidental Chemical Company (5 years) in Dallas, Texas, and Carpet and Rug Institute (2 years) in Dalton, Georgia, before joining BRI and BUMC in 2004. He has spent many years in the laboratory and some in administration. For his efforts, he has received several honors, including the Alumni Achievement Award from Knox College (1996), the President's Environmental Care Award (1992), and the Ohio State University Excellence in Teaching Award (several times). He has published approximately 20 articles in peer-reviewed scientific journals and has presented papers at numerous seminars. He refereed high school football games for 34 years. He has been married to *Peggy Chivington (née Shirk)* for 35 years, and they are the proud parents of a daughter, *Amanda*. I met Dr. Phillips when he was inspecting my laboratory and was in contact with him on several occasions subsequently. BUMC is fortunate to have this very talented scientist who is a very good guy.

William Clifford Roberts, MD (hereafter, Roberts): *I am with Dr. Steven John Phillips at my home on March 21, 2013. Dr. Phillips, thank you for this opportunity to speak with you. To start, could you describe your early upbringing and your family, parents, and siblings? What was your early life like?*

Steven John Phillips, PhD (hereafter, Phillips): It is a pleasure and privilege to be here. I have read this feature of the *BUMC Proceedings* many times and enjoyed it. I was born on August 5, 1949, at Michael Reece Hospital, Chicago, Illinois (*Figure 1*). The delivering physician was *Dr. Harry Levin*, a family friend for many years. My earliest living place was Maywood, Illinois, with my parents living with my grandparents. We moved to Des Plaines, Illinois, when I was 2 and lived there

Figure 1. At age 2 months.

until I was 6. My brother was born in 1951 on St. Patrick's Day; hence his name is Patrick Phillips (*Figure 2*). He died 3 years ago, probably from alcohol, cirrhosis, and smoking.

My parents (*Figure 3*) were divorced in the mid 1950s. It was a rough time to be the child without a father. My brother and I went from our home in Des Plaines to a boarding school in Wisconsin for a year, then we lived with a family in Westchester, Illinois, for about 6 months, and then we moved in with our mother in an apartment in Elmwood Park, Illinois, where I went to second and third grades. We then moved to a house in Streamwood, Illinois, where I finished grammar school, junior high, and high school. My mom worked hard. We never wanted for

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Figure 2. With brother Patrick (left) and Santa.

anything, but it was difficult for her. Divorce was unusual in the 1950s. I remember a teacher saying, "This Saturday we are going to have a father-son outing with sack races and other fun at the school." I raised my hand and said, "I don't have a father." She got a look on her face like I was talking Martian. She suggested that my mother could come. It was just a difficult time.

Roberts: *Did you ever visit with your father?*

Figure 3. His parents' wedding day.

Phillips: I virtually had no interaction with him from the time I was 6 years old.

Roberts: *When was your father born?*

Phillips: He was born in Jefferson, Iowa, in February 1918. He died in Butte, Montana, in August 1982. His name was *Joseph Francis Phillips*.

Roberts: *What was your mother's name?*

Phillips: *Ruth Ann Benson*. She was born in Chicago in August 1918 and died in Streamwood, Illinois, in October 2003.

Roberts: *How did your mother provide for you and your brother?*

Phillips: She was a secretary. She could take shorthand. My wife did too. That's how we met. My future wife taught me shorthand when I was in graduate school at Ohio State. I took two 10-week courses of shorthand and then asked her out on a date.

Roberts: *I took a typing class in high school, one of the better things I ever did.*

Phillips: Me too. My mom said that as long as I could type I would never starve.

Roberts: *What was your mother like?*

Phillips: My mom was very family oriented. She didn't have a lot of outside interests besides her two boys. Looking back I'm amazed she didn't put my brother and me in a sack and throw us off a bridge. We were busy little boys (*Figure 4*). She was very supportive of our school efforts. Every Parent's Day at school she came. From an early age I knew that she appreciated education and knowledge. She supported me in all of my academic endeavors. She was a Christian Scientist. When in high school and college, I told her that I had an interest in becoming a physician. At first, she was resistant to that but a few days later she said, "Steve, I've always told you that you should be what you want to be, and if that's what you want to be, that's okay with me." We always had books in the house. She read to us. My brother

Figure 4. As a Cub Scout, 1957–1958.

and I looked forward to those readings. She would sit on Pat's bed one night and the next night on my bed. She read chapters of *Black Beauty* or the *Bobbsey Twins*, for example.

We went to junior high and high school in Elgin. I had a great science teacher for all 3 years in junior high, *Harold Edwards*. When I was in seventh grade, my mom went to a parent-teacher conference and returned in tears because Mr. Edwards had told her that I was not applying myself and probably would not amount to anything in science if I didn't change. On the wall of my study, I have my high school diploma, bachelor's degree, master's degree, and PhD and the note from Mr. Edwards to my mom. Mr. Edwards showed her a set of problems where I had worked half correctly and half incorrectly. He said that was an example. From then on I studied hard. Mr. Edwards and I developed a good relationship.

In high school, *David Brown* was my biology teacher. He initiated my interest in biology or at least fanned the flames. I was one of 12 students selected for an Easter out-of-state trip with the three biology teachers. The teachers drove from Elgin, Illinois, to Brunswick, Georgia. We spent one night on the way at Vanderbilt University and stayed in the dorms. We got to spend about 5 days on Sapelo Island, Georgia, the marine biology field research station for the University of Georgia. Our teachers divided us into teams and gave us each an ecosystem on the island to study, and each student gave an oral report the last day we were there. We collected fiddler crabs and jellyfish by seining and put them in formalin containers. It was exciting. The patience of those three biology teachers had to be admired. Driving twelve 15-year-old boys around was huge. They rotated the boys between three cars so we could get to know each other better. It was fun.

Roberts: *Did that trip really turn you on toward science or biology?*

Phillips: I was already interested in it, but I was very sure that I wanted a career in biology after the trip. When it came time to choose a college, my friend *Alan Rubnitz* and I had decided that we would be roommates together at Northern Illinois University in DeKalb, located about 30 miles from Elgin. I had scored well enough on the ACT exam to get some scholarship money from the State of Illinois. However, for me to go to Northern Illinois, I would have had to come up with a substantial amount of money for tuition. My mom had already told me that she wouldn't be able to help me much for college. Coincidentally, my high school counselor told me that a representative from Knox College was interested in me. Knox is a very expensive private liberal arts college in Galesburg, Illinois. I explained my financial situation, filled out the application, and was accepted at Knox. I got the \$1000 from the state, a \$1000 Knox scholarship, a \$750 loan from Knox, and had to come up with \$750, which I could do by working during the summers. That was \$3500 total. Also I got one of four \$500 scholarships from my high school, so I only needed to come up with \$250 my first year.

Roberts: *How many were in your high school?*

Phillips: About 1300, about 430 in each of the three classes.

Roberts: *In your senior class of 430, how did you finish?*

Phillips: In the top 15%.

Roberts: *Did you play sports in high school?*

Figure 5. Acting in "Inherit the Wind" in high school.

Phillips: I played a little football but I broke a toe and dislocated a shoulder so I didn't go very far. I managed the football and wrestling teams in my junior year. I was in the Russian Club (president), Future Teachers Club, and school plays. I got to be the equivalent of Clarence Darrow—Henry Drummond—in the play "Inherit the Wind," about the Scopes monkey trial in the late 1920s in Tennessee (Figure 5).

Roberts: *During high school, did you work?*

Phillips: Yes, I worked with the Elgin News Agency delivering weekend papers when the regular delivery person was sick or on vacation.

Roberts: *Did you and your brother and mother eat together at home? What were your conversations like?*

Phillips: We always ate together. We waited for mom to get home and cook dinner. As we got older, my brother took an interest in cooking and he would start dinner sometimes. Mom always fixed us breakfast. We tried to have dinner together and to talk about each other's day. As we got older that was more difficult because one or the other of us would be involved with either sports or friends or extracurricular activities.

Roberts: *When you went to Knox, what were your plans?*

Phillips: My plan was to graduate from college. I was very concerned about passing the courses and staying in school because everything was completely dependent on my academic performance. The Vietnam War was raging at that time.

Roberts: *Did your parents go to college?*

Phillips: My mother took a couple of community college courses, and my father finished high school only. I was the first person to graduate from college or to get a master's degree and PhD.

Roberts: *You entered college in what year?*

Phillips: 1967.

Roberts: *How did it go?*

Phillips: It was a great school. I went from being in high school with at least 30 students per class to being able to take a senior-level course my second 10 weeks of college with only six in the class. It was invigorating and exhilarating to take challenging courses.

Roberts: *How far was Knox College from your home?*

Phillips: About 180 miles from home and 200 miles from Chicago.

Roberts: *How many were in Knox College?*

Phillips: There were 1200 when I was there. Knox prided itself on a student-to-faculty ratio of 10 to 1. All professors taught entry-level courses. The chairman of all departments taught the entry-level class, a requirement so that the professors stayed in close touch with the students.

Roberts: *How did you like Knox?*

Phillips: It had its bumps for me academically. In my freshman year, I planned to major in philosophy, but I made a D in it my first quarter. That was the last philosophy course I took. I just didn't have the knack. But I did have a knack for biology and chemistry. I had a great teacher, *Dr. Allen Hiebert*, my sophomore year. When I would come to him with a question, he would use the Socratic method to ask me questions that I knew the answers to. He would lead me step by step to the answer to the question I originally had. This would help me to see that I had actually known the answer all along. This was helpful as positive reinforcement. It helped me learn how to think through scientific problems in a step-by-step fashion. On the first test in his class I got a 19 out of 100. When I was a senior I talked to him about that first grade. He told me that he had me pegged for one of those students who would come in, goof off, and get a passing C and then he'd never see me again. That grade shocked me and I went to talk to him. I sat down with Allen for an hour and he went through the problems/questions and explained them to me. With that kind of effort I did better and better and ended up majoring in chemistry.

In my junior year I had organic chemistry with *Dr. Lee Harris*, a crusty old fellow with a cynical dry sense of humor. At first I was intimidated by him. He would make cracks at me and finally I got tired of it. One day while talking to the stockroom lady about ordering copies of the *Handbook of Chemistry and Physics*, he walked in and made a comment about my being all hot and bothered about the handbooks. I replied, "Well, some of us weren't around when the first one was written so we have to learn it now." I could tell that my comment took him aback and that he appreciated my standing up for myself. I had found the mechanism for getting along with him. In my senior year there was a set of Tinker Toys for organic chemistry in the waiting room. When I wanted to see Harris, if his door was open, I would lob those carbon atoms through his door and he'd know I was out there. He was a very encouraging teacher and could put things in terms I could understand. Nearly every professor at Knox was a great teacher. Two other great ones were *Dr. Gene Perry* (microbiology) and *Dr. Bob Kooser* (physical chemistry).

Roberts: *How did you come out in college?*

Phillips: I graduated with high Cs overall, mainly because I took some gut-buster courses my freshman year and stayed with either biology or chemistry all 4 years. I didn't score as well as I wished on tests but the information stayed with me.

Roberts: *As you were rolling through college, what were your plans?*

Phillips: My plan was to go to medical school. I thought that if I applied to Illinois medical schools and had Knox on my transcript, the grade-point average would be overlooked. Because

Vietnam was still active, the lottery system was instituted in the fall of my senior year. The numbers 1 through 366 birth dates were placed in a bingo tub, the tumbler turned, and a birthday number pulled out. My birthday was drawn with the 54th turn, meaning that I was the 54th in line to be drafted. Numbers 1 through 20 were being drafted each month. I reckoned that I would be gone by March of my senior year, but seniors were allowed to finish college. (College was still a deferment, but the only graduate deferments were medical and dental schools.) I was very focused on medical school at the time.

Coincidentally, Dr. Harris came to me one afternoon and indicated that a representative from the St. Louis University Department of Biochemistry was visiting him. He was looking to recruit students for his graduate program. Although the visitor understood my draft status, he nevertheless encouraged me to apply and explained why. He indicated that the draft lottery was hurting his department by keeping good candidates away. I applied and was accepted. In the spring I did not get an acceptance letter from any medical schools.

In the spring of my senior year I was told to go to Chicago for my draft physical. This was another life-changing event. I got on a train with 15 others. Coincidentally, the trains to Chicago were running late and we got to the draft center late and consequently were the last group to go through all the stations. I told the physician doing the examinations that I had problems with a shoulder dislocating in junior high and high school and with a knee dislocating in high school. He told me that he had been drafted out of a cardiac surgery residency and was not happy about that. He said, "I can't find anything wrong with your knee, but I'm not an orthopedic surgeon. Go to Desk #42 and ask for Sergeant Bill. Tell him you want a form 123 (request for physical deferment). I'll send you back to x-ray to see if they can see something wrong with your shoulder. Recurrent dislocation is grounds for disqualification. If you can get a physician to sign a form that he has treated you more than once for your shoulder I think you're out." I said, "Thank you so much." I went to my personal family practitioner and he signed the form. I had already gotten an orthopedic surgeon to review it. I made my appeal to the local board at the last possible minute and then went to graduate school at St. Louis University for my master's in biochemistry.

Roberts: *What happened in St. Louis?*

Phillips: When I got to St. Louis University I had hoped to work with *Georg Philipps*, who was working on transfer RNAs. But, he had left that summer. The projects that were available at the time in biochemistry did not interest me at St. Louis University. In December, I talked with *Dr. Jim Copeland*, whom I had worked with at the Argonne National Laboratory in Argonne, Illinois, during a semester of my junior year in college. He became a friend. I wrote an undergraduate thesis paper on the regulation of chromosome replication in *Bacillus subtilis*. Jim told me that he was leaving Argonne and going to The Ohio State University. I volunteered to be his graduate student. He told me to apply and if I got accepted on my own he would take me. I applied and got accepted. Jim went to Ohio State in June, and I moved there in July 1972 (*Figure 6*).

Figure 6. Running a marathon while in graduate school in Columbus.

Roberts: *You got both your master's and PhD in biochemistry?*

Phillips: My PhD was in microbiology. I started in biochemistry in St. Louis but Jim Copeland was in the department of microbiology. Dr. Copeland left my last year of graduate school, but the chairman, *Dr. Robert Pfister*, took me under his wing. Basically, I ran the lab as the graduate student and principal investigator. I did my postdoctoral fellowship at the University of Rochester School of Medicine under *Dr. Frank E. Young*, who later became the Commissioner of the Food and Drug Administration.

Roberts: *How did you go to the University of Rochester? How did that come about?*

Phillips: Frank's interest was *Bacillus subtilis* also. *Bacillus subtilis* is a Gram-positive organism that is a model for differentiation because it sporulates. It can differentiate in that a vegetative cell becomes another vegetative cell or a vegetative cell becomes a spore—which is a resting state. There are gene activations that drive the cell one direction or another, and it's a model for differentiation for genetic exchange.

Roberts: *You had met Frank Young earlier?*

Phillips: Yes, as part of my graduate work. The *Bacillus* research community was relatively small at that time. He knew Jim Copeland. I had talked with Frank towards the end of my PhD work about possibly getting a fellowship at Rochester. I applied and he accepted me. My eventual plan was to go into teaching and research in a small college like Knox. I got married my first year of my postdoctoral fellowship in June 1978 (Figure 7).

During my final fellowship year I went to the American Society of Microbiology meetings to see what jobs were available. As I walked into the employment center, I saw *Dr. Patrick Oriol* from the Dow Chemical Company coming out. We recognized

Figure 7. His wedding day.

each other because Dow was supporting some work at our lab in Rochester. He arranged an interview before I even walked in the door of the employment center. I interviewed at Dow and liked what I saw. It was the best offer out of the three that I had gotten, so I went to Dow and started a genetic engineering lab in 1980. We worked on cloning the enzyme rennin. It is used in making fine cheeses.

Roberts: *You mentioned earlier that you had married the lady who had taught you shorthand. What was her name? What were her features that attracted you to her?*

Phillips: *Peggy Chivington*. Her maiden name was Shirk. She had beautiful eyes, a beautiful smile, and a beautiful personality. There was another feature that I always enjoyed when she turned to write on the blackboard. She was born and raised in Marion, Ohio, about 40 miles north of Columbus, Ohio. We started dating in June 1977 and got married in June 1978 in Marion and drove back to Rochester to start our new life.

Roberts: *And it's been good ever since?*

Phillips: Yes. It will be 35 years this June (Figure 8). I'm traveling this weekend to Marion to pick up my mother-in-law, *Joann Shirk*. We want to move her here to Dallas. She'll live with us for about 6 weeks. We found her an apartment in senior living in Plano. She's fallen twice and we can't take care of her from seven states away. She'll be only 7 miles away now.

Roberts: *How did Dow work for you?*

Phillips: We moved to Midland, Michigan, the global headquarters for Dow Chemical. Midland had a population of 30,000, a nice tax base, a great educational system, and an arts center. It is an oasis in the middle of a lot of farms. It is 2½ hours north of Detroit, about 1½ hours from East Lansing, and 2 hours from Ann Arbor. My first day at Dow was August 5, 1980, my birthday. Peggy got pregnant and we bought our

Figure 8. With wife, Peggy.

first house and moved in on Good Friday 1981. Amanda was born October 10, 1981 (Figure 9). I was supposed to referee two football games that day.

Roberts: *How did you get into football refereeing?*

Phillips: An Eli Lilly salesman in Rochester, New York, mentioned the possibility to me. One woman that I worked

Figure 9. With his daughter, Amanda, a Planoette.

with in the lab asked me a question about a football signal, and I looked it up and told her what I thought it might be. She said she would ask *Ted Alfieri* the next time he came in because he was a referee. I met him and told him of my interest in refereeing. A few months later he called and said their first football referee meeting was that evening at Brighton High School. They taught courses on the basic mechanics of officiating. I bought my starter uniform and worked my first year in Rochester. When we moved to Midland I got in touch with the football officials and refereed there for 17 years, and then when we moved to Texas, I got in touch with the local officials in the Dallas Football Officials Association. I refereed in Rochester, Midland, Dallas, and Georgia for a total of 34 years. It's a nice way to meet people and to see a lot of little towns. It's been fun.

Roberts: *How long did it take you to get good at it?*

Phillips: If you ask any coach, they'll tell you you're never any good at it. But it takes at least 5 years, I think, to gain enough experience where you have the right balance of rule-smartness and situation-smartness to apply the rules fairly so that every little grabbing of a jersey isn't holding. You learn what to let go and how to adjust your officiating to the level of play. That adjustment is probably the hardest thing to learn. You don't call a Pop Warner game the same way you call a Division I college game.

Roberts: *If you had a boy, would you want him to play football?*

Phillips: If he wanted to, I would let him. There is a plaque on my wall with a quote from Vince Lombardi: "Football is like life: it requires perseverance, self-denial, hard work, sacrifice, dedication and respect for authority." That said, football is not for everyone. Injuries are a part of the game. I got hurt playing the game. When you have two young men running at each other full speed and colliding, somebody may get hurt. There have been some tragic accidents. No fatal or paralyzing accidents have happened on any fields that I've been on. I have seen a broken femur or two. That is the most severe injury that I have seen.

Roberts: *How much do you run during a game?*

Phillips: Depends on your position. When you are a sideline official or back judge you may do a lot more running than if you are the umpire who stands with the defensive backs and doesn't run much at all. The guys who run the most are the deep judges and the head linesman or line judge. As referee, which was my job most of the last several years, you don't run much. You follow the play but everything is running away from you and your job is to trail the play. As a result, you want to be behind the last guy so that nothing cheap happens to the last guy.

Roberts: *How many officials are on the field during a game?*

Phillips: In a high school varsity game there are five.

Roberts: *How long do you have to be there before the game starts?*

Phillips: 1½ hours. We take charge of the game an hour before it starts. We try to get one official on the field by the time the two teams are on the field to keep anything from happening between teams.

Roberts: *You travel a good bit?*

Phillips: From Dallas, we would go north as far as the Red River, south as far as Avalon, west a long ways, and east a short distance. We usually carpooled from a mutual meeting place.

Roberts: *You really get to know these other guys pretty well then.*

Phillips: Yes, especially with as much moving as I've done. Having an instant group of friends to interact with and share similar points of view of life is unique. Officials really don't care who wins the game in spite of what coaches might think.

Roberts: *When you watch a football game, particularly a pro football game, what do you watch?*

Phillips: The officials. Watching football is frustrating for me because the TV cameras don't cover the kinds of things I want to see. For instance, when the player is tackled I'd like the camera to stay on that pile for a few seconds more because how those guys get up tells me if they made a first down, if there is any cheap stuff going on, things like that. On television, once the player is tackled the camera immediately cuts to a coach scratching his nose or walking up and down the sideline or some player snapping his chin strap. All of this is distracting to me.

Roberts: *Do you get to know the coaches?*

Phillips: Yes, some of them. The coach on your sideline tries to help you with your officiating. The best coaches generally don't try to coach us; they coach their boys. When a coach was screaming at me, sometimes I could look out on the field and see that his players were losing and looking to him for direction. He was too busy screaming at me to do his job and coach them. In my experience, the coaches who did a good job helped their boys. I was doing a six-man game in Avalon one night and the home team was losing by a lot and it looked like the visiting team was going to score on the next possession and win the game. The coach called a time out and said to his boys, "Boys, in life you are going to be in situations like this, where you are backed up and everything is against you and you've only got yourself and each other to rely on. That is what is going to happen in this next play. I want you to rely on each other and do the best that you can to make it through this and to have faith that you played a good game." Then he walked back to the sideline. He didn't scream at them or call them names but gave them some sage advice. That's the kind of coach that really "coaches" his team.

Roberts: *Are you paid to referee public and private high school football games?*

Phillips: Yes, but I did not do it for the money. If I had computed how much time I spent on and off the field, the pay would have been about \$1.00 an hour.

Roberts: *Why did you retire from it?*

Phillips: I've got arthritis in my right knee and I can't run like I used to. I've had two operations on it and there isn't any more cartilage left.

Roberts: *How did the Dow positions work out?*

Phillips: The Dow opportunity came along at a time when there were no college teaching opportunities available. Dow paid me well and I got to work on projects that interested me. In addition, I got to start a family and live in a small town of 30,000 people. I got home in 10 minutes from work. I got to be with my family a lot more than if I'd been in a big city. Dow wanted to clone in *Bacillus subtilis*, the organism I had worked with since my college days. The idea was to clone the enzyme rennin and to get it expressed and secreted from the *Bacillus*. Rennin is used in making fine cheeses. The only source is in the

stomach of milk-fed calves. The availability of rennin is proportional to the availability of the stomachs of milk-fed calves. When the price of beef goes up, the farmers will keep their calves longer and there will be less rennin available. We cloned it, got it expressed, and got some secretion of it. That took about 5 years. Then, we learned that the market estimates had been off by a factor of between 5 and 10. So it was not a \$120 million market but a \$20 million market, and that changed the economics drastically. The company put that project on hold. I moved to market research for about 3 years thereafter.

Roberts: *"Market research" means what?*

Phillips: It's looking at the product mix that your market competitors are liable to be coming out with. You can get an idea based on their patents, their disclosures, and your knowledge of the science as to where they are going and where they are. Dow had Merrell Dow Pharmaceuticals, and I worked with market research for both companies, considering what the market needed, what the market was likely to provide in the future, what we had in our pipeline, and where those mixes came together.

While I was in market research, one researcher asked me about enzymology. When he learned of my experience in that area, he invited me to work for him in the laboratory developing a lipase assay. We worked on a noncaloric cooking oil to use in fried foods, like potato chips. Thus, I left the administrative side and went back into the laboratory, working for about 3 years in New Ventures Commercialization. Then, once again, we had a downturn in the chemical industry. (The "basic chemical" or "commodity chemical" industry cycles every 5 years.) That project was put on hold and I was then offered a position in Product Stewardship, which is what brought me to the position I have here at Baylor Dallas. Product stewardship involves issues of safety and health, regulations, litigation liability, and public relations or public perception. If those aspects of a product issue are managed appropriately, then the issue is appropriately managed. If you leave one out, there will be potential problems. I worked in that area for 7 years. I then got a good offer from Occidental Chemical here in Dallas and worked with Occidental Chemical for 5 years. My boss was *Dr. Ladd Smith*.

Roberts: *Is that Occidental Petroleum?*

Phillips: Yes. Occidental Petroleum is the parent company and Occidental Chemical is a subsidiary. The product mix at Occidental Chemical is similar to that at Dow—chlorine, caustic, and some plastics. I was also brought in because the company was getting into some specialty products, which commodity companies try to do occasionally. A basic chemical company will try to become a specialty chemical company to make niche chemicals, niche pharmaceuticals. Generally, it doesn't end well. The culture of a basic chemical company and a small chemical company don't mix well and generally in <10 years they get spun off again.

I had an opportunity to go to Dalton, Georgia ("The Carpet Capital of the World") and work for the Carpet and Rug Institute for 2 years, working for *Werner Braun*, president of CRI. He needed someone with a science background and an issues management background. He had been my boss at Dow. I was the director of marketing communications. The carpet industry

was dealing at the time with issues alleging that carpet made the indoor air quality bad. We had evidence to show that carpet actually acted more like a filter than as a contaminant source. It does hold dirt so if you analyze the dirt you would see a lot, but it stays in the carpet. After about 2 years, the institute was scaling staff back, and I had the opportunity to accept the lay-off package, plus my wife was not happy living there. We parted on good terms. We moved to Atlanta for about 6 months and then I got offered this position at Baylor Dallas. We had hoped to move back to the Dallas area, which we did on June 1, 2004.

Roberts: *How did Baylor find you?*

Phillips: It was coincidental. Baylor had been looking for about a year for a biosafety officer and had not been successful. I had inquired about a lab manager position in Irving and got a phone call from a recruiter indicating that the organization required only a master's degree, but she passed my resume on to a coworker. The coworker was the one trying to fill the Baylor position. Two days later I had a phone interview with *Ron Kasowski* and then another phone interview 4 days later with *Brenda Russell*, vice president of BRI. They invited me for an interview. I talked to 13 people in 8 hours and got the offer. It was simply by chance that I got snagged for this job.

Roberts: *What does a biosafety officer do at a major health care facility?*

Phillips: My time is split equally between the safety department and BRI. With BRI, *Jacques Banchereau* was planning to get into high-interest pathogens and toxins (*Brucella*, for example), and to do that, an onsite biosafety officer, called a "responsible official," was needed. A point-of-contact person was needed for the Centers for Disease Control and Prevention and for the National Institutes of Health to contact—a person who designs policies and procedures for how employees should work with these special agents, who does inspections, who designs facilities or at least oversees the design of facilities to contain the organisms, and who makes sure that people are following the rules. That was the research part of my job.

From the health care system point of view, the Baylor safety department wanted someone who knew about chemicals and biologicals. Baylor did a good job with safety relating to ladders, lighting, and carpal tunnel syndrome, but was not as strong in the chemical and biological areas. Right now I'm working with our various clinical laboratories to develop a master chemical list so that if we buy a new hospital, they don't have to start from scratch but will have available a Baylorized format. At Dow I had staff that wrote material safety data sheets (MSDSs) for me and I helped write MSDSs at Occidental.

Roberts: *Does every hospital have a safety officer?*

Phillips: The laboratories have safety officers. I think they are called coordinators. These people make sure their paperwork is in order for the various inspections that are held and their training logs are current for various accrediting bodies. There is a designate at each lab who takes ownership.

Roberts: *It sounds like every day for you is a bit different. Could you describe a day in your week?*

Phillips: I might do a training class for shipping biohazardous substances. I do one of those each month at BRI. I also

will be receiving online training certificates from employees who have taken refresher courses, which are required every 2 years. There may be a biohazardous waste issue concerning the handling of it properly in a lab situation. The chemical master list takes about an hour of my time daily. We are developing a training program for response to chemical spills at research that is patterned after a program safety design for chemotherapeutic spills in the clinical areas. We had a chemical spill of mercaptoethanol (which is a stench agent), and that incident revealed some of our opportunities for improvement. We have developed a program to address that issue.

Roberts: *We met when you came to inspect the cardiovascular laboratory. Describe what you did at that visit.*

Phillips: The initial response was that one of the stored reagents was leaking. It was an old plastic bottle that had aged enough to crack and spill its contents. Your lab fell on the line between research, the hospital, pathology, and the health care system, and nobody knew whose line it fell on. We've now agreed that it's part of my monthly inspection cycle. First, we cleaned up the chemical spill. My colleague, *Gino Rubio*, was a big help here. Then we went through the chemicals that were not being used anymore. Those were disposed of. We made some recommendations about the containers on the floor and the potential for tripping accidents. We addressed some other housekeeping items, some inspection items that the Joint Commission might notice. We noted stained ceiling tiles and sprinkler head stanchions coming through the ceiling. All those changes have been implemented.

Roberts: *Your knowledge has to be broad to respond properly to questions you are asked and the problems you have to solve.*

Phillips: You are right. There are things that I had to learn when I came here—for instance, how do you ship stuff on a common carrier, a truck, from Waxahachie? Or how do you ship items internationally? What sort of permits do you need? I have built on the breadth of experience that I had from the chemical companies as well as what I picked up in the health care system. Yes, it is very big waterfront to cover.

Roberts: *How have you found hospital activities versus industry activities? What has surprised you about hospital operations?*

Phillips: The hospital industry is not as assertive in challenging federal agencies. In the chemical industry, if a federal regulatory agency comes out with a rule and the industry thinks it is unnecessary or stupid, the new rule will be challenged. The hospital industry tends to take what the regulatory bodies say as truth, even if it knows the policy requires a lot of work and will not improve things. It's a cultural thing. I told a lawyer friend, *Mark Wine*, in Washington, DC, how surprised I was about this. He thought it might be because I'm dealing with a different type of industry with a different economic model that drives it. It is more of an accommodation culture than a challenge culture.

There are great people in healthcare (*Figure 10*). I found that at Baylor everyone is interested in doing a good job. I am very impressed with what I've seen as Baylor's culture. People are accommodating. In many other research areas where I've worked, people are much more turf conscious, unwilling to

Figure 10. Team Dr. Steve from Baylor Research Institute participating in the Lymphomathon, May 2008.

share. *Dr. Mike Ramsey*, as president of BRI, and *Elizabeth Cothran*, my immediate supervisor, emphasized that we are trying to do a good job, not just for the institute but also for the entire Baylor system. Dr. Ramsey has opened the gate for me so that I can deal more with issues that affect the whole health care system. The same safety precautions need to be applied in both the research and clinical laboratories.

Roberts: *What do you do now for fun? What are your present extracurricular activities?*

Phillips: I read. I teach two nights a week at Mountain View College. I teach biology for nonmajors on Tuesdays and Wednesdays from 6:00 to 9:00 PM. I enjoy college teaching and

I guess I've made that dream come true. Also, I'm a doctor in a hospital, although I'm not an MD, so I've made that dream come true as well.

Roberts: *Are you enjoying getting back with young students?*

Phillips: Yes, very much. The students are in their late 20s to early 30s—adult learners.

Roberts: *You seem to keep your paws in a lot of activities. What do you do the other nights?*

Phillips: This year I'm still getting used to being without football. I leave for work about 6:30 AM and get home about 6:30 PM. Bill, I think you call this "working half days." By the time I walk the dog, eat dinner, do the dishes, and make my lunch and breakfast for the next day, Peggy and I might watch a TV show, and then it's usually time for bed. I try to get to bed by 10:30 PM. I get up at 5:00 AM. Weekends have been occupied with housecleaning and/or repairs. Sometimes, I have a Saturday workshop at the college. Because of my mother-in-law's health, we've had challenges and opportunities there also.

Roberts: *Sounds like the vacuums have filled up pretty quickly. Steve, is there anything that we haven't talked about that you would like to discuss?*

Phillips: I would like to share a little word of advice that a psychologist friend of mine, *Dr. Paul Johnson*, once said to me: "Everybody in life needs LAUF: to feel *loved, appreciated, understood, and forgiven*. If you feel loved, appreciated, understood, and forgiven in your work, in your marriage, in your interactions with people, then you are going to be happy. If you find yourself unhappy, you might go down that checklist and see if one of those parts is missing and how you might be able to satisfy it." Thanks for the opportunity to talk to you and the readers of the *BUMC Proceedings*.

Roberts: Thank you.