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MD Anderson Cancer Center
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Emil Freireich, MD

Interview Session 3 — October 11, 2011

Chapter 00C
Interview Identifier

Tacey Ann Rosolowski, PhD
0:00:03.8
This is Tacey Ann Rosolowski. I'm in the office of Emil J Freireich, MD. This is our third session together. The date is October 10, and it is about 10:15. I'm just recording the identifier. Dr. Freireich is finishing up an email, and he will be with us shortly. Here we go. Ten minutes early. Good morning.

Emil J Freireich, MD
0:00:27.8
Good morning. You look bright and awake this morning.

Tacey Ann Rosolowski, PhD
0:00:32.3
Well, I'm glad. It's 10:30. I've got to be, right?

Emil J Freireich, MD
0:00:35.7
Now come the hard questions.

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Chapter 11
A: Overview
A Critical Need to Fund Patient-Oriented Research

Story Codes
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care
A: The Researcher
A: The Clinician
D: Business of Research
A: Activities Outside Institution
A: Professional Values, Ethics, Purpose
C: Patients

Tacey Ann Rosolowski, PhD
0:00:38.3
Now come the hard questions. There were a few more questions I wanted to ask you about the national organizations, and then I had some things I wanted to ask you about MD Anderson and some personal things. Then we'll be set, and if there's anything else you want to talk about—

Emil J Freireich, MD
0:00:57.3
Oh, good. So you want to stay until midnight?

Tacey Ann Rosolowski, PhD
0:01:00.2
Sure. Why not? Can we order out for food?

Emil J Freireich, MD
0:01:03.1
We can.

Tacey Ann Rosolowski, PhD
0:01:06.5
Well, last time we talked about the Association for Patient-Oriented Research, but we didn't get to the Global Organization Against Leukemia. I read that you were part of the organizing committee for that in 1998, and you served as its first president. I was wondering if you could tell me about that global initiative and what that meant and just how that institution was set up.

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Emil J Freireich, MD
0:01:31.8
Well, the real authority on that is Dr. Keating—Michael Keating. He trained when I was head of the department, so we've been colleagues for all the time. When he formed the Global Organization Against Leukemia, I was on the board, so I helped advise him, but I'm not the expert. The global business is, of course, my boss's business, Dr. [W. Ralph] Vogler. He just a made a great video where he was in some—Mongolia, I believe it was, or something. But my orientation is more—I'd rather cure leukemia than spread the word. That's other people's problems. That's a public health issue. I'm a research guy.

Tacey Ann Rosolowski, PhD
0:02:28.6
So what is your involvement, and why did you decide to be involved with it if it's not what you—?

Emil J Freireich, MD
0:02:34.9
Well, I'm just a member of the board, and we review the budgets and the plans for expansion and it's a personal favor to Dr. Keating, but it's not a big deal for me.

Tacey Ann Rosolowski, PhD
0:02:46.2
Okay. Now, that organization was one of the cosponsors of the conference that you were recently attending in Croatia, in Dubrovnik?

Emil J Freireich, MD
0:02:56.4
Yes, it was.

Tacey Ann Rosolowski, PhD
0:02:59.5
I was curious about that whole phenomenon of these international collaborations and conferences and what you felt was coming out of that, how fruitful it's been?

Emil J Freireich, MD
0:03:17.3
Not a big deal for me. The international meetings are very important because it does allow for person-to-person interactions, and it does disseminate results of research. So the international meetings are quite important, and they do lead to collaborations. Some of the international collaborations are quite significant, but, as I say, not my cup of tea.

Tacey Ann Rosolowski, PhD

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0:03:49.0
What are some of the international collaborations that you feel—?

Emil J Freireich, MD
0:03:52.3
National?

Tacey Ann Rosolowski, PhD
0:03:52.9
National or international—that have been very influential in your area of research?

Emil J Freireich, MD
0:03:58.9
Well, Dr. Zubrod and Dr. Frei created the first cooperative chemotherapy research group in 1955, and that had a big influence on the way clinical research was done.

Tacey Ann Rosolowski, PhD
0:04:21.2
What was the name of that group?

Emil J Freireich, MD
0:04:22.4
That was called the Leukemia Cooperative Group, and it evolved into what is called Cancer and Leukemia Group B. It started out as a collaboration between Dr. [James] Holland's group at Roswell Park and our little group at the Cancer Institute. So there were only two institutions, but it immediately caught on, and a lot of people got interested. The focus was on childhood acute lymphoblastic leukemia, where we were making big progress. Then it expanded to all the cancers, so it became cancer and leukemia. It became Group B because the group at Memorial Sloan-Kettering formed a cooperative group. It was the second one, but in order to distinguish them, they called themselves 'A,' so the first one became 'B.' I was involved with them until 1962 or so, when we decided to concentrate on combination chemotherapy for children. I haven't had much to do with them since. When we first came here, I was active in the Southwest Oncology Group, and we did some studies with AraC, which were quite important. But then again, I preferred to work on innovative things. The groups tend to focus on applied things. If I claim that four drugs are better than three, they'll do a big study and spend a million dollars and get an answer that no one cares about. I'm on the innovative side.

Tacey Ann Rosolowski, PhD
0:06:12.5
Okay. I'm just trying to get a sense of how all those groups function and what their roles—

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Emil J Freireich, MD
0:06:16.9
Those groups are all—you know—they do applied things. APOR [Association of Patient-Oriented Research] was primarily a lobbying group. That is, we tried unsuccessfully to divert some of the money being spent on laboratory research to patient-oriented research, and we're still trying. And there may come a day when actually people will wake up and realize that all the advances in treatment begin with research on patients with disease and allocate at least some of the federal money to studying patients instead of laboratory stuff. So APOR was primarily a lobbying organization, not as much a scientific organization. We have plenty of scientific organizations. The International Society of Hematology, International Oncology, American Society of Hematology, which is international, ASCO, which is international. We have plenty of that.

Tacey Ann Rosolowski, PhD
0:07:28.8
I think maybe I—

Emil J Freireich, MD
0:07:32.9
I did spend time on ASCO.

Tacey Ann Rosolowski, PhD
0:07:34.7
What does that acronym stand for?

Emil J Freireich, MD
0:07:36.8
American Society for Clinical Oncology—it's the largest cancer clinical research organization. It was founded in '63, and I was one of the initial people to feel it was important. I've been a member ever since '64, and I attend annually. I was elected president in—I don't remember the exact date, maybe '72 or '73. When I was president, I started the *Journal of Clinical Oncology*, which is very important to the society, and I also started the commercial exhibits that generate a lot of income for the society.

Tacey Ann Rosolowski, PhD
0:08:29.2
What does that mean "generate the exhibits?"

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Emil J Freireich, MD
0:08:32.0
Well, when we have a commercial exhibit which is educational, but the pharmaceutical industry has exhibits, and they pay the society to use the space and have the exposure, so the society gains income. That income is used for awarding scholarships to young, promising scientists, supporting areas of research that are not being supported by NIH and so on. So ASCO is good thing. I like ASCO.

Tacey Ann Rosolowski, PhD
0:09:00.7
Now when you started, you said—what was it about that organization that you felt was really promising?

Emil J Freireich, MD
0:09:07.1
Well, when I graduated from medical school in 1949, we learned nothing about cancer treatment or patient care. It was like mental illness. You just put all those patients somewhere to die. During my graduate medical education, we didn't learn anything about cancer research or treatment. I trained in hematology. But in 1946, the Americans discovered nitrogen mustard and began to treat lymphatic malignancies. In 1948, Dr. Farber reported on methotrexate doing temporary remissions in children. So by the time I did my training in hematology, we started to treat leukemia, but the other cancers were largely ignored. When I went to the Cancer Institute, that's when the focus on cancer occurred, because people go where the money is. In the initial cancer effort, Congress realized that cancer was becoming a major healthcare problem, and they put money in place, and people—young physicians—began treating cancer. So that was important.

We were working on leukemia, and we needed a forum to present our information, so initially we presented our stuff to the American Association for Cancer Research, the AACR, but the AACR is an organization of laboratory-based scientists. Dr. Fidler [Isaiah Joshua Fidler, DVM, PhD [Oral History Interview]] and Dr. Kripke [Margaret Kripke, Ph.D. [Oral History Interview]] have both been president. The clinical papers were relegated to the last half day, so if they began on Wednesday, Thursday, and Friday, on Saturday morning we got to present our papers. None of the laboratory scientists attended. The first time I gave a paper at AACR, besides the chairman and my wife, there was only one other person in the room. There just was no interest in clinical research.

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A number of physician-scientists got together and decided that we ought to have a society for clinical oncology because we would have a forum. That society met the first time in, I think it was ’64, and we met the day before AACR, because we were all cancer researchers, so we could go to the ASCO meeting the first day, and then continue in the AACR. Our papers weren’t on Saturday morning. They were before the meeting, and we had an audience that was interested in that material. So ASCO boomed, and by the time I was president—whatever year that was—I should have something on the wall about that. I guess I don’t.

Tacey Ann Rosolowski, PhD
0:12:36.9
I’ll be able to find it in your CV.

Emil J Freireich, MD
0:12:38.5
It’s in my CV. So the year I was president, we started the journal, we started exhibits, and the consequence was that ASCO boomed because we had money, and AACR had very little money. All they got money from were instrument manufacturers, so AACR decided to separate from ASCO because ASCO was too big and they were too small. AACR separated from ASCO, and that separation is maintained to this day.

Well, in the meantime, in 1955 or 1956, hematology was an important discipline. There wasn’t an international society. Dr. [William] Dameshek, who founded the journal *Blood*—the most important public—like the JCO—an important publication for hematologists—also founded an American Society for Hematology. And again, I happened to go to the founding meeting, and I was a lifetime member of the American Society of Hematology.

But hematology was dominated by benign hematology. Hematologists did red cell, platelet, white cell stuff, but the malignant hematology was restricted to us weirdos mostly working at the Cancer Institute and Roswell Park and so on. So when we sent our chemotherapy papers to ASH, we got treated the same way we were by ASCO. Our papers were put on the last session on Saturday morning. By the time you gave your paper, there was only two other people in the room. It didn’t work for ASH, so the malignant hematology moved from ASH to ASCO. But once we cured childhood leukemia and we had treatment for CML, malignant hematology became quite important.

At the same time, benign hematology became trivial. There were fewer and fewer patients consulting benign hematologists. The American Society for Hematology tried to recover malignant hematology, and to a large extent, they have. Most of the cancer hematological malignancy papers go to ASH, which meets in December. Very little goes to ASCO, which meets in the spring—usually June or May. There's kind of a little collaboration between the two societies because most of the people who do malignant hematology also treat cancers, so there's collaboration. The hematologists had to treat leukemia to make a living, so the society recognized that.

Under the leadership of our chairman, Dr. [Hapgop] Katarjian, we're trying to form a new society called the Society of Hematologic Oncology. The reason that occurred is because we started these meetings at MD Anderson in the fall, before ASH meets in December. We had these meetings in September. We started in Houston, and we alternate elsewhere. The last one was in Dubrovnik. The next one will be in Houston in '12. But the problem is that it's gotten so big that it's time for us to have a big society. So Dr. Katarjian suggested to ASCO that they have a day for hematologic oncology, but ASCO doesn't want to fight with ASH, so we're going to form our own society. Things evolve quickly.

Tacey Ann Rosolowski, PhD
0:16:58.2
They do. Is there anything else that you wanted to comment on about organizations of that kind, or societies?

Emil J Freireich, MD
0:17:07.5
No, I think they're important for exchanging information, but in the modern age, face-to-face communication is trivial because everything is so electronic. I met with the head of our library the other day. She said, "What should the library be doing?" I said, "Just keep the electronics going." You can do everything from your iPad now. If you want to talk to someone about a paper— So the face-to-face meetings that were important in the early days for networking, for getting ahead so the young people could get promoted and get their work recognized, is less and less important, because now, when you publish a paper, everybody has access to it. The indexing and the electronics are so fantastically efficient that these big society things are less important for scientific communication. It's a good place for the young people to expose their research to their seniors and get ahead and so on and so forth, but that function is really not terribly important. What's important is communication. Now we have virtual meetings, everything is on TV, everything is on the Internet. The iPods are so fantastic. So all those old ideas are anachronisms. It's nice.

But APOR is important because we do have to lobby, because the direction of research is more in the control of the public. It's like the Tea Party people say, "We want to do what the people want," and the Democrats all go to Congress and say, "We serve the people," i.e. we know what

they want. And we're in the same boat. The academic scientific community, they know what's important—clone the genes, treat the mice, metastasis, all that stuff. That's important. If you know everything about mice and tissue cultures and cells and culture, then leukemia will just go away. But the reality is realized by the people. If 600,000 Americans are going to die of cancer, well, we're working on metastasis research, shooting tissue culture cells in the tail veins of mice. When are we going to work on people? Well, let's do translational research. So now we have the Society for Translational Research. The idea was, okay, you've discovered all this basic science, now let's use it to treat people. That's a great idea. But again, translational science has degenerated into laboratory research.

If the public wants us to cure cancer, they're going to have to put their money where their mouths are. They're going to have to support clinical research. That's what APOR is all about. AACR will never advocate for clinical research. They are strictly laboratory research. And as I pointed out in our last interview, all the sections are manned by Nobel Laureates who won the Nobel Prize for discovering genes. No Nobel Prizes are given to people who cure leukemia. That's trivial.

Tacey Ann Rosolowski, PhD
0:20:59.4
It seems like it's a real basic cultural prejudice or bias.

Emil J Freireich, MD
0:21:05.7
It's one of the enormously attractive ideas that so appeals to your imagination that it's hard to face reality. People are born with a clean slate, and then they progressively accumulate biases, and those biases are difficult to break through. Of course, the bias that every teacher and every academic— If you go into the academic communities, they're all left-wing, bleeding heart liberals. They're all geniuses. They've all discovered Hippocrates or mice or Nobel Prizes and now they're authoritative and they know what we need—more of them. As far as cancer patients, they don't have to worry about that.

Like I said in the last interview, the difference between a scientist and a doctor is the doctor faces— This morning, for an hour at rounds, we saw three patients who were under thirty dying of leukemia. One was a guy in the military, a martial arts guy. He's got advanced leukemia, badly treated. One a twenty-six-year-old girl with horrible disease. I mean, come on. We have to get on with the problem, and only the public can make that known. Now, the problem is that there are only 600,000 Americans going to die this year, and that's a small number. The rest of them, they don't worry about cancer. They're going to prevent it. That's one of my pet peeves. If we're going to prevent cancer—you know—all the early detection models only increase the number of patients with cancer; it doesn't do anything to the mortality. The mortality stays the same.

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Prevention is not better than cure. Cure is always what works. All the progress made in medicine has depended on cure, with the possible exception of small pox vaccination, which quelled an epidemic, but in modern times more people die from disseminated small pox vaccine than die from small pox, as you know. Vaccination is useful to stem epidemics when you know exactly what the antibody and the viruses are. But as far as cancer prevention, outside of quitting smoking—which is self-evident. Treatment is the way to go. People are dying, they need treatment.

When the AIDS people needed treatment because they were dying—they were all twenty-year-old, healthy guys but a small minority of the population. By the way, AIDS was discovered by a doctor at the bedside, not a laboratory guy. They started to do culture viruses and treat it in vitro and do randomized tests. Well, the AIDS guys said, come on, let's start treating AIDS. They marched in the streets, because the AIDS guys were already activists. They're homosexuals. They were used to parading in the streets. When they got AIDS, they paraded in the streets and they got on treatment and now nobody dies of AIDS anymore, unless you can't afford it. You can go to Angola, and you don't have the drugs. But AIDS is essentially a chronic illness now.

But cancer patients are not activists. They're not politically active. They go along being normal, healthy people believing that if we do mammography and PSA we'll prevent cancer and it will go away. Just support laboratory research and discover all the genes, and we won't have any problem until the day comes when the doctor says, "Oh, my. You've got leukemia." I better go see a doctor, not the guy working in a lab. We've got to go see a doctor who is treating leukemia. And we now cure ninety percent of children. We cure twenty-five to thirty-percent of adults with leukemia. We cure converted chronic granulocytic leukemia to chronic disease, and none of this—

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Chapter 12
A: Overview
The FDA as a Barrier to Research Innovation

Story Codes
A: Critical Perspectives
A: The Researcher
A: The Clinician
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care
D: Politics and Cancer/Science/Care
D: Ethics
A: Professional Values, Ethics, Purpose
C: Patients

Tacey Ann Rosolowski, PhD
0:25:39.9
What needs to be done to increase those numbers—the rates of success?

Emil J Freireich, MD
0:25:44.5
We have to get funding for clinical research. That's what APOR advocated. We said to the NIH, look, why don't you have—? They have eighty-five study sections—biochemistry, physiology, etc. Why don't you have one for clinical research that's staffed by physician-scientists? Let's fund the best clinical research. How about that? Forget it. They added two clinicians to one of their study sessions. They said, see? We got them there. They're a minority. They don't direct the flow of money. So it's going to take legislation.

I work with the Abigail Alliance. There's an outfit called the Abigail Alliance, which was founded by the father of a lady who was—I forgot how old Abigail was. She was very young—twenty-two or twenty-three. She got head and neck cancer. They treated her. Everything failed. She was ready to die. Dr. Mendelsohn had worked on the epithelial growth factor receptor antagonists. They were in clinical trial. She didn't qualify for the clinical trial because she'd had this and that, so she couldn't get the drug, so they appealed to the drug company to give her the drug, and the FDA said, no, you can't do that. You can't get the drug if you're not eligible for the clinical trial because it will detract from the clinical—you know—it's all this crazy reasoning. All of which is false. So she died. She never got the drug. Her father formed this organization called the Abigail Alliance. He recruited family members whose loved ones had died being denied treatments which would have saved their lives.

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When we first were working with Gleevec, the very first trial, the FDA required us to do a randomized trial—Gleevec versus conventional therapy. I had a patient with CML who was on the board of directors of Novartis—rich, powerful guy. I wrote to Novartis, to the president, and said, "This man is not eligible for the clinical trial. If you give us Gleevec, we can save his life." They wouldn't do it. The whole drug development process now is run by the FDA. The FDA is manned by failed physicians. The guy who runs—[Dr. Richard] Pazdur was on our faculty here. He was a so-so, average guy. He's been in the FDA for ten years. He doesn't know anything about anything, and he decides what needs to be done.

What does industry do? They say, well, we'll never get a drug approved unless Pazdur approves it. So when they get a drug and want it developed, they go to Pazdur. So they now have an organization where the regulators in industry, the regulators in FDA—I've written an editorial about it—it's right there—are the ones who direct research, not the geniuses who discovered drugs, who developed drugs, who treat patients. They're out of it. It's all done by guys with pencils who are desperate, protecting their careers. That's what the word bureaucrat means. Bureaucrats protect their job. They don't want to cure cancer. It's a horrible thing.

So I worked for the Abigail Alliance. We got a judgment against the government. We had a bill introduced in the legislature, and we almost got it through. The idea was that if a patient and his doctor want access to an investigational drug, they should provide it at cost so that nobody is harmed, there's no danger to anyone who didn't volunteer, there's no public foray, there's no danger to the manufacturers, no danger to the government. It's just insane that we don't do that, but today it's true. People are dying every day with drugs that could be—could be—curative and they can't get them because of this stupid law. So we have to get our heads screwed on right. The public has to awaken to the fact that the government, which created the NIH, which created the Cancer Institute—there wouldn't be any cancer research if it wasn't for the government—the representatives of the people.

We need to have, as everybody has said, legislative relief. The FDA has to get out of the way of drug development. Drug development is between the scientific community and the afflicted patients. If you have cancer of the lung and you come to MD Anderson and the world's greatest lung cancer doctor says, "Here's the drug I think is good for you," what's the government got to do with that? It's insane. It's what happened in Russia when they had Lysenko-ism. You know, Lysenko was a scientist who declared that there was no heredity, because the Communist manifesto was everything is environmental. We're living in a country where the government makes science. They tell you what you can and can't do. It's ridiculous. And we talk about freedom? When you get leukemia or are dying of leukemia and come see the world's greatest leukemia doctor who has cured more patients of leukemia than any living person, before I can give you the drug that I think is good for you, I have to get approval from Ricky Pazdur who has never treated a leukemia patient in his life and never will—insane. Why are we doing it? You know the answer?

These things always occur in times of panic. You see, the liberals believe that—all the intellectuals and professors believe that they know what's good for everybody. Those stupid people out there— So it's always a time of crisis. The FDA began when there was a manufacturer who sold sulfanilamide or something and fifty people died of toxicity, so the government said we have to have a law that says the products that are sold to the public have to be safe before you can market them. Great idea. So the FDA began on safety. Well, as usual, you get a government program and it escalates. Safety got worse and worse and worse.

Then there was the Thalidomide disaster. Here's a drug that was completely safe. You could have studied it in a laboratory for fifty years and never predict that it did what it did. When you gave it to pregnant women, their children came out without arms and legs. Ten years after we knew it happened in the clinic, scientists in laboratory finally figured out how to reproduce it in a mouse. There was no way this could have been prevented by anybody. There was no knowledge base. It's just one of the realities you have to face. But Congress had the solution. FDA now must approve any drug that is marketed to the public for safety. Okay. Well, I already explained to you how that works. If I'm in the FDA, and the manufacturer says here's the drug that cures cancer, they say, "Well, is it safe?" Well, if you give it to mice in a lethal dose it would kill them. Well, maybe you ought to give it to horses and cows and rhinoceroses in Africa—anything to delay it because if it kills anybody it's your ass in a sling.

The FDA has this award named for Frances Kelsey, who was the one who didn't approve Thalidomide in the United States. It was approved in Europe. In the United States, she didn't approve it, so no Americans had Thalidomide disease. So they made a medal for Frances Kelsey. Well, why didn't she approve it? Well, it was sitting on her desk while she was on vacation. So that's the best and FDA can do; you just don't do anything. If there is no drug, there is no danger and there's no progress.

So they were doing okay. We finally figured out how to kill enough mice and convince enough people that you could get some progress, and then another tragedy. What was the tragedy? I can't remember. Another tragedy occurred, and Congress passed a bill that the FDA has to decide not only on safety but efficacy. So now you can't market anything as effective until the government says it's effective. Well, anyway, the whole thing is insane.

The medicine has to go back to the academic medical community. There's no way the government can intrude on— There's no other area of research where the government decides what research can be done—none—maybe atomic energy. But in medicine, the government decides everything, and the government people are all bureaucrats. Some of them are scientists. The scientists who work for the government do research. They don't mess around with sitting around the desk, approving drugs. Well, anyway, how did we get onto that?

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Tacey Ann Rosolowski, PhD
0:35:50.3
I can't remember.

Emil J Freireich, MD
0:35:52.1
I can't either. APOR—so APOR is advocating for the public to recognize that cancer is a major healthcare problem. They have to put funding in the hand of physician scientists who are working on humans with cancer. We have this MD/PhD program that I told you we can't get by the dean. Dr. Kurzrock has this slogan. If you can get a PhD working on mice, why can't you get a PhD working on people? What's the answer? The answer is that if you're working on people, it belongs to the government—bad situation. We've got to rectify it, and it's got to be done like the AIDS people. We've got to get the cancer population marching in the streets and saying let's make progress and stop kidding ourselves that safety is—

Oh, the efficacy situation. What was the efficacy one? I forgot what the crisis was, but we have a number of examples where we have drugs that are very effective for five percent of people with a given disease—CLL. They go to the FDA and they say it's not effective enough. So the five percent can't get the drug because it doesn't work in more than five percent. That's legislation, and it's actually a guideline that the FDA adheres to. It's insane.

Tacey Ann Rosolowski, PhD
0:37:34.7
I think I've gotten a good picture.

Emil J Freireich, MD
0:37:36.6
That's why APOR is important. We have to lobby. The guy who sponsored the legislation for the Abigail Alliance—and I was one of the litigants—was the senator from Kansas. Do you remember his name? But he didn't run for re-election. He ran for the presidency, and he didn't win. So that legislation is floundering. It never got through the rules committee so it never got voted on, but it certainly would have passed. And the idea was that—well, investigational drugs should be made available to patients and academic physicians. I'll give you a reprint.

Tacey Ann Rosolowski, PhD
0:38:25.8
Yeah, I'd like to see it.

Emil J Freireich, MD
0:38:27.9
It's right here. I keep my latest diatribes on my table in case people will read them.

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Tacey Ann Rosolowski, PhD
0:38:35.7
I may even have read that when I went online. I think I saw something to that effect online.

Emil J Freireich, MD
0:38:39.9
It's an editorial. It's not citable.

Tacey Ann Rosolowski, PhD
0:38:43.4
Okay. So I think I've gotten a good picture of that whole cultural and political dilemma.

Emil J Freireich, MD
0:38:52.0
From my perspective.

Tacey Ann Rosolowski, PhD
0:38:54.8
Yeah. In terms of the areas of research—I mean—I know you feel that clinical research needs to be done—but in terms of the community of clinical researchers that you know, what are the most promising, exciting areas of research that can be undertaken or followed up on right now to help with the leukemia problem?

Emil J Freireich, MD
0:39:18.1
I'm not sure what you want me to say.

Tacey Ann Rosolowski, PhD
0:39:21.6
Well, I'm asking kind of a state-of-the-field.

Emil J Freireich, MD
0:39:25.1
Anyone who has—you know—one of the greatest experiences that a human being can have, after you satisfy all your physical needs—you know—sex, food, music, whatever—the greatest personal human satisfaction comes from discovery. If you work out something that no one ever has done before you, that is an exhilarating event, and once you've discovered something, you become a new person because you now believe that you can discover anything. If I discover a little, teeny thing, I'm willing to tackle something bigger and bigger and bigger, and first thing you know, you want to cure cancer. So it's been studied systematically, scientifically, that young people who make discoveries early in life are the ones who make discoveries later in life, because it builds confidence and a curiosity that allows you to discover things.

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So my personal view about transferring things from the academia to the public is a trivial problem. That occurs instantaneously. When the first clinical trial of Gleevec was done, Novartis couldn't make enough Gleevec. When the first polio vaccine was proven effective in a randomized trial, they couldn't make enough polio vaccines. So the transfer to the community is a trivial problem. That occurs immediately because the public and the caring physicians want the best for their patients. Regardless of what the skeptical community believes, when a patient comes to a doctor, he really wants to help you. With the exception of some rogues, that's an ethic. What we need is an environment where people can investigate. What makes humans human is freedom. If a person is free to investigate what he thinks needs to be investigated, things will happen. If people have to get federal approval before they can do research, they're dead in the water.

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Chapter 13
A: Overview
Leukemia as a Key to Understanding Cancer

Story Codes
A: Overview
A: Definitions, Explanations, Translations
A: The Researcher
A: The Clinician
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care
D: Cultural/Social Influences
A: Professional Values, Ethics, Purpose
C: Patients

Tacey Ann Rosolowski, PhD
0:42:15.2
I guess I was thinking about some more specific examples too. I mean, in the area of what's going on with leukemia right now, what do you think are the most exciting, promising avenues that people are following?

Emil J Freireich, MD
0:42:31.2
Oh, well, I've written extensively on the subject. I'm going to give a talk to the History of Medicine Society next month, and the title of the talk is that the cure of cancer goes through leukemia research. If I were controlling the NIH budget, I would put the major part of the budget into clinical research and leukemia research. Why is that? With the other cancers, we have the problem of understanding what's wrong with them. You have a lump in the breast. You take it out, look in the microscope. It looks like the kind of things we've seen where women had cancer all over the place in the breast, so it looks like cancer. Take it off, radiate, operate, do everything. Unfortunately, it doesn't make any difference. The surgical approach to localize cancers—breast, pancreas, bowel, brain—made the observation that if you take the cancer out surgically—mechanically—the likelihood of it recurring locally is higher than likelihood of it occurring distally. So the obvious thing is to take out more. The surgical business got to the point—when I started cancer research—where the treatment for breast cancer was a hemibody. They took off the upper quarter of the body, and it didn't affect the mortality, until Dr. Fisher did this great experiment where he randomized women to getting just local treatment and radical treatment. It made no difference. So now we know that's not the answer. Okay. Well, the next step is local.

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Well, the important point is that, for all the solid cancers, we have no idea how to distinguish between things that look like cancer and things that are cancer, that are going to kill you. So the consequence is we do all these silly things—PSA testing for twenty years, killing men's prostates and torturing them until we finally, twenty years later, figure out it's no good, mammograms, X-rays—until we figured out the mammograms cause more cancer than they prevent. We don't have enough of an understanding of the biology of those cancers to know how to tell when a lump in the breast is going to end up in the brain. We talked about metastasis. The Fidler model of metastasis just doesn't fit with the clinical model, because we have patients with metastasis without a primary. So the occurrence of cancer is something we have to understand.

But the cancer problem resides with those cancers that metastasize. The ones that don't—when I was a young cancer doctor at NCI in 1955, we took care of a man who had a melanoma on his foot that was so large, it was larger than his head and it was bleeding and ulcerated. He came in, and we took off the melanoma, and he was cured. We have other patients who had melanoma this size and you take off their arm and they end up with brain metastasis. We don't understand the biology of the cancers in solid organs, but we do know that cancers that are metastatic are the ones that kill people.

I took care of women who had breasts that were the size of footballs, and we took it off and she was cured. It didn't go anywhere. But my sister had a three-centimeter lesion. She had a radical mastectomy. She had postoperative chemotherapy. She died in three years of metastatic disease. So we don't understand how to tell the ones that are going to kill from the ones that don't. Why is that? Part of it is the illusion that's created by the experimental models. We can reproduce metastatic cancer in animals—all species—and we think they understand it, but we can't reproduce it in man. And the experimental data doesn't fit with the clinical data. I've written an editorial on that. I'll give you a reprint if you want.

Leukemia is different. Leukemia doesn't have a local presentation. We don't look at the tumor and say, oh, this is going to kill you. Oh, this is not. Once we know you have leukemia, we know what its biology is. So there isn't any surgery or radiation therapy—all that garbage—prevention and so on—early detection. Leukemia is a systemic cancer from the start. And that's why all the systemic treatments for all the solid tumors were developed in leukemia, because we realize that, once you have the diagnosis, it's already systemic so we need systemic therapy. We don't need to radiate and surgery and all. We've got to get after it.

Well, the other advantage is we can examine the leukemia every ten minutes. If you have cancer of the colon, we get one crack at it. You might get two. We have this BATTLE study [(Biomarker Based Approaches of Targeted Therapy for Lung Cancer Elimination Project funded by Department of Defense] where they do biopsies every month, but for leukemia we can do it every day. Not only that, we can grow the leukemia cells in tissue culture. We can transplant them to immunodeficient animals so we can treat them in vivo and in vitro in the test tube, and all the techniques of understanding the biology of cancer come out of leukemia. We

understand the chromosomal defect, the genetic defects, and what the genes are, how you control it, and how you regulate it. And that's the reason there is so much progress in the control of leukemia and lymphoma and the other systemic malignancies that don't respond to local therapy.

So I think if we propose that translation does not start with knowing all the things in a laboratory about a mouse and the cell culture, and we admit that studying people and the disease we want to conquer is the way to go, and if we admit that we can apply those resources to understanding the nature of leukemia, everything we've discovered in leukemia immediately transfers to the solid tumors—immediately.

The first adjuvant trial—I gave you one of my reprints. That's my discovery. It's now practiced universally. We now have neoadjuvant therapy, where when a cancer is staged to be potentially metastatic, they get treated with systemic treatment before they get local treatment.

We still have a lot of mysteries in leukemia, but starting with the fact— You see, if you want to understand anything—if you want to understand physics, chemistry, astronomy, anything—the way to do it is learn how to perturb the equilibrium. If you can shake it a little bit, you'll see what it does. And that's the beauty about leukemia. We can get the leukemia cells and we can do it. We can study leukemia in experimental animals. We can make leukemia in experimental animals. Starting from the disease, we can move backwards to the basic science. That's how everything works. That's how platelets work. That's how molecular genetics work.

I think I told you about the—it's part of my lecture I talk about—the discovery of BCR/ABL—the Philadelphia chromosome. That occurred because a pathologist was working with a laboratory guy to try to grow leukemia cells in the laboratory, and they were growing cells and discovered that if they put phytohemagglutinin in to get rid of the red cells, the cells would— And they started to look at the chromosomes. This was David Hungerford and Peter Nowell. They discovered that there was an abnormality in the chromosome—a little break on the chromosome. The first publication was an abstract—two paragraphs—and that discovery revolutionized the whole thing. It led to the realization that there was a neo gene. The neo gene, obviously we need something. It led to Gleevec, and first thing you know, CML, which used to have a median, average life span of three years—ninety percent mortality in five years—now, ninety-five percent of patients are alive in ten years, and all they do is take pills, like taking vitamins—amazing.

Now, we still don't know how it began—what caused the translocation—but the translation in the laboratory is occurring, and people are figuring out that when the chromosomes are in interface—when they're all scrambled up in the nucleus—that the BCR and the ABL genes are close to each other, so the possibility of a translocation exists. There's no virus. So by making progress in the clinic, we can understand the nature of the disease, and that's why I think when we cure leukemia, we'll cure all cancer, because everything we've learned in leukemia has worked in cancer. The idea of the small molecule started in CML, and now there are small

molecules for every malignancy—epithelial growth factor for hormone receptors and so on and so forth.

Tacey Ann Rosolowski, PhD
0:54:28.4
I've never heard that term. What does that mean, a small molecule?

Emil J Freireich, MD
0:54:31.8
It's a— When I went to medical school in 1944, my advisor said, "If you're going to be a doctor, you have to read the Zeitschrift." The Germans developed organic chemistry, and they realized that you can make all kinds of things organic which had nitrogen and carbon. So they went to work systematically making every organic molecule you could, and they published 85 volumes called the Zeitschrift—the work—the writing work of organic chemistry. So if you wanted to get an organic chemical, you just have to look in a book, and it tells you how to make it. The Germans did that between the wars. So I learned German to learn the Zeitschrift. Well, our chromosomes are very complex organic molecules, but some of their functions have been worked out. Gleevec was discovered because it was recognized that the Abelson gene was responsible for phosphorylating other proteins which then became active genes. In order to phosphorylate a protein, this complex molecule had to have a place where it could attract ATP—that's the phosphorus. So they said, wow—the Nobel Prize has been given for this—if we make something that fits in the ATP binding pocket, they can't get ATP, maybe the whole thing will be disrupted. That's how Gleevec works.

So then the idea was if we can identify the essential operating part of any molecule, then we can make something that electrostatically fits in that site and will prevent it from doing that. Well, we have this gang in Harvard, where Dr. Mendelsohn is, called the Broad Institute. They decided to do what the Germans did for organic chemistry. They sat down and, with pencil and paper, generated every conceivable small molecule. Those are molecules that are less than 100 molecular weight or whatever—organic molecules—therefore biologically, potentially active. So today, if you have a target—you've heard of targeted therapy. It all started with Gleevec. You just go to the encyclopedia and look for something that might fit, and then you do high-throughput screening, which is you have robots that create—can test 1,000 pounds in an hour against a given target. You find the one that fits best, then you do the stoichiometry, and if it didn't fit perfectly, you look for something that is a little better. And that's the way it's going. So we have small molecules now that can tag every target, and that's a big discipline. That all started with leukemia, and now it's spread to lung cancer, to the EGFRs and everything.

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When you talk to lay people, they say, “We’ll never cure cancer until we find the cause.” That’s another myth. It’s like we’ll never make advances without basic science. It’s a myth. They are myths that are so attractive to the imagination that people believe them. And the myth starts with things like infections. If you know the bacteria and you can kill it, then you don’t get the infection. If you know the cause, you can develop treatment—if the cause is susceptible to treatment.

We know that the carcinogen in tobacco is responsible for ninety percent of the lung cancers that kill people, but we can’t get rid of that. So it’s one thing to know the cause, it is another thing to be able to do something about it. To our society’s credit, the government is helping reduce the burden of tobacco, but they prevent me from giving patients—dying cancer patients—treatment. They refuse to pass a law banning cigarettes. They refuse to pass a law banning alcohol. Alcohol is the second leading cause of cancer. It’s the leading cause of economic distress in our country, the leading cause of hospitalization, the leading cause of fire, the leading cause of death in automobile accidents. I mean, alcohol is the worst drug in our community. We ban marijuana, but we serve alcohol.

We have a faculty honors convocation where we honor people for research, and when you get done honoring people for their cancer research, you walk out in the corridor, and in the greatest cancer center interviewer the world, there are guys in white coats handing you glasses of carcinogen—alcohol. Drink, get drunk, jump in your car and kill somebody. What the hell. We’re so stupid. We’re regulating the wrong things. People worry about prohibition as a failed experiment, but it isn’t necessary to have prohibition. That was the wrong approach. If you pass a law outlawing alcohol, people can make alcohol in their bedroom. It’s easy. What has to be done is a social contract. We have to stop pretending that alcohol is good for you. Cardiologists tell everybody moderate drinking is good for your heart. Moderate drinking is bad for your heart and bad for your brain. It’s bad for everything. We have to have an ethos where we look at alcohol for what it is. But alcohol is a fine art. I might pay $1,000 for a bottle of vintage, French red wine. Well, take that $1,000 vintage red wine and hand it to someone who’s never had any alcohol, and he’ll go, “It’s horrible!” That’s learned. It’s learned behavior. We learn from our parents. They tell us wine relaxes you.

We ought to have a social contract that smoking is obnoxious. It offends people. Alcohol is dangerous. It kills people. It puts people in the hospital. If that’s the case, then when you come to my house, I don’t offer you alcohol. Fruit juice is okay. Water is even better. So we can’t ban tobacco. We have to have an ethos where it’s not—and we do that pretty well. When I go to the football game, you have to go out on the balcony to smoke. That’s okay.

Tacey Ann Rosolowski, PhD
1:02:24.0
Yeah, the regulations about smoking have really made a change.

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Emil J Freireich, MD
1:02:28.1
Oh, yeah. The airports—go in that room with all the other smokers. When I came here, the heads of the department smoked in our department head meetings—in the meetings. I was the one who said, "Dr. Clark, we ought to remove the cigarette machines from the cafeteria." And Joe Boyd, our business manager, said, "Oh, no, Dr. Freireich. We can't do that. We need the income from the cigarette machines." I said, "What's more important, the income from the cigarette machines or people dying of lung cancer? Let's get rid of them." So, to his credit, Dr. Clark did get rid of them. That's what we have to do to alcohol.

We don't need to understand the cause of disease to eliminate it or to control it. We need to understand how disease operates. How does it make you sick? Once we know how it makes you sick, then we can control it.

Diabetics—when I was in intern, my attending was a guy who discovered that restricting sugar in the diet of diabetics would prevent diabetic coma. His name was—he was a great man. But diabetes used to be 100% fatal. Juvenile diabetes, you never reached teenagers. We still don't know the cause of diabetes, but diabetics have almost a normal life—not quite. But if they're well-managed, they can live normally. We still don't know what causes it. It may be genetic. It may be a contrast—that's all good stuff. In the meantime, millions and billions of people are alive with diabetes, including my wife and my youngest son who take metformin and they're alive. We don't know what caused it. We have to turn the control of disease over to physicians who are scientists who work on the problem, not pretend you're working on the problem by killing boll weevils.

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Chapter 14
A: Overview
The Partnership Between Basic Science and Clinical Research

Story Codes
A: Character, Values, Beliefs, Talents
A: Personal Background
A: Professional Path
A: Overview
A: Definitions, Explanations, Translations
A: Professional Values, Ethics, Purpose
B: Multi-disciplinary Approaches
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care
C: Patients

Tacey Ann Rosolowski, PhD
1:04:57.1
Can I ask you some questions about MD Anderson?

Emil J Freireich, MD
1:05:01.3
All you have to do is ask me a question, and I'll tell you some lies. And I don't have a noon meeting, I don't believe, so if you're not exhausted, we can do as much as you'd like.

Tacey Ann Rosolowski, PhD
1:05:14.4
Well, it'd be good to finish up today, if that would work for you.

Emil J Freireich, MD
1:05:21.7
I just have to take a peek at my schedule and make sure I'm right.

Tacey Ann Rosolowski, PhD
1:05:25.9
I think Joanne said you had a 12:30 meeting, or something around 12:30.

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Emil J Freireich, MD
1:05:30.5
I'm in good shape.

Tacey Ann Rosolowski, PhD
1:05:33.9
I want to—

Emil J Freireich, MD
1:05:34.5
But you're not in good shape. Do you need some water or some food? You're such a skinny little thing. You have to eat more.

Tacey Ann Rosolowski, PhD
1:05:40.8
I'm good. I'm good, really. I had a big breakfast.

Emil J Freireich, MD
1:05:44.9
Did you? Do you want a jellybean?

Tacey Ann Rosolowski, PhD
1:05:49.4
Oh, I saw your jellybeans out there.

Emil J Freireich, MD
1:05:49.4
I'm big on jellybeans. They curb your appetite.

Tacey Ann Rosolowski, PhD
1:05:55.4
No, I'm good. Thank you.

Emil J Freireich, MD
1:05:56.8
I'm a fat guy. You're a skinny guy.

Tacey Ann Rosolowski, PhD
1:06:00.5
I wanted to get your impressions about some institutional issues that are going on at MD Anderson right now, specifically the idea about global oncology.

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Emil J Freireich, MD
1:06:17.0
I'm neutral.

Tacey Ann Rosolowski, PhD
1:06:17.7
You're neutral?

Emil J Freireich, MD
1:06:17.8
Yeah, they can do what they want.

Tacey Ann Rosolowski, PhD
1:06:21.8
Do you think that the institution can be—?

Emil J Freireich, MD
1:06:24.5
All those things are important, but it's only important to people who think they're important. Global oncology, to me, is very derivative. If we cure leukemia, as I said—the people in the Congo are not treating leukemia as well as we do, but they will.

Tacey Ann Rosolowski, PhD
1:06:44.4
But what about the idea that—I mean—as I understand it, the mission of global oncology means basically to disseminate the same kind of healthcare under the MD Anderson name.

Emil J Freireich, MD
1:06:56.2
Marvelous. No one can be against that.

Tacey Ann Rosolowski, PhD
1:06:59.0
Do you think it's doable, though?

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Emil J Freireich, MD
1:07:00.8
Oh, sure. Sure. All it takes is money. As I said, I'm a great believer in freedom. If we have a treatment which costs ten percent of the gross domestic product, and we can only treat ten people out of the first million who have it, I'm in favor of it. Give it to the ones with the most money. They're the most successful. I believe in free enterprise. I believe in competition. Saving lives in Africa is an activity that people should engage in, and I'm in favor of it, but not me. I'd rather discover things that the people who are saving lives in Africa can use, because there were people saving lives in Africa when they were doing nothing. They were all dying.

Tacey Ann Rosolowski, PhD
1:08:04.1
What do you think is the most pressing institutional issue here at MD Anderson, aside from the tension between basic and clinical research?

Emil J Freireich, MD
1:08:15.6
There's no tension. There is total collaboration. The tension exists in the policy makers. We adore our basic scientists. I think I already told you, our course in patient-oriented research—we have more PhDs than MDs in that course. Our basic scientists want to cure cancer. That's why they came here. They're not working the medical school. They're working at MD Anderson. Not all basic scientists are doing "basic research" unrelated to the applied problems. Many basic scientists want to make progress. And when we make a clinical observation and we have to get support from our laboratory colleagues, they're right there, shoulder to shoulder. Our basic science people are with us all the way. They are very important. You can't experiment on people.

Tacey Ann Rosolowski, PhD
1:09:11.4
Who are some of the people you've worked with in that kind of collaborative relationship?

Emil J Freireich, MD
1:09:18.6
Thousands and thousands. The first thing you do when you discover something in the clinic is go to the fundamental knowledge that basic scientists apply and see if you can apply it. When I was a young physician and we were facing—we had children who were in complete remission who were in a coma. I called our neurosurgeon and said, "Let's do lumbar punctures." He said, "You can't do it. It's too dangerous. They're going to be herniated." So I talked to my colleague in pathology who is a basic scientist, and I said, "Let's figure out what's wrong with these kids." So he got all the autopsies for all the children who died in remission, and we put them on the table and looked at their brains and their spinal cord, and we realized they had meningeal leukemia. Then we talked to our basic scientists about how the spinal fluid works. We had David Hong working on spinal fluid physiology. We figured out that if we put it in here and shook it up, we'd

get it up in the brain and could kill leukemia cells. It's a standard part of the treatment of curing leukemia. It all came out of a collaboration.

Many physician scientists have laboratories. The first step in understanding what you've observed clinically is to go to your own laboratory, but you are very limited in time and ability, so you need to find out who is doing that kind of thing. If you're looking for a virus, you need a virologist. If you're looking for a cell proliferation thing, you need a cell biologist. One of my closest collaborators was Bun McCulloch, who was the first one to discover stem cells in the hematopoietic system. He received the Lasker Prize. It's Nobel Prize stuff. He was the one that was responsible for motivating us to do the colony-forming thing and discover the things in the blood and allotransplant. So, yeah, basic science is—I have never said that we should not spend— I want to spend double the amount of money we're spending on basic science, but the problem is the translation. If you don't have the clinical arm, it's like trying to play the piano with one hand. If you want to make progress in controlling disease, we need the basic scientists to do the rhythm and the clinical scientists to do the melody, and then we get music.

Tacey Ann Rosolowski, PhD
1:11:52.2
That's a great metaphor.

Emil J Freireich, MD
1:11:55.1
Yeah. There's no either/or. No one has ever opposed basic science research. That's very important. But we can't ask the basic scientists to decide what should be done to patients. That's a patient-oriented decision, and the basic scientists and the patient-oriented doctors have to work together. It's like—I'm a big football fan and the game last Sunday—are you a football fan?

Tacey Ann Rosolowski, PhD
1:12:28.6
Not really.

Emil J Freireich, MD
1:12:29.6
The game was lost in the last six seconds of the game. When our quarterback had the ball on the three yard line and had the choice of trying to pass it—I mean—there were all these defenders—or trying to sneak in by running, he decided to pass it and it was intercepted. So the whole game turned on that nanosecond decision. Why did I make that analogy? I have no idea. Well, it makes the point that a football team—we couldn't have been on the three yard line if you don't have an offensive line, a quarterback, a running back. It's a team activity. All human activity is team activities. There's some moments when lightning strikes and you discover something great, but even the Nobel committee realizes that it's very rare that people discover things in a vacuum. They build on the knowledge base that we have, and all progress is collaborative.

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When I went to the Cancer Institute [NCI], the first clinical study we did was based on Lloyd Law's mouse model system. Dr. Fidler couldn't do any experiments without Lloyd Law's major discovery. What Lloyd Law did was he was a geneticist, and he learned how to make identical twins as a species of mouse. So today, all the mice that you buy from Jackson Laboratories are identical twins. So you can make a thousand identical mice of A, B, C, D. The one that became most famous was called L1210, which was named after Lloyd Law. His #1210 mouse model was perfect because this arose by taking one of those identical twin mice and painting coal tar on the hairs, and they got leukemia. That leukemia was so malignant that you could take it out and put one leukemic cell inside a mouse and he would die of leukemia in thirty days—one cell. How did he do one cell? It's brilliant how they did these experiments. Lloyd Law was my next-door neighbor. We couldn't have done anything without the basic scientists.

They run a culture of these cells through capillaries that are one cell thick, so they're in a line. They get the microscope and they cut the capillaries so there's only one cell. They put that capillary under the skin of a mouse and thirty days later he dies of leukemia. So Lloyd Law, when he retired we had a symposium, and Dr. Frei and I and Dr. Zubrod were invited to speak, because he was the inspiration behind all the early studies that we did in childhood leukemia. One of Lloyd Law's next-door neighbors was a guy named Abe Goldin, also a basic scientist. He wasn't interested in the biology of it; he was interested in the treatment, so he began to give drugs to the mice that had L1210 leukemia. Then we had a contract with Skipper and Schabel at Southern Research, and whenever we had a clinical question, they would set up a mouse model of the clinical situation and do the experiments in mice so we could do them in vivo. They did all the combination studies in the mice. So don't let me say anything negative about basic science. That's terribly fundamental. Everything comes from our understanding of the biology of things.

But, see, Fidler's stuff is different. That's not basic; that's applied. He studies epiphenomenon. The basic science is understanding how these tumors arise, discovering viruses and chemicals. Another next-door neighbor I had when I was at the Cancer Institute was—her name was Stewart. I've forgotten her first name. She was a lovely lady. She was in her mid-fifties. She spent her entire life trying to find out if cancers could be transmitted with submicroscopic particles. She discovered the first virus-induced mouse leukemia. Sarah was her name—Sarah Stewart. She was my next-door neighbor. We got very excited about that. We tried to do experiments that treat the virus leukemia, and, as you know, that research eventually led to the understanding of AIDS and the virus that causes T-cell leukemia in Japan. So every physician-scientist's career depends on collaboration with laboratory scientists because that's where the concepts come from.

So our first clinical studies were based on Law and Ed Goldman and Schabel and Skipper. They get all the credit. They're co-authors on all our papers. What is true is the illusion that patient-oriented research is not basic research. That's the trouble. Because there is basic—I mean—if you want to find out how leukemia is spread to the brain and kills children, you have to observe

children. There was no model of meningeal leukemia. We had to discover it ourselves. When we did the pathology and found that the brains were involved, we then discovered that they had freely communicating internal hydroencephalus, which meant that we could certainly do LPs because there was no mass that would displace the brain, so we began doing lumbar punctures. We worked out the whole physiology of meningeal leukemia. We gave intrathecal stuff. We did X-rays to see what happened to the drug when we injected it. Everything depended on basic understanding of what you're doing. Since we can't experiment in people, we must experiment in a laboratory, and laboratory experimentation is the doyenne of the basic scientist, but the basic scientist has to be susceptible to collaboration. He has to have an interest in the problem.

Tacey Ann Rosolowski, PhD
1:19:15.2
It sounds like a real feedback mechanism.

Emil J Freireich, MD
1:19:17.0
It's a real feedback mechanism. When we founded APOR, the first annual meeting we had we wanted someone who had a Nobel Prize for clinical research. We invited Dr. Brown of Brown and Goldstein. He's the paradigm of physician scientists. I love Dr. Brown. He's still alive—Southwestern University. He gave a lecture, and the title of the lecture was Bedside to Bench and Back, and the substance of the lecture—Goldstein and Brown won the Nobel Prize for discovering the things that make cholesterol and cured heart disease. As you know, heart disease is almost gone. I wish we could do that to cancer. And Brown said, the discovery of the anticholesterol agents began with the study of a single patient, and he put her picture up. It was an eight-year-old girl who was born with congenital hypercholesterolemia, and he was a young physician training for internal medicine. He had to take care of this little girl. If you have hypercholesterolemia, you die at the age of ten or eleven of atherosclerotic disease all over—brain, heart—all the organs are dead. So he said, I have to understand why this patient has hypercholesterolemia, so he took her and began to study it in the laboratory, and they drew on the basic scientist. Where does cholesterol get transported? How does it get transported? And they discovered that there was a defect in a specific enzyme which transports cholesterol from the liquid into the intracellular matrix, and when that enzyme was gone, it all accumulated in the blood and then all the cells that don't need it get it and the whole thing is there. There's the whole disease.

Now, he's a clinician, not a basic scientist, so he doesn't think about how it occurs. He wants to know how to interrupt it. So he went through the world literature, and he looked for compounds, like Zeitschrift and the Broad Institute. He looked for compounds that could affect the transport of cholesterol across the cell. He just searched the literature, and he found some Japanese guy who had worked ten years before and had discovered a molecule that could accelerate cholesterol transport into a cell. So they took that, and they went to the laboratory. They had the cells from

this patient and put the—and they discovered the anticholesterol drugs and cured heart disease and won a Nobel Prize and created more human life than anybody currently alive.

You've seen the statistics. Less people die of heart disease than cancer now. So that's the paradigm—bedside to bench and back. So translation—I give a lecture on this to our students. The understanding of any problem requires that you start with the problem and then try to figure out how it got to be a problem. That's why basic scientists cannot do it. If you're working on mice, you cannot understand human melanoma. They don't have it. You can't work on elephants and giraffes. You can't work on bacteria. You can't work on test tubes. If you're going to understand the phenomena, you have to work on the phenomena. If you want to understand the stars, you have to work on the stars. You can't sit in the laboratory and make models of the stars. You've got to get a telescope and figure out what's going on. That's how Galileo got killed, because he insisted that the earth goes around the sun. They didn't want to believe that.

Basic science is terribly important, but it has to be done in a problem-oriented way. When we wanted to build an atomic bomb, there weren't any bomb manufacturers who could do that. They needed the guys who understood—they needed Einstein—to understand the laws of physics, but they had to have a problem. They had a direction. They wanted to create a bomb. If you put the geniuses together with the applied people, we had a bomb in no time at all. They did the same thing during the war. That's where Dr. Zubrod made us physician-scientists, because during the war—I think I told you this analogy already—more people died of malaria, so they created a malaria project. They got all the geniuses—the basic scientists, the laboratory scientists, and the doctors—and said get rid of malaria. That's what we need to do about cancer. That's what the Cancer Act was all about. Put the money out there so we can get all the basic science brains, all the translational brains, all the clinical brains in the same room and cure cancer. Let's do it. There's no reason not to do it. While people are worrying about global oncology, I want to cure cancer, because until we cure cancer there's nothing for global oncologists to sell.

Tacey Ann Rosolowski, PhD
1:25:10.3
What are the areas of—?

Emil J Freireich, MD
1:25:13.4
And don't write this, but we shouldn't be wasting our resources on global oncology, because we're where we should discover the cure for cancer. If we don't do it here, they're not going to do it in Africa.

Tacey Ann Rosolowski, PhD
1:25:25.9
What are the areas that you think MD Anderson is best placed to make advances in curing cancer?

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Emil J Freireich, MD
1:25:32.5
Clinical research.

Tacey Ann Rosolowski, PhD
1:25:33.4
In clinical research, but are there specific projects you think certain people are working on that are really promising—or certain areas of research?

Emil J Freireich, MD
1:25:43.7
A hundred percent of the projects people are working on are very promising. That's why they're working on it. People have to follow their nose. This business about targeted therapy, personalized therapy, it's a very—it's almost as appealing as prevention is better than cure. It's a nice idea. But that's an important area of research. That is, if you can find a reason that the cell is misbehaving, you can find something that will affect it. That's what we've got to do.

When we can cure ninety-five percent of patients with cancer, then we should spend our resources on global oncology. It's like polio. Until we proved the vaccine could prevent polio, we didn't give it to everybody in the world. And as you know, there are consequences with polio vaccination. There are some mouse viruses that have been transmitted to people and so on and so forth. All prevention strategies have a cost. People think—you know—the mammography thing, it's wonderful to have a mammogram every year, but that increases the occurrence of cancer—no doubt about it. Stopping smoking—that has no consequence. That won't bother you at all. Staying out of the sun—that won't bother you at all. Not drinking alcohol—that won't bother you at all, no side effects. Your heart will do just as well without alcohol.

So I went to the faculty senate and said, "I would recommend that we not serve alcohol at MD Anderson at the faculty honor convocation, which the faculty supports." The executive committee said, Freireich should be fired from the executive committee because he's offending people. I said, "The only people who want wine after a session are alcoholics. We're addicted to wine." Why can't we get done with the thing and have a glass of juice or sparkling water or something—you know—a Coke. We have to have alcohol. So they rejected it. Then they voted to exclude me from the senate because I was radical. That failed. So then, one day, I introduced a motion on the floor, and it had to be voted on. I got something like six votes. So I'm not the only radical.

Tacey Ann Rosolowski, PhD
1:28:46.8
No, you're not the only radical.

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Emil J Freireich, MD
1:28:49.5
I think MD Anderson's mission is to cure cancer, and in order to cure cancer, we have to have the best cancer treatment in the world, because if people are going to expose themselves to risk, there has to be a potential benefit. So there's no point in offering people innovative treatments unless we're sure that the potential for benefit exists, because everything has a risk. As you know, when you go to your doctor and he says, "I'll give you a shot of penicillin," there are thousands of people in the United States who die of penicillin toxicity today. So it's not to be taken lightly. You have to be sure that what you're treating is more dangerous than the penicillin you're going to get. The same is true of morphine, which is addicting. The same is true of digitalis, which causes arrhythmias. There is no preventive strategy—N-O preventive strategy—that doesn't have danger to the people who are engaging in that behavior.

A PhD wrote a book that, if you're interested, I'll give to you to read. It's called *Is Prevention Better than Cure?* She did a financial analysis for her PhD of all the preventative strategies she could find to prevent disease and analyzed the cost/benefit ratios, or the dollars-per-life cost, and there were no preventative strategies that were better than curative strategies. I'll give you the book.

Tacey Ann Rosolowski, PhD
1:30:29.6
Yeah, I'd be interested to see that.

Emil J Freireich, MD
1:30:31.7
Here it is. Want to read it?

Tacey Ann Rosolowski, PhD
1:30:33.6
Sure.

Emil J Freireich, MD
1:30:35.4
Don't you dare lose it.

Tacey Ann Rosolowski, PhD
1:30:36.6
I won't lose it.

Emil J Freireich, MD
1:30:39.0
Louise Russell.

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Tacey Ann Rosolowski, PhD
1:30:39.8
Louise Russell. Interesting. Funded by the Brookings Institution.

Emil J Freireich, MD
1:30:46.7
I don't know if it's still in print, but if it is, it's a valuable book. Don't you dare lose it.

Tacey Ann Rosolowski, PhD
1:30:49.4
I won't lose it. I promise.

Emil J Freireich, MD
1:30:51.8
I treasure it. I couldn't find the book that was written by Ed Ahrens. That's another treasure. I hope no one stole it. I should have looked for it when you weren't here, because you should read that one too. He documents the flow of money away from patient-oriented research—lab research. Gordon Williams, who was one of the three people who started APOR, was commissioned by the Division of Research Grants of the NIH to look at whether a clinical project had the same chance of success as a laboratory one. They published a paper which proved unequivocally that it doesn't. The study sections are all loaded with laboratory scientists, and these are not the laboratory scientists who are working on potential cures. They're the laboratory scientists who are working on their metastasis. You can build a whole paradigm in the laboratory of things that have no relevance to the clinical. It might eventually. The stuff Fidler did might be useful some day. It has led to clinical studies. There are people who have given Heparin to people to prevent the metastasis, and of course those studies were all negative.

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Chapter 15
A: View on Career and Accomplishments
A Legacy of Strong Faculty and Advances in Blood Cancers; Awards; Cancer as a Disease and MD Anderson Presidents

Story Codes
A: Contributions
A: Career and Accomplishments
B: MD Anderson History
B: Critical Perspectives on MD Anderson
C: Portraits
C: This is MD Anderson
D: Understanding Cancer, the History of Science, Cancer Research
A: Personal Background
A: Character, Values, Beliefs, Talents

Tacey Ann Rosolowski, PhD
1:32:08.4
Interesting. Can I ask you to reflect a little bit on your years here? I was wondering, of all the work that you've done here, what do you feel most proud of or what do you feel has been of the most significance?

Emil J Freireich, MD
1:32:26.1
Well, I've already told you some of it. The first thing I'm most proud of is the training programs and the students that we've generated who have made an enormous impact on cancer and its treatment. These are students who are not like you go to a classroom. These are people who are motivated. Ken McCredie came from Australia. He was already a professor, and he came here to do scut work because he wanted to cure leukemia. Michael Keating [Oral History Interview], who is still here, was the same. Ken McCredie came from New Zealand. Michael Keating came from Australia. Hagop Kantarjian came here as a medical student in an elective. He's now head of the leukemia department. He's the most brilliant leukemia researcher in the country, in my opinion. Bob Benjamin, who runs our sarcoma program, came from the Baltimore NIH and came to MD Anderson. He became a giant. Larry Einhorn, who cured testicular cancer in Indiana—well, I went through this before, when we talked about it. That's the thing I'm most proud about is MD Anderson created an environment where people who wanted to cure cancer could come and do it. They didn't learn from us geniuses who had cured cancer, but they were in an environment where they could do it. Many universities have training programs. The medical

school has a training program. You go over there, you can't do it. There aren't enough patients, there aren't enough doctors, and there aren't enough resources.

When you get to a place like MD Anderson, there's a critical mass. And they realized that with the Atom Bomb Project, with the malaria, there's a critical mass. You've got to have enough people so that people can focus on their function. It's like your body—you've got to have liver and eyes and hair and hands and feet and muscles. In order to attack cancer, you've got to have a critical mass. You have to have enough patients so that the heterogeneity of the patients can be understood.

We used to think acute myeloid leukemia was one disease. We now have thirty different categories of AML that are clearly documentable by molecular studies, so we have to understand the complexity of the problem, and that means people have to specialize. A hematologist in practice taking care of ALL, AML, CML—I mean—he's lucky if he can just do the best thing. If you want to make progress—you know—a guy like Keating, he works on CLL. He knows more about CLL than anybody in the world. We have people like Merrick Ross who know more about melanoma than anybody in the world. We have people like Christopher Wood who knows more about renal cell cancer than anybody in the world. We have a sufficiently large faculty so that people can become the world's most informed person about the basic science and the clinical science in that illness, and we realize that cancer—the one thing we know is it's complicated, baby. It's not like curing polio. It's not a germ and a disease. This is really complicated. It gets down to the basic genome—to the 25,000 genes and to the epigenes that change the genes to the protein-altering—there's probably a million different proteins that make us function.

So we need the critical mass. You've got to be big. You've got to have enough patients. You've got to have time to focus on one illness. When our fellows come here to train, they don't learn all of oncology. We have leukemia fellows who work on one kind of leukemia, and by the time they're here a year, they're the world's authority on that kind of leukemia.

So what's important about MD Anderson—and you already know that I'm very biased, and I believe that we all benefitted from the vision—you know—it's like Brown and Goldstein. Dr. Clark realized that if we're going to cure cancer, which is very complicated, we're going to need all the resources, all the specialties, all the patients, all the commitment to research, and he created a concept that—well, it was the bulb and the plant thing. You couldn't stop it. The idea was just fifty years ahead of its time. Those of us who came here were lucky to have an opportunity to work at it.

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MD Anderson is a truly unique place because of Dr. Clark. He set it up so that young people could work here without concern about their future. He had a retirement program. He set it up so that your salary depended not on how much money you brought in but on what your value to the team was, just like a football team. If you're the quarterback and you're the most important guy, you get the highest salary. So he set the salaries based on your contribution to the mission of the institution. And he was a Texan, and there's something about Texans. He believed that you could use any tools that you needed to get the job done, in this state and in this city. He had a vision of the economic success of the city, of the importance of the cancer problem, of the role of science and research, of the importance of outstanding physicians, in order to have the patients to study, outstanding laboratory—I told you already, the first guy he hired after he brought his friends in was a lab guy from Galveston. He realized that it will take science to conquer cancer, and he didn't want to just globalize what we know—you know—that was a Mendelsohn thing—he wanted to cure cancer. If we cured cancer in ten people in Texas, everybody in the world would have it in a year. Globalizing will take care of itself.

I think globalization is like food kitchens. It's good to help the poor and the starving, but it's more important to create an economy where everybody is working and pays for their own food. I don't like running food kitchens. I like working on agricultural science to make new kinds of corn. But it takes all kinds of people to run a machine.

MD Anderson is still a unique place. When Dr. Clark was fired and replaced by Dr. LeMaistre, the Clark direction was unimpeded. LeMaistre certainly didn't interfere with the development that Clark had started. In Mendelsohn's case, he already had experience at Memorial, running a division of medicine. He already had experience in doing translational science because he worked with scientists in California, and patients. So Mendelsohn actually enlarged the Clark concept to a very substantial degree. But, in order to do that, he—you know—global oncology, Fidler, and all that. He had to do all the things that were necessary to build buildings and get the money and make it possible. So, to a large extent, I believe Mendelsohn was a—I think all of our presidents were very successful, but they all benefitted from the Clark image—from the Clark concept—of what this place should be. I think Dr. DePinho has the same genes. We'll see.

Tacey Ann Rosolowski, PhD
1:41:53.1
As Dr. Clark?

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Emil J Freireich, MD
1:41:54.3
Yeah, and LeMaistre and Mendelsohn. I think he's of a breed that he doesn't—you know—if you want to destroy the Clark image, you have to do something destructive—you have to say, "Well, we're not going to accept patients from Florida," or, "We don't take melanoma." You make some silly rule that would interfere with its function. But in the absence of actively interfering, it's going to continue until the problem is gone. And I think I told you once, when I got the General Motors prize we had a press conference in New York. There were four of us—basic science, clinical, and translational. The first question the reporter said was, "When are we going to cure cancer?" And I gave, spontaneously, the best answer I've ever given, and it's the same one I would give today, and it is, "We're never going to cure cancer. Cancer is a part of the development of a very complex organism, like a human being. There's gonna be errors. There's always going to be cancer. What we're learning to do is control it." We can keep you from making it worse.

When people smoke, if you smoke twenty packs a day for twenty years, the incidence of lung cancer is only increased a hundredfold. The rest of the people don't get lung cancer. It's not that easy. Tobacco is only one part of the problem. There's something else going on that we don't understand yet—a genetic basis—something in the genes that makes the carcinogen make you get lung cancer. So if we eliminate tobacco, we'll control eighty percent of lung cancer. We're not going to eliminate it. There will still be lung cancer. We get lung cancer in nonsmokers—non-ever smokers. Cancer of the liver is caused by hepatitis virus. We can immunize everybody in the world so there's no hepatitis virus, but we'll still have liver cancer.

I say to students, when I give a lecture, cancer is the most important problem in biology. What is biology? Biology is the study of living things. What's a living thing? How do you define living? What is living and what is dead?

Tacey Ann Rosolowski, PhD
1:45:03.1
Oh, you're asking me?

Emil J Freireich, MD
1:45:04.3
Yeah.

Tacey Ann Rosolowski, PhD
1:45:05.7
Well, it eats, it grows, it replicates its cells.

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Emil J Freireich, MD
1:45:10.7
That's it. Life is defined as the ability to make a copy of yourself, so all living things have to make copies. Human beings begin as one cell, and by the time you stop growing, you have seventy trillion cells. Some of these cells have a lifetime of hours. We're constantly replacing all of our cells. Your hair is growing. Your cornea is growing. If you've got that much activity, there's going to be a mistake somewhere—cancer. So we'll always have cancer, but what we can understand is how to control it—a model of diabetes, of CML. Why should people suffer? We're always going to have cancer, but we're not going to suffer from it. That's the main thing. And probably we won't die from it, if we get really good.

I do another lecture—did you know Al Knudson? He was our first—no, the second dean of our graduate school. Dr. Clark created the graduate school. He hired Al Knudson. Al Knudson was a brilliant basic scientist. He worked out the molecular biology of retinoblastoma and showing that it was a genetic disease. He's the won all the prizes. I think he won a Nobel Prize. I don't know. But Al Knudson, when he was dean of the grad school, he knew I was a little funny, so we got involved in discussions, and we're good friends still. He gave a lecture to the students in which he said all species have a finite lifespan. Isn't that true? Elephants live and giraffes and bacteria and humans have a finite lifespan. Why is that? That's a basic biological question. Why do we stop living? So I said, all human beings, when created—fertilized—would live infinitely—infinitely—unless it's diseased or traumatized. So we used to debate that. Is the human lifespan infinite? His argument was based on running out of mitochondria and running out of that. My argument was that, as far as we can tell from the history of our species, the human lifespan has increased continuously and progressively.

Just about five years ago, in my talk that I give my students, there was a paper from Sweden. Sweden was the first totally socialized medical plan in the world, so they have vital statistics on every born person, and this guy showed that the maximum attainable lifespan has been increasing exponentially in the history of man. So the world's greatest philosopher, in my view, was Jesus Christ. And Christ said, intuitively, from his brain, that life is eternal. Once created, a fertilized ovum is going to live forever unless it's killed or gets sick. And I believe that's true. And everything we know indicates that true. As you know, the most rapidly growing segment of the American population is centenarians. The rate of increase in the proportion of the population that's over 100 is faster than the portion of the population that is under 10.

Tacey Ann Rosolowski, PhD
1:49:51.8
I didn't know that.

Emil J Freireich, MD
1:49:53.7
That is a fact—demographics. And as you know, most of the western countries are declining in

population, and that's so that the bubble in age distribution is changing to this kind of a thing—a little point on the top. So, all the science indicates that we're going to live forever. Are we going to cure all disease? No, we'll always have disease, but we can control it. If you can have CML without any problem—one pill for ten years—if you can have diabetes and live for fifty years with a shot of insulin, we'll control all human disease. We're going to live forever. And I am confident that that is the case, not on the basis of any faith but on the basis of the science. The facts are that the lifespan of human beings has increased progressively over recorded time and will continue if someone doesn't stop it, like the FDA.

Tacey Ann Rosolowski, PhD
1:51:11.0
You mentioned earlier your award from General Motors. I was wondering if you would—because I've got—here is a portion of your CV here, and you have almost two pages of awards. I was wondering if you would comment on the ones that meant the most to you.

Emil J Freireich, MD
1:51:29.3
Well, the one that meant the most to me was the Lasker Award. The reason it did is because—and I just love this picture. Have you seen it?

Tacey Ann Rosolowski, PhD
1:51:41.0
Uh-hunh (negative).

Emil J Freireich, MD
1:51:43.9
I gave it to ASCO, and they have it in their archives. The reason this picture is adorable is this is Mary Lasker. Did you read the guy who wrote the Pulitzer Prize book, *The Emperor of all Maladies*?

Tacey Ann Rosolowski, PhD
1:52:01.3
No, I haven't read that yet.

Emil J Freireich, MD
1:52:01.9
Oh, good reading.

Tacey Ann Rosolowski, PhD
1:52:02.9
Yeah, I've heard it's good.

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Emil J Freireich, MD
1:52:03.8
Well, he explains how these people made cancer research—

Tacey Ann Rosolowski, PhD
1:52:07.4
And this photo was taken at the evening when your prize was awarded?

Emil J Freireich, MD
1:52:09.9
The awards ceremony. Here they are. Those are the awards. We each got a—what's her name?—the Angel of Samothrace, or whatever her name is.

Tacey Ann Rosolowski, PhD
1:52:22.5
Oh, the Victory of Samothrace.

Emil J Freireich, MD
1:52:25.9
Yes. She's on the bow of the ship that the Greeks used to go to battle with, and these are bronze statues with marble bases. I have mine at home. I'm thinking of giving it to MD Anderson, if they're nice to me, because my kids won't need it.

Well, this is Sidney Farber who described the first complete remissions in childhood leukemia. Dr. Farber is my idol. I have two idols—Dr. Farber and a gastroenterologist called Joseph Kirsner, and I'll tell you about him later. But Farber was a pathologist, so he cared about people. He looked at organs. But he was watching literature, and when the basic science discovery of folic acid was published, he realized it was a growth factor for hematopoietic cells, and he got the idea that— Another one of my good friends, John Laszlo's father, had shown that if you feed tumors to tumor-bearing animals, the tumors grow faster, so that the nutrients within a tumor are the essential nutrients for that cancer to grow. So Dr. Farber said, wow, if folic acid makes the blood grow, if I can get— Well, it turns out if you feed ground-up tumors to tumor-bearing animals, their tumors grow so fast that they necrose, outgrow their blood supply, and regress. So it's a form of treatment. Dr. Farber got the idea from Laszlo that if he gave folic acid to these children, their tumors would grow so fast that they'd lose their blood supply and they'd get better. So he gave them folic acid and they got worse. Now, that's never been replicated, and nobody knows if it really does make it worse, but he made that observation on a small number of children, and he called [Yellapragada] Subbarao, who owned folic acid and he said—by the way, what I'm telling you is a repeat of what he told me to my face, like we're talking. He went to the Eli Lilly guy who discovered the folic acid. His name was [Yellapragada] Subbarao, and he said, "I need a more potent folic acid, because this one is making it worse, but not worse enough. If it goes faster, it will get better." So Subbarao made analogs of folic acid, and it turned out to be an

antimetabolite. That is, by putting a carbon ring on the central part of the folic acid, it would attach to the enzyme which activates it and wouldn't separate. So it became an anti-folic acid, and that was the first treatment of leukemia.

The concept of the antimetabolite that he discovered empirically as a pathologist is the basis for everything we know about the molecular biology of our DNA and all that, because it was the antimetabolites which allowed the chemists to do the basic science research to work out the building of the DNA and the RNA and all that stuff. That's from a pathologist looking at tissues from dying children with leukemia. It taught me something about science.

And this is Mary Lasker. Now, Mary Lasker was married to a guy who was a multimillionaire. He was a film man, and she collected art and did all the things multimillionaire wives do. She got interested in disease, and Dr. Farber discovered her and said, "Look, here's a project for you." And Mary Lasker became the people who created the National Cancer Institute. They're the ones who created the lobbying force that went to Congress that created the National Cancer Act, built the NIH in Bethesda.

Tacey Ann Rosolowski, PhD
1:56:27.2
Do you know what it was that got her interested in cancer, specifically, or in disease control? Was there a personal thing? I was just curious.

Emil J Freireich, MD
1:56:37.6
I don't know that. But she took it on as a cause. It's like global oncology. She decided it was something she wanted to do, and she had a lot of money. When we did the first interferon studies—when we discovered interferon for hairy cell leukemia, which was the greatest breakthrough in leukemia research ever, we couldn't get the interferon. It was too expensive. Mary Lasker sold paintings and bought interferon for us.

Tacey Ann Rosolowski, PhD
1:57:06.3
That's amazing.

Emil J Freireich, MD
1:57:07.0
And Dr. Clark is the one who talked her into it. When we had something that we needed to do, we went to Dr. Clark who said there are no obstacles. He had no obstacles on his horizon. If you wanted to fly a spaceship to Mars, he'd go at it—an amazing guy.

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So Mary Lasker and Farber created the Lasker Prizes, and they go for all basic scientists, just like the Nobel Prizes. Dr. Farber got the idea that maybe we should give a prize for clinicians who treat leukemia and cancer. So they had this event in—what year? I can't remember. But anyhow, they honored the people who made the strides that made cancer a treatable disease, and they're all in this picture. Here's one that I wrote an article about—M.C. Li. He was a Chinese escapee from the Communist Revolution. He was trained at Oxford, and his father was a Christian. He couldn't go back to China, so he stayed in this country, and he was a very imaginative guy. He's the guy who used methotrexate to cure choriocarcinoma. That started the whole thing—M.C. Li. He was a good friend of mine. He died of hypertension at a young age. He got fired at the Cancer Institute. He was a very good man.

This is Dr. Denis Burkitt who was an evangelist in Africa doing global oncology. He noticed that the African children were dying with this big lump on their jaw, and they died of a leukemic-like disease. He described a disease called Burkitt's lymphoma, which occurs not only in Africa but in the western world, and the reason it was important is it was the first disease that was clearly caused by a viral infection, and the Burkitt's Virus started that whole area of research. It got us to the DNA changing in mice—Denis Burkitt.

Here is my hero, Gordon Zubrod. He's the guy who came out of the malaria program, first director of the NCI, brought Frei and Freireich into the picture. He brought Emil Frei, my dearest, personal friend and buddy, dying of Parkinson's disease, tragically, and the young whippersnapper Freireich to NCI to start the thing.

Tacey Ann Rosolowski, PhD
1:59:51.1
That's great.

Emil J Freireich, MD
1:59:52.1
Wait a minute. Where's Jim Holland?

Tacey Ann Rosolowski, PhD
1:59:54.8
Here it is—1972.

Emil J Freireich, MD
1:59:56.9
Oh, no Jim Holland. Jim Holland is not there, but Don Pinkel is there. Don Pinkel worked with Holland on childhood leukemia. He got the credit, but Holland deserves it. Here's Joe Burchenal, who worked with Hitchings and Elion to get the first 6-MP—the first antipurine, which is, after we had antifolates, the antipurines worked out the whole molecular structure of DNA and RNA and all that and cured leukemia—very important.

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I don't want to get to the minor players. Here's a guy who doesn't belong here. This is Roy Hertz. He fired M.C. Li. He's a jerk, but he participated because he authored the first paper on choriocarcinoma. But he's worthless. That was Burkitt. That's Burchenal. This is Paul Carbone. You already saw him. Breast Cancer—very good stuff. Oh, and these are the two guys—Djerassi and Klein—who were both very low-class physician scientists—very unaccomplished, but they had the advantage that they worked for Sidney Farber, and Sidney Farber invented a thing called total care. In other words, he decided curing leukemia was one thing. Children were dying of hemorrhage. Djerassi started working on frozen platelets. I'm the one who solved it. Unfortunately, he got frustrated. Klein worked on infections and pain. So these two guys were Farber's boys, kind of like Frei and Freireich. And then here's Vince DeVita, who worked with Tom Frei to develop the MOPP, and this is Ngu, who worked on Burkitt's lymphoma in Africa.

So in this picture are the people who created the concept that cancer could be cured and treated as a systemic disease, and they're all here. They did it in one shot, and the year after that, the Lasker Prize went back to some biochemist for working on some enzyme or something. This is the only time that there was a clinical thing, and it's all due to Sidney Farber.

When I got fired from the Cancer Institute—you know—I've been fired from every job I've ever had. I'll be fired from this one too. Sidney Farber offered me a job. Did I tell you about my first paper? Sidney Farber—the first discovery I made at the Cancer Institute was the children with very high blast counts died of cerebral hemorrhage, and I made that in collaboration with a pathologist, Lewis Thomas, a dear, personal friend of mine. We wrote a paper, and Dr. Zubrod was afraid to publish it without some muckity-muck, so he invited Dr. Farber to come to NIH, and I got to present my paper. I was very nervous. It was 1956. I was, I don't know, thirty. There's the great Dr. Farber, and I present my paper, and when I sat down, there was Dr. Farber and Dr. Zubrod. I said, "Dr. Farber, do you have any comments?" He said, "It's such a wonderful thing to see all these young people trying so hard. It's wonderful. You have to keep it up. But as far as hemorrhage with the white count, that's all false. I already studied that problem, and I knew that the high white count had nothing to do with—"

Tacey Ann Rosolowski, PhD
2:04:05.0
Nothing like—you get an "A" for effort.

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Emil J Freireich, MD
2:04:08.7
End of my career. So the paper couldn't be published, and I went home and cried. My wife tried to encourage me, and I spoke to my friend Lew Thomas and he said, "Look, Freireich, this was research. We know it's true. I don't care what Farber said." So Dr. Thomas—who was in a different department—and I went to Dr. Zubrod, with Frei's approval. He didn't come with us. We said, "Here's the data. This is true. I don't care what Dr. Farber said." And the giant of the man that he was, he was willing to stake his whole career on research done by two Young Squirts. We were thirty years old, and he let us publish it, and of course it turned out to be true. Everybody in the world now recognizes that if you have high blast counts you've got to get rid of it, and we do pheresis. So that was the biggest moment of my career. What was good about it was the appreciation of what's important, getting on with it. Those are the pictures from NIH of the guys who did great things. That's the Distinguished Alumnus Award. I'm proud of that one, but the second most important one was the General Motors Prize.

Tacey Ann Rosolowski, PhD
2:05:52.0
And why is that?

Emil J Freireich, MD
2:05:53.1
I don't have a picture of the General Motors Prize. General Motors gave us a gold medal. Do I have a picture of it anywhere? This gold medal is 100% twenty-carat gold, and it's a casting of the three people for whom they gave the awards—Kettering, who was the clinical award; Sloan, who was the basic science award; and I forgot who the other one is. They gave three medals. Well, the winners of the Kettering award in that year were Frei and Freireich. We shared it, which I was proud to do. What year was it?

Tacey Ann Rosolowski, PhD
2:06:45.1
Yeah, I'm looking.

Emil J Freireich, MD
2:06:49.8
You've got a bad one. The one I have has an asterisk on the ones that are important.

Tacey Ann Rosolowski, PhD
2:06:54.0
Oh, here it is—1983.

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Emil J Freireich, MD
2:06:56.2
In ’83, okay, so we’d been here—Frei was already at Harvard, and I was at—you know—it was a long time after we did all that stuff. That was all done in ’64, so it’s twenty years later. But the big thing was we got to meet—we got to go to the White House—to the Oval Office—and shake the hand of one of my idols—Ronald Reagan. And Ronald Reagan took a picture.

Tacey Ann Rosolowski, PhD
2:07:26.4
Wow, there it is.

Emil J Freireich, MD
2:07:27.3
Each one of us—our wives were in the background, but they were in the White House, and we each got to go up and shake his hand, one at a time. This is Smith—the chairman of the board of General Motors—that created the prize. So when I got home, I got a picture from the White House of me shaking the president’s hand, and it’s signed Ronald Reagan. I have it at my house. If MD Anderson treats me well, I’m going to give it to MD Anderson. The guy who did the video of this—you know—*People Make a Difference*. I don’t know if you saw that video.

Tacey Ann Rosolowski, PhD
2:08:07.6
No.

Emil J Freireich, MD
2:08:09.3
It’s available online. He came to our house, and he took pictures of all—well, he photographed all the things—the Lasker Prize, the General Motors Prize, the Outstanding Alumnus Award from NIH and so on. So they are recorded somewhere. So anyhow, that’s the answer to that question. The reason the GM Prize was so important to me was that it was a cash prize, and I’ve forgotten how much it was. I think it was $50,000. In 1983, I was still very poor, so when we got the General Motors Prize, it was the first moment in my entire life that we paid off our debts. We were out of debt. Up until that year, everything we did was on time—cars, house, health insurance—but when we got the GM Prize, we paid off all our debts, and ever since then we’ve been debt free. We don’t pay mortgages on our house; we don’t pay loans on our car. If we buy a car, we buy it. We manage like all people should, if they have a chance to do it. You’ve got to win the GM Prize to do it, though, because you never make enough money to fulfill your needs. You’ve got to get an infusion.

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For most of our young people today, the way they get it is from their parents. I mean, we have four children. One of them is totally dependent. She makes no money. She's a young thing. She's only fifty-three—no money. We have another dependent adult who earns maybe half of his cost of living. We have one angel son who makes a living, has no debts. And we have one daughter who is close. So that's how people get free of debt. What the GM prize is, is a parent. If the parents are smart and let their kids start off their careers debt free and live debt free, it frees them to do things. They can take chances. They can invest in the market. They can start a business. They can do all kinds of things. But if you start out in debt, you can't do anything. If you want to start a business, no one is going to give you any money if you already owe money.

Tacey Ann Rosolowski, PhD
2:11:19.9
It's a huge burden.

Emil J Freireich, MD
2:11:21.4
Yeah. So we need a system where everybody is debt free at some point in their life. That's what the government should do, and then leave people alone. You can tell I'm a right-wing conservative.

Tacey Ann Rosolowski, PhD
2:11:34.7
I can. Can I ask you a few more questions?

Emil J Freireich, MD
2:11:38.7
Anything. Yeah. I'm enjoying this. You want to buy me lunch?

Tacey Ann Rosolowski, PhD
2:11:44.9
Maybe.

Emil J Freireich, MD
2:11:45.6
I'm going to have lunch in about a half an hour.

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Chapter 16
A: Personal Background
A Life of Work with the Support of a Strong Wife and Family

Story Codes
A: Personal Background
A: Character, Values, Beliefs, Talents
A: Professional Path
A: Inspirations to Practice Science/Medicine
A: Influences from People and Life Experiences
C: Portraits

Tacey Ann Rosolowski, PhD
2:11:48.1
All right. I have just a few more questions. I wanted to ask you some things about the private person behind MD Anderson.

Emil J Freireich, MD
2:12:00.4
Oh, my life?

Tacey Ann Rosolowski, PhD
2:12:02.8
Yeah, I know. Isn't that crazy? One of the things that struck me in one of your interviews is you said you had absolutely—in the interviews you did ten years ago—you said you had absolutely no hobbies, that you never did anything but work. I'm wondering if that really is true. What do you do when you want to relax?

Emil J Freireich, MD
2:12:21.2
Well, I'll go back a ways. I grew up in very modest circumstances, so just getting the essentials of life is what you did. You didn't have any time for fooling around. I did play basketball in high school, and I broke my leg. That turned out to be important in my life.

Tacey Ann Rosolowski, PhD
2:12:43.1
Why was that important to your life?

Emil J Freireich, MD
2:12:45.0

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Well, because it ended up keeping me out of the military, and that ended up with me going to medical school, and that ended up with me getting rehabilitation money from the state of Illinois, otherwise I never could have gone to medical school. I had no money. I had nowhere to get money. Scholarships weren't big enough to pay for everything. But when I got rehabilitation money, they paid for everything. They paid my books, my fees, my tuition. I lived at home. I rode the "L" to work, and I got my MD. What was the question again?

Tacey Ann Rosolowski, PhD
2:13:20.6
Things you do for relaxation.

Emil J Freireich, MD
2:13:23.2
Oh, relaxation. Well, when I was pubescent, the most important thing was sex. So when I was in medical school, I dated some high school girl, and we had reasonable sex, but when I got to be an intern, that's when I had sex. I interned at Cook County Hospital, and that was a community where everybody was under stress, because you had no money, you worked—we worked thirty-six hours on and twelve off, so you're always exhausted. You couldn't go anywhere outside the hospital. The nurses and doctors were—you know—if you had ten minutes, you went up to the OR and you had a little whoopee. But when I became a resident and we were paid fifty dollars a month and we had room and board, then I began to think. I actually developed a relationship with an intellectual—a left-wing, bleeding heart intellectual. Her name was Lenore Schwartz, and Lenore was an only child, raised by not rich but very well-to-do parents who lived in a very nice part of town that I had never been in before. Chicago was—well, all cities are like that. I lived in one mm above the ghetto. The ghetto was here, and then we were the next ghetto. They were up there in the high-rent district in Lake Forest. I met her through one of my friends who had money. He introduced me to Lenore. I don't know if I actually loved her as a person, but we were—I was twenty-two, and Lenore was rich and had a convertible. When we went out on a date, I drove the convertible. I was acting like a multimillionaire. She loved me, and I loved her, and we had wonderful times. She began to take me to all of the highbrow things. We went to the opera. I'd never heard an opera. We went to the symphony. I'd never heard a symphony. We went to an art gallery. She was a painter. We went to museums. We learned about anthropology. So Lenore Schwartz introduced me to a world that I hadn't even read about. I didn't even know they were out there, because when you come from the ghetto, everything is—just the next millimeter is as far as you're going to go.

So we decided to get married. She comes from a wealthy family, and I have zero. I didn't even have a car. So we went, like young people, to her parents, and we said, "We've decided to get married." Oh, wonderful. But to make a long story short, they said that was ridiculous. Lenore was working on her PhD, and she was an anthropologist and she was an artist, and dragging along some dying intern from Cook County Hospital was not for the family. They put up with me, but not very well. I didn't mix with their class very well.

So as fate would have it, while I was an intern, fooling around with nurses at Cook County Hospital and dating Lenore, she developed acute leukemia. She was twenty-five or something, and at the time, the only treatment for leukemia was methotrexate and 6-MP. Prednisone had been discovered. She got all that treatment by the best doctor in Chicago, a guy I knew very well and admired. And during her illness, her family decided that I should stay out of it, because they felt that—they had guilt over the fact that we didn't get married and she was going to die without having something she wanted very badly. So they were full of guilt, and if I came back in the picture—we still loved each other, so they wouldn't allow me to see her. I didn't even see her until she died.

Tacey Ann Rosolowski, PhD
2:18:46.7
That's a very sad story.

Emil J Freireich, MD
2:18:50.4
And I wasn't invited to the funeral either. So after that trauma, my focus was on just succeeding, and social things became trivial. I just had sex. It was just—you know. But then I met my wife, and the way I met my wife was when I got fired from Cook County Hospital, I decided to take a residency at Presbyterian-St. Luke's, which is the inverse of county hospital. It's a private hospital. But we had a free clinic called Central Free Dispensary, and that was the teaching service which was run by the chief resident.

I was very good at what I did, obviously, and I was recognized by being made chief resident, and the chief resident did the teaching in Central Free Dispensary. So when I became chief resident—now you move from an adventurist—from just having experiences—for the first time in my life I had responsibility. I had to teach the other fellows. I had to run the clinic. I was in charge. The head nurse in the clinic was a short, petite, blonde lady named Haroldine Cunningham, and she diagnosed me immediately. Here's a guy just having fun, brilliant, and does whatever he wants. He's always going to be successful. And she took charge, from the day I arrived. "Freireich, there are four residents waiting in the clinic for you to sign the patients." If I was out all night, she'd really read me out. So that was the first time I had a relationship with a woman that was significant. There was no love and no sex, but it was a relationship. She was not just a nurse; she was a force in my life. Do you want to know a lot about my wife?

Tacey Ann Rosolowski, PhD
2:21:33.4
Tell me about your wife, yeah. She sounds like she's been important to your career and your life.

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Emil J Freireich, MD
2:21:36.9
She's very important. She's more important to me than Tom Frei. She's the most important person in my life. She was a person of enormous character honed by her early experiences. She was the product of a mother who was a very attractive young woman from a Germanic family dominated by a father. You know, in European culture, the mother was totally committed to her children. All the children were schooled. They lived in Lake Forest, a very fancy community. Her mother was number, I think, four—three out of five or four out of six—somewhere in the middle. She was a very feminine young thing, and she fell in love with an immigrant Scott, who was a golf pro. His name was William Cunningham. Their family was totally against this relationship, but she married William Cunningham, and she got pregnant very quickly, and Haroldine was the first born. There were two that followed her. She has two brothers. Because her husband was a ne'er-do-well—golf pros, they mingle with—they're like me and Lenore—they mingle with the rich and live like the rich, but they don't have any money. So they lived in very modest circumstances in Libertyville, Illinois, a little town. She had six children and slaved along with no help and no money, coming from a well-to-do family.

To make a very long and difficult story easy, when Haroldine was, oh, ten or something—ten or eleven—her mother committed suicide and she found her. She had slashed her wrists. So Haroldine had to walk into her house and find her mother on the floor, dead. That changes people.

Tacey Ann Rosolowski, PhD
2:24:09.1
That's severe trauma for a child.

Emil J Freireich, MD
2:24:10.5
So her mother's siblings, of course, came to the rescue. Her older sister, her Aunt Bee, was married to a physician and had one child. She offered to take in Haroldine, so she became Cinderella. She was taken in by her Aunt McGrew who had a daughter who was Cinderella, who was the queen, and she became the—she took care of everything. She had to do the laundry and clean the house and do all that stuff, because her niece was Miss America.

So her siblings—her two brothers—were farmed out. One went to one of the other siblings who had a farm in Illinois, and the other one—I forgot who he went to. But the three children were farmed out to siblings of the mother. The father was, of course, worthless. He continued playing golf, and he was an alcoholic and pretty much worthless. They all loved him. He was a nice man. He meant well, but as far as a father was concerned, he was zero.

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So Haroldine grew up in Lake Forest. She came from modest beginnings but was adopted by Aunt McGrew who lived in Lake Forest. She was now upper class. She went to Lake Forest High with all the rich kids, and when it came time to choose a career, all of her classmates went to college—fancy colleges—Harvard and Yale and all that. But she decided to be a nurse because her Uncle McGrew was a doctor. Auntie Bee wasn't into ten years of supporting poor Haroldine. She didn't have that much money. Don McGrew, the husband, died and left Auntie Bee with the money. So she had enough money, but she had to manage it, and she had to work to stay in the upper middle class section they were in. Auntie Bee really pushed her in the direction of nursing because you take three years and you're done. You make a living, and you're done. And 100% of nurses have jobs. So she went to nursing school, and she happened to be at Presbyterian. That's when I met her. She graduated and got a job in Central Free Dispensary. So that was Haroldine Freireich—Haroldine Cunningham.

Tacey Ann Rosolowski, PhD
2:27:01.2
When did you get married?

Emil J Freireich, MD
2:27:03.4
Well, when I was chief resident, during my year, the chief of medicine, who was a genius—Howard Armstrong—was fired. Again, because he was too successful. He built a program where all the house staffed work in the teaching service, and none of the residents and interns wanted to work in the private service with the rich doctors, so they organized and said, well, they had to get rid of the teaching service, so they fired Dr. Armstrong. When he got fired, he had no problem getting a good job at Cook County, but he was a physician scientist who worked in Boston during the war. He was very famous and very accomplished and rich.

So he called his residents in one by one and told them what to do. So when I got there he said, "Freireich, I understand from all the attendings that you're very good and you've learned a lot of medicine and what is it you need to accomplish your goals?" I wanted to be a general practitioner. I wanted to be a family doctor. And I said, "Dr. Armstrong,"—I may have told you this—"I don't want to offend you. You have a wonderful department, but the hematologist is a jerk, and we didn't learn any hematology." He said, "No problem. You have to go to Boston, and I'm going to get you a job with the best hematologist in the country." The three best hematologists in the United States were in Boston, and Howard Armstrong was important. He wrote me three letters of reference, and he said, "Take your 1946 Oldsmobile and go to Boston." So I took everything I owned, put it in the car, and I drove to Boston.

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I interviewed with the three greatest hematologists in the world, and they all offered me a job based on Howard Armstrong's letter of recommendation. I had to decide which one to take. Well, the most famous one was Dr. Dameshek, who founded *Blood*. He offered me a job. I wanted to go to Dameshek. The second most famous was Dr. Alexander. He was a coagulationist. I wanted to go with him. The least famous one was Joseph Ross, but Joseph Ross had gotten a grant from the NIH to study anemia, and he offered me $3,000 a year salary. And since I had no source of income, no parents, I had to take Ross's job. So I went to work for Joe Ross. I was in Boston. I had $3,000 a year income. I rented a room in a lady's house, so I couldn't have any women. There was no sex anymore. There was no drinking, no social life. I had to succeed at my job, and I was with some hard chargers, so I worked eighteen hours every day. I barely slept. Since I was the junior guy in the lab—we were the first to use radioisotopes off the pile. I used to spend sometimes three days in a row when I was just counting the samples. I had to do all the slave work. I set up the things for the experiments we did at Harvard, and I was working and no social life, but I'm very ambitious. I intended to succeed at this job. I met the giants of hematology—Bill Castle—so I was really doing great.

One day I get a call from Haroldine Cunningham. "I am coming to visit Boston, and I'd like to just have dinner with you." "No, problem. I'll pick you up at the airport." So I hadn't seen a woman now for months. I hadn't done anything. I was just working. So Haroldine arrived on the plane, and I drove my 1946 Pontiac to the airport—Oldsmobile—to the airport, picked her up, put her luggage in the car. I said, "What do you want to do?" Well, she didn't have a room or anything since she just arrived. I said, "Well, before we do anything, I want to show you my lab. I'm working my head off." So we drove to Mass Memorial Hospital. Do you know Boston?

Tacey Ann Rosolowski, PhD
2:31:36.3
A little bit.

Emil J Freireich, MD
2:31:37.2
Well, Mass Memorial is right next to City/County Hospital. It's in the ghetto of the city. So we drove down there with my 1946 Oldsmobile. No one would steal that car. This was in '53. I parked the car, and we went up to the lab, and I showed her—she was very impressed. So what do we do now? Well, we have to find a place for you to stay. So we went back to the car. Someone had broken into the car and stole her luggage. She had nothing.

So I went to the lady that I had my car said—you know, this poor nurse lost her luggage. So we went to the YWCA, and they took her in. We went to a store and bought some underclothes and a bra and some things, and she was at the YWCA, and I was working twenty hours a day. And Haroldine—our relationship had really become more than just—we never had sex, in the usual sense. We did necking and stuff, but we really developed a relationship. She ran the clinic, and we began dating. I saw her on weekends, and I really was very fond of her. When she came to

town—you'll have to ask her—but she says she decided she was going to marry me when she came to Boston, and I believe that to be true. She didn't have a shotgun, but it was very close. She realized I was alone and lonely and working my head off and had no social contacts with anyone. I had no friends or colleagues or anything. So she really did intend to marry me. She came to town and lived at the Y, and I had a room. Then she got a job as a nurse at Mass General, so she was making $3,000 and I was making $3,000, so if we pooled our resources we could rent—we rented a room in a lady's house, which was an attic that had two rooms and an outside entrance. So we had a private entrance where the people who owned it couldn't tell us what to do, and we lived together, but we didn't—it wasn't a sex thing. It wasn't like modern people.

Tacey Ann Rosolowski, PhD
2:34:26.1
Oh, so you were sort of roommates for a while?

Emil J Freireich, MD
2:34:28.7
Yeah, we loved each other. We lived together. We spent all our time together. That was the only person I knew socially. So when I got eight hours off, I'd pick up Haroldine and we'd go out to dinner or go to a movie or go to our little apartment and talk about things or watch TV. So we became a couple, and after that went on for almost a year, she just said one day, "You either marry me or I'm going home."

I had three friends that I could trust. One was the chief fellow in our lab. His name was Stuart C. Finch. He's still alive, and he's still a very good friend of mine. He was married and had five children. He was a real family man. So I talked to Dr. Finch. I said, "Do you think this crazy nurse, should I marry her when I'm struggling so hard?" And then I had two other friends. These were two guys who were residents at Presbyterian-St. Luke's with me when I was a resident. One was a guy named Peter Bell Irving, and he was doing a fellowship in diabetes at Mass General. I consulted him. He was a bachelor and a swinger, and he got married much later in life. Then the third one was Oliver Wrong, who was another bachelor/swinger. And Oliver was a Brit who was training in metabolism or something like that with a very famous metabolic guy, and he ended up being chief of medicine at University College in London, a very famous guy. Peter Bell Irving ended up being very famous. So these were accomplished guys. I consulted my three friends, and they all said they thought it was probably a good idea. So I married her.

I had to work on a Friday. I had to count my samples and set up all the things and get done. We didn't have an experiment on Saturday morning. We normally did, but we didn't. So I got off Friday night at about 6:00, and Haroldine met me. We only had one car. We picked up my two friends, and we went to Beacon Street and found a JP, and we got married. Oliver Wrong was the best man, and Peter Bell Irving was the maid of honor, and Haroldine and I got married.

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Then we started being married and we had sex. First thing you know, fourteen months after we got married, we had a daughter—beautiful thing. Then fourteen months after that, we had a son. When she was pregnant with my son and the baby was a year and some old, that's when I got drafted in the military and went to NIH. And the rest is history. And ever since then, Haroldine Cunningham has been my one best friend, and we are really married. I mean, we are one. We got involved with our family. We had four beautiful children. We both adored large families, because her mother came from a large family, and we wanted to have twelve children. One of my best friends had four children. He was Roman Catholic. But by the time we got to number four—she had four children in six years—we were at NIH. We were making $3,500 a year, which was less than what we made in Boston, because we only had one working; she was home. And in 1955, there were no disposable diapers. We lived in a house that we rented from an overseas State Department guy who rented it to us for a song, because he knew we were poor. And she had to maintain the house, wash the diapers, take care of our four babies, get them to school. We had one broken down car. So I tell ya, we worked hard. When I went to NIH—I think I already told you—I mean—we really worked hard. I walked in with nothing—no help, no nurses, no technicians. They gave me equipment and authority and do what you want. I had to recruit my own patients, take care of them, draw the blood. I had to do everything. And Haroldine—God bless her—supported me all the way, took care of our kids, took care of me, saw to it I had clothes and food and shelter and was interested in my work. She liked the kids. I told her what I was doing. When I got fired from NIH, she was the only one who stood behind me—Tom Frei, usually. So I love my wife. Did you see *Jerry Maguire*?

Tacey Ann Rosolowski, PhD
2:40:17.2
No.

Emil J Freireich, MD
2:40:18.0
I love my life. I love my wife. She was a part of everything I had done outside of my training, and we're very much one person.

Tacey Ann Rosolowski, PhD
2:40:31.8
You're very lucky.

Emil J Freireich, MD
2:40:33.2
Yeah.

Tacey Ann Rosolowski, PhD
2:40:33.1
That's wonderful.

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Emil J Freireich, MD
2:40:33.8
And she's a person of enormously high character because she came from a very fundamentalist background. She raised our kids. There's no fooling around with her. She's frugal, she's efficient, she's brilliant, she's clever, she's very resourceful, and she's responsible for everything I've done, because I couldn't have done it—even my fellowship. I couldn't have gotten through it without her. When we came to NIH—I'll tell you—she was pregnant with the second one, and she immediately got pregnant with the third one. We were living in a rented house. But she made it possible for me to work twenty hours a day and take care of the kids. We're a team. So she's the most important person in my life. More important than my mother, my father, my sister, my step-brother. She's really—she's what converted me from a child to an adult.

Tacey Ann Rosolowski, PhD
2:41:45.8
Is there anything that you'd like to add?

Emil J Freireich, MD
2:41:47.4
She had the advantage of being an adult, because she had a mother that she loved who died. She had five uncles and aunts who took care of her. She saw the virtue of the family structure. And she was very ambitious. She was a nurse, but she wasn't—she wasn't going to—you know—she worked all the time. When we were in Boston, she worked every day until we went to NIH. She was a nurse at Mass General, and she made a good salary. When she was pregnant, she had the baby and went back to work—tough lady. And she's still young and beautiful. Where is she in that picture? There she is, in the middle.

Tacey Ann Rosolowski, PhD
2:42:35.9
Oh, yes.

Emil J Freireich, MD
2:42:37.3
In the kind of—

Tacey Ann Rosolowski, PhD
2:42:38.6
A nice family picture.

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Emil J Freireich, MD
2:42:40.3
She's between my grandson and my granddaughter. And she loves our grandkids. She loves her kids. She's a wonderful mother, a wonderful grandmother, a great homemaker. She's a person of very high quality. I respect her.

So I'm sorry you got into that personal stuff. But as my hobby—my work has always been my hobby. I spend twenty hours a day—when I have a free day, I spend it with my family. I love my kids. For instance, I love football because my son has our four grandchildren—he lives in Austin, but he bought a license for the Texans, so eight times a year he comes to town with all our grandkids. They stay at our house. I love my grandkids. And the guy in the orange shirt is a senior in high school. He plays offensive guard on the high school football team. We think he's going to get a football scholarship. The skinny guy in the back, in the blue shirt, that's my oldest grandson. He's eighteen. He is a sophomore at UT San Antonio. We have to pay for his tuition and living, and we can't afford four. We can afford maybe six, but not four, so we've got to get some income for these kids to go to college.

Then my oldest son had a sterile marriage, and they tried. They got all the way to in vitro. The deal was for $35,000 you get an eighty percent chance, so they went to China and adopted two little Chinese girls, and they're in the front there. We love them like they're our own. They're beautiful kids. And my oldest grandson, Chris, who is a step-grandson, is the one who fathered my great-grandson. So whenever I have hours, instead of playing golf— I tried golf. My sons play golf, because they have a lot of leisure time. Haroldine's father loved his grandkids. He was drunk, but when he came with us he would stay sober for a day or two. He'd drink in the evening. But he taught them all to play golf. Both my sons are golf players. My oldest son is serious. He plays in tournaments. The youngest son, he's just fair. So one day they said, "Dad, you ought to have a hobby. You should learn to play golf." So I had a family day, so they took me to play golf. Well, I played eight holes, and they said, "Dad, maybe you shouldn't play golf. This is not your thing." So my golf career was eight holes of golf.

And football I love because the kids come to town and we see our grandkids and I see my daughter. I love my youngest son. He's my favorite of all the kids. So, whenever I have a minute, I spend it with them, and I do what they do. So if they play football, I go to football games. My baby—Ellen is a soccer player. She's a goalie in soccer. I'm going to go on Saturday. We're going to see soccer. The football player—I have to go to a football game on Friday night in Austin. Emily is a dancer. I have to go to her dance things. Chris—they had a big birthday party for my great grandson. We had to go to that. He's two years old. He had a big party with all of his friends.

Tacey Ann Rosolowski, PhD
2:46:18.4
So it sounds like you're—

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Emil J Freireich, MD
2:46:19.0
So all my activities are what the family people want to do. My wife and I watch some TV in the evenings, and I like theater, so I go to the plays every once in a while. My oldest daughter was an actress. My oldest daughter was a hippie. She's the one in the blue. She's physically big. She's built like me. She's tall and wide, heavy. She was a Hair Generation baby. How old are you? Oh, you don't need to tell me.

Tacey Ann Rosolowski, PhD
2:46:54.1
Fifty-six.

Emil J Freireich, MD
2:46:55.1
She's fifty-seven.

Tacey Ann Rosolowski, PhD
2:46:59.3
She's a year older than me.

Emil J Freireich, MD
2:47:01.6
Yeah, so you're the Hair Generation too. She grew up smoking pot and hippie stuff with the boys and sleeping out and alcohol and all that stuff. We dragged her out of these commune-type things twenty times during her teens, when she was in high school in Houston. We had a rough time, but she finally got through high school. The way she did it was she got interested in drama. So she got into drama class. She practiced and finished high school. We got her into a drama program at North Texas State. Her academic things were so bad, she couldn't go anywhere but North Texas State. She got a baccalaureate degree, and she went to New York and acted and modeled. So she's done everything. She lived with all the gay guys, and all of her friends are dead now. She lived with them and sex and she did everything bad, and after a while, she got born again. She just got tired of all that. She came home, went to church, gave up all the bad things except alcohol. She couldn't shake alcohol, but she got a job as a teacher and worked with young people. She married a nice guy. But finally the alcohol got her, and we had to get her in rehab. She's now married to a straight guy. She's off the alcohol. She's off tobacco—fifty-seven. She had no children.

My other daughter had Crohn's disease when she was eighteen. She almost died. She had about ten years where it was touch and go. She got married to a wonderful guy, but they got divorced because of her career. She's a musician—plays the clarinet. So she's single and poor and we support her a hundred percent—Lindsey.

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And my oldest son is a great guy. He's the city engineer for the City of Round Rock. My younger son is a real estate guy. He works for Keller-Williams. So I have no hobbies except my family. So if they don't come to town—we're going through a phase now where my wife—we don't have help. She doesn't trust help. She's a compulsive obsessive. So if we hire someone, they never do it like she does. She has to do everything herself. So when they come to town, it's too much work for her. By the time the laundry—and we have a pool. They swim, and we go out and so on. She doesn't like them coming to the house, so we have to develop interests. So we're beginning to try to develop some things we like to do. I go to the theater with my daughter. She's an actress—Lindsey—and my wife is a realtor, so she loves homes. She looks at homes. She actually sold two houses in her career, but mostly she just likes real estate as a business. So we watch TV. I go to the football games.

One of my dear friends here, Bill Russell, was chairman of pathology. He's one of the people who recruited me here. He retired. He went to Florida, and he practiced for a long time and had a lot of money. When he died, his wife moved back to Houston because one of their daughters and their granddaughter lived in Houston. And she's a good friend, Marilyn Russell, and she loves baseball. So she takes Deeny and I to the baseball games. That's another hobby we have, but it's based on going with Dr. Russell. She's a lovely lady. She lives alone, but she had her daughter and her granddaughter in town. And professional friends—you know—the Freis, we do things with them. So everything I do has to do with work or family.

Tacey Ann Rosolowski, PhD
2:51:08.5
It sounds like it does. Well, I don't think I have any more questions for you right now.

Emil J Freireich, MD
2:51:13.9
Good. It's about time you got bored with all this boring stuff. As you know, I'm at the age where I enjoy reliving these experiences, but I shouldn't because I have to go forward or I'm going to get fired. So I still have a research project. I still contribute to leukemia. I'm still in charge of the training programs for graduate medical education. As long as I plan good things and we're doing well, I can still work as my main hobby.

Tacey Ann Rosolowski, PhD
2:51:46.3
Is there anything else you would like to add before we close off?

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Emil J Freireich, MD
2:51:50.9
No, but you should interview my wife. Now there's a great person. The guy who did the *People Make a Difference* series—I forgot his name now. He came to my house and interviewed my wife. She told him what my bad habits were.

Tacey Ann Rosolowski, PhD
2:52:10.2
Well, I want to thank you, Dr. Freireich.

Emil J Freireich, MD
2:52:14.7
Well, thank you. You are a trained listener. I should rent you by the hour. You're a psychotherapist.

Tacey Ann Rosolowski, PhD
2:52:24.5
Well, I hope I didn't do too much of that. But I want to thank you so much.

Emil J Freireich, MD
2:52:31.9
The best therapy people can have is to talk about their problems outside of their subconscious. It's to bring their problems to the surface. You have to know what bothers you in order to deal with it.

Tacey Ann Rosolowski, PhD
2:52:45.5
This is very true.

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Emil J Freireich, MD
2:52:46.9
When I was a senior in medical school, I met the founder of psychoanalysis. Franz Alexander was the chairman of our psychology department. In my graduating class from medical school, 180 graduates from University of Illinois College of Medicine—the largest single graduating class in the United States—fifty percent of the graduates wanted to go into psychiatry because Franz Alexander was so inspirational. He was the founder of psychosomatic medicine. He convinced everybody that all disease came from the brain, so you could treat diabetes by psychoanalysis. We used to go to the bedside and do what you did, talk to people with diabetes to get the out of a diabetic coma before we had to pull it. We did the same for hypertension. So psychosomatic medicine is a bunch of bullshit, but it was, at the time, a very attractive idea. And we thought, well, psychosomatic, if you're a psychiatrist, you can cure all disease, so we all wanted to be psychiatrists, but I signed up for psychiatry and I got fired. I was rejected, because in order to get into psychoanalysis, you had to be psychoanalyzed. So I applied for psychoanalysis to the best guys on our faculty, and they all said I was hopeless, so I couldn't go into psychiatry. I had to be a family doctor.

Tacey Ann Rosolowski, PhD
2:54:18.9
Well, maybe on that note we ought to close off the interview for today.

Emil J Freireich, MD
2:54:24.1
But that's true.

Tacey Ann Rosolowski, PhD
2:54:24.8
I believe you. I think that's a fabulous story.

Emil J Freireich, MD
2:54:26.7
Franz Alexander was my idol.

Tacey Ann Rosolowski, PhD
2:54:28.2
I think that's a fabulous story. Well, thank you very much, Dr. Freireich.

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Emil J Freireich, MD
2:54:32.1
But people say how did you get to where—? As you can see, everyone's life is a product of what happens to them. It's not what they decide to do. I became a doctor because I had tonsillitis in the ghetto, and I saw a guy wearing a shirt and tie, and I said, wow, I want to be like him. I got to be a hematologist because my boss got fired and said I had to go to Boston. I got married because my wife came and told me I had to do this family thing. People sit down with their kids and say, "What do you want to do?" That's not it. It's opportunity. You have to grasp what's in front of you and take your opportunity. The guys we've trained, the geniuses who are going to cure cancer, are all that kind of people. Michael Keating picked up his four kids and his wife, with no money, and came to train to work as a fellow at MD Anderson because he wanted to cure leukemia. He heard me give a seminar. I went to the international—that's one of the good things about the face-to-face thing is the young guys get to see some of the giants. At the time, I was the only one who was talking about curing leukemia, and when he heard about curing leukemia, he said, I want to do that. He took his wife and children, left his homeland, came to a foreign country with a visa, and for slave wages, and he's now number one in the world.

Tacey Ann Rosolowski, PhD
2:56:09.4
Looks like we're done.

Emil J Freireich, MD
2:56:10.0
Yeah, you going to get me soup?

Female Voice
2:56:12.6
I was coming to check on you.

Emil J Freireich, MD
2:56:14.5
She's such a great psychotherapist. I can't let her go. She's going to spend the rest of the day with me.

Female Voice
2:56:20.5
Okay, I'll get soup for both of you.

Emil J Freireich, MD
2:56:23.2
Were there any calls that I need to attend to?

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Female Voice
2:56:29.6
No, sir.

Emil J Freireich, MD
2:56:30.3
Okay, thank you for fending them off and giving me all that free time.

Tacey Ann Rosolowski, PhD
2:56:34.9
Well, it does sound like we can close off the interview at this point.

Emil J Freireich, MD
2:56:39.3
Sure.

Tacey Ann Rosolowski, PhD
2:56:40.2
Okay. The time is 1:15. I just wanted to say thank you again.

Emil J Freireich, MD
2:56:45.7
Have you eaten lunch?

2:56:47.2 (End of Audio Session Three)