

# **Norman Leeds, MD**

## **Interview Navigation Materials**

**Date submitted: 23 April 2018**

### **Interview Information:**

Two sessions: 30 May 2017, 20 June 2017

Total approximate duration: 3 hours 30 minutes

Interviewer: Tacey A. Rosolowski, Ph.D.

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### **About the Interview Subject**

Dr. Norman Leeds (b. 9 June 1928, West New York, New Jersey) came to MD Anderson in 1991 to serve as Head of the Section of Neuroradiology in the Department of Diagnostic Radiology. He is one of the pioneering founders of the field of neuroradiology and conducted foundational work on brain anatomy, the use of imaging techniques to enhance tumor diagnosis, and the toxic effects of chemotherapy on brain tissue. Dr. Leeds retired in 2003 to emeritus status, but at the time of the interview was continuing to come in to MD Anderson to mentor students and otherwise stay connected to the institution's research and clinical community.

### **Major Topics Covered:**

Personal background and education; two-career marriage

Professional trajectory prior to MD Anderson

Participation in and perspectives on the formative years of neuroradiology

Research contributions to neuro-radiology

Change at MD Anderson

Views on assuming leadership roles

## Mentoring

### **About transcription and the transcript**

This interview had been transcribed according to oral history best practices to preserve the conversational quality of spoken language (rather than editing it to written standards).

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In addition, the Archives may have redacted portions of the transcript and audio file in compliance with HIPAA and/or interview subject requests.

## **Norman Leeds, MD**

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# Norman Leeds, MD

## Chapter Summaries

### Interview Session One: 30 May 2017

#### Chapter 00A

##### *Interview Identifier*

#### Chapter 01

##### *A Good Education and an Early Focus on Being an Academic*

##### **A: Educational Path;**

###### Codes

A: Personal Background;

A: Professional Path;

A: Inspirations to Practice Science/Medicine;

A: Influences from People and Life Experiences;

A: Professional Values, Ethics, Purpose;

A: Military Experience;

In this chapter, Dr. Leeds sketches his family background and his educational path up to his decision to focus on neuroradiology. He begins by explaining that his father was a pediatrician who ran his practice from the family home, giving Dr. Leeds the opportunity to observe the demands of clinical practice. For that reason, he explains, as well as the fact that he was drawn to teaching and leadership, he always wanted to be an academic.

Next, Dr. Leeds talks about the education he received at preparatory school and in college at Yale College [University, BA, 1948], and why he wanted a broad education. He then talks about applying to medical school [MD, 1953, New York Medical College, New York, NY] and his work for the U.S. Public Health Service as a Senior Assistant Surgeon in Memphis [1955-1957], then he return to New York City, where he had an opportunity to work in clinics.

#### Chapter 02

##### *Choosing Neuroradiology at the Field's Infancy*

##### **A: Professional Path;**

###### Codes

A: Overview;

A: Definitions, Explanations, Translations;

C: Mentoring; D: On Mentoring;

C: Leadership; D: On Leadership;  
C: Discovery and Success;  
D: Understanding Cancer, the History of Science, Cancer Research;  
D: The History of Health Care, Patient Care;

In this chapter, Dr. Leeds explains why he chose to specialize in neuroradiology when the field was in its infancy. He notes that he was one of the founders of the American Society of Neuroradiology (ASN) in 1960 and that he was the first individual to receive an NIH Fellowship in this new field. He talks about his mentor, Dr. Tavares.

Next he sketches the state of the field and the challenges involved in diagnosing neurological issues. Dr. Leeds notes that he and Dr. Tavares wrote a book on the veins in the brain; he describes brain angiography and talks about the importance of understanding anatomy.

[The recorder is paused.]

Next, Dr. Leeds notes that three of the original fourteen founders of the ASN are still living.

He then briefly sketches his career track and major colleagues from his 1961, when he was hired as an assistant professor in the Department of Radiology at the University of Southern California at Los Angeles until his role as Director of Department of Radiology and Radiation Therapy at Beth Israel Medical Center in New York [1985-1991].

## **Chapter 03**

### ***A Detailed Understanding of Brain Circulation***

#### **A: The Researcher;**

Codes

A: Overview;  
A: The Researcher;  
C: Discovery and Success;  
A: Definitions, Explanations, Translations;  
D: Understanding Cancer, the History of Science, Cancer Research;  
D: The History of Health Care, Patient Care;  
D: Technology and R&D;

In this chapter, Dr. Leeds talks about his early research contributions to neuroradiology. He began his work with a focus on understanding the circulatory system of the brain in detail and he achieved expertise in brain angiography and brain circulation time, which led to other discoveries. He notes that he was the first to do a magnification angiograph and the first pediatric radiologist. He also notes his work on genetic abnormalities and pattern in neuroradiology.

## **Chapter 04**

## ***An Evolving Field; Dealing with Patients; Leadership Advice***

### **A: Overview;**

Codes

A: Overview;

D: The History of Health Care, Patient Care;

C: Mentoring; D: On Mentoring;

A: Definitions, Explanations, Translations;

A: Professional Values, Ethics, Purpose;

A: Career and Accomplishments;

C: Offering Care, Compassion, Help;

C: Patients; C: Patients, Treatment, Survivors;

C: Leadership; D: On Leadership;

In this chapter, Dr. Leeds recalls finding out about an opening for a neuroradiologist at MD Anderson and explains the process he went through to decide to take the position. As his wife, Betty, preferred not to leave New York City, they set up a long-distance marriage.

Next, Dr. Leeds also notes that he wanted to give up chairmanship of neuroradiology at Beth Israel Medical Center and believed that focusing on brain tumor radiology offered a good opportunity for him. He notes that he came to MD Anderson as Head of the Section of Neuroradiology.

## **Chapter 05**

### ***A New Opportunity at MD Anderson***

#### **A: Joining MD Anderson/Coming to Texas;**

Codes

A: Definitions, Explanations, Translations;

A: Overview;

D: Understanding Cancer, the History of Science, Cancer Research;

A: Joining MD Anderson/Coming to Texas;

A: Personal Background;

D: Technology and R&D;

C: Leadership; D: On Leadership;

D: On the Nature of Institutions;

B: MD Anderson Culture;

C: Leadership; D: On Leadership;

C: The Institution and Finances;

In this chapter, Dr. Leeds recalls finding out about an opening for a neuroradiologist at MD Anderson and explains the process he went through to decide to take the position. As his wife, Betty, preferred not to leave New York City, they set up a long-distance marriage.

Next, Dr. Leeds also notes that he wanted to give up chairmanship of neuroradiology at Beth Israel Medical Center and believed that focusing on brain tumor radiology offered a good opportunity for him. He notes that he came to MD Anderson as Head of the Section of Neuroradiology.

Dr. Leeds then recalls that he attended the first talk about the new CT technology in the U.S. He comments on the administrations reluctance to invest in the new technology because of the prices, rather than focusing on the revenue it might generate.

## **Interview Session Two: 20 June 2017**

### **Chapter 00B**

#### ***Interview Identifier***

About 30 sec

### **Chapter 06**

#### ***Early Research that Leveraged the MD Anderson Team Approach***

##### **A: The Researcher;**

Codes

C: Discovery and Success;

D: Understanding Cancer, the History of Science, Cancer Research;

B: Critical Perspectives on MD Anderson;

A: Personal Background;

B: Multi-disciplinary Approaches;

C: Leadership; D: On Leadership;

A: Overview;

A: Definitions, Explanations, Translations;

D: Technology and R&D;

In this chapter, Dr. Leeds begins to trace the history of the research he conducted at MD Anderson.

He begins by talking about his work (1998-2000) on imaging techniques to differentiate brain tumors from trauma and other causes. He discusses three-dimensional imaging and functional imaging and their roles in this process.

Next he talks about a landmark investigation of the use of dynamic contrast enhancement to identify malignant brain tumors. He notes that this technique became a significant factor in brain surgery.

Dr. Leeds next praises the team, multidisciplinary approach that was important to his research advances and which he says makes MD Anderson unique. He talks about the breadth of

experience that MD Anderson faculty bring to research teams, the number of cases they have access to.

He briefly speaks about losing his wife to ovarian cancer.

## **Chapter 07**

### ***Research on Brain Necrosis and Work in Neuro-Pediatrics***

#### **A: The Researcher;**

##### Codes

A: The Researcher;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

C: Discovery and Success;

C: Patients; C: Patients, Treatment, Survivors;

C: Cancer and Disease;

B: Multi-disciplinary Approaches;

A: Overview;

A: Definitions, Explanations, Translations;

B: Education; D: On Education;

B: Research;

Dr. Leeds begins this chapter with the statement that his “real contribution” was in studying the impact of cancer therapy on brain necrosis and its effects on brain tissue. He gives the example of a twenty-two year old patient who died from treatment induced brain necrosis.

Dr. Leeds then comments on how work of this kind demonstrates the value of specialty hospitals that bring together people, teams, and materials. He then talks about the impact of Dr. Raymond Sawaya, chair of Neuro-Surgery.

Dr. Leeds then talks briefly about the difficulty of treating brain cancers, particularly glioblastoma, the successes that have been achieved.

Next, Dr. Leeds turns to his work in neuro-pediatrics. He summarizes his professional path to neuroradiology then explains that he met Dr. Kenneth Schulman who asked him to come to University of Pennsylvania Children’s Hospital [CHOP]. Dr. Leeds explains how children’s cancers differ from those seen in adults, a subject he has investigated. He notes that he helped create a strong pediatric neurology program at CHOP, one that eventually became a leading program in the nation. He notes that MD Anderson’s pediatric neuro-oncology program became stronger over time.

## **Chapter 08**

## ***More Research on Techniques to Determine Physiology***

### **A: The Researcher;**

Codes

A: The Researcher;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

C: Discovery and Success;

A: Overview;

A: Definitions, Explanations, Translations;

B: Education; D: On Education;

B: Research;

D: Technology and R&D;

Dr. Leeds explains that after his work on brain necrosis, he returned to studies focused on physiology. He talks about a book he published with Dr. Juan Tavares on identifying dynamic changes with cerebral angiographs. He notes that angiography created the foundation of his knowledge in the field.

He then turns to more recent work on physiological questions, including interpretation of data from stains. He notes the importance of distinguishing tumors from lesions created by stroke.

Next he talks about the fellowship program and his continued interest in passing on his valuable depth of knowledge to others.

## **Chapter 09**

### ***Perspectives on Serving as an Expert in Lawsuits***

#### **A: Overview;**

Codes

A: Overview;

A: Critical Perspectives;

C: The Professional at Work;

A: Activities Outside Institution;

D: The History of Health Care, Patient Care;

C: Funny Stories;

Dr. Leeds begins this chapter by expressing his concerns about the impact that lawsuits brought against physicians can have on research. He discusses two cases in which he was called to provide expert testimony.

## **Chapter 10**

### ***Educating the Next Generation and Concerns about the Future of Healthcare***

## ***A: Overview;***

Codes

A: Overview;

A: Definitions, Explanations, Translations;

B: Education; D: On Education;

B: Research;

D: Technology and R&D;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

A: Career and Accomplishments;

A: Post Retirement Activities;

C: Dedication to MD Anderson, to Patients, to Faculty/Staff;

B: The Business of MD Anderson; C: The Institution and Finances;

Dr. Leeds explains that now that he comes to MD Anderson only one day a week, he focuses on educating fellows and students. He comments on the high quality of the next generation of physicians and researchers.

Next he explains his concern over the rising cost of medicine and the specter of a single-payer system which, he feels, would not offer quality people the financial incentives to stay in medicine.

## **Chapter 11**

### ***Some Views on Change and a Big Vision for the Future of the Neuro-Services***

#### **B: Institutional Change;**

Codes

C: Leadership; D: On Leadership;

C: Portraits;

B: Multi-disciplinary Approaches;

B: MD Anderson Culture;

B: MD Anderson History; B: MD Anderson Snapshot;

B: Growth and/or Change;

B: Critical Perspectives on MD Anderson;

B: Working Environment;

Dr. Leeds begins this chapter by talking about changes in Neuroradiology when Dr. William Murphy stepped down as chair, succeeded by Dr. Donald Podoloff [oral history interview]. He compares the temperaments and leadership styles of the two men.

Dr. Leeds then talks about a vision he shares with Raymond Sawaya [oral history interview]: to develop a neuro institute that would bring together all the fields working in neuro and would also feature a dining room to bring back some of the congenial feel of the older MD Anderson.

Dr. Leeds expresses the opinion that MD Anderson is too big, and the size creates obstacles to communication and collaboration. He tells a story about successfully getting money for an MR by talking to the CFO over lunch.

## **Chapter 12**

### ***Reflections on a Marriage and Family***

#### **A: Personal Background;**

Codes

A: Personal Background;

A: Professional Path;

A: Influences from People and Life Experiences;

A: Post Retirement Activities;

A: Professional Values, Ethics, Purpose;

A: Character, Values, Beliefs, Talents;

In this chapter, Dr. Leeds shares recollections of his wife, Betty, a woman for whom he had great love and respect. He also talks about his children and grandchildren, sharing advice he gives them.

## **Norman Leeds, MD**

### **Interview Session One: May 30, 2017**

#### **About transcription and the transcript**

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## **Chapter 00A**

### ***Interview Identifier***

***T.A. Rosolowski, Ph.D.***

[00:00:00]

OK, so our counter is moving, and the time is 9:55 on the 30<sup>th</sup> of May, 2017, and I am in the Historical Resources Center Reading Room this morning with Dr. Norman E. Leeds, who has graciously agreed to come in and talk with me. And just a few details before we start about Dr. Leeds's background. You came to MD Anderson in 1991. Is that correct?

[00:00:30]

***Norman Leeds, MD***

[00:00:30]

Correct.

[00:00:30]

***T.A. Rosolowski, Ph.D.***

[00:00:30]

OK. As a professor in the Department of Diagnostic Radiology, with the Kennedy Chair.

[00:00:36]

***Norman Leeds, MD***

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[00:00:37]

No.

[00:00:37]

***T.A. Rosolowski, Ph.D.***

[00:00:37]

No. Not at that time?

[00:00:38]

***Norman Leeds, MD***

[00:00:39]

No.

[00:00:39]

***T.A. Rosolowski, Ph.D.***

[00:00:40]

OK.

[00:00:40]

***Norman Leeds, MD***

[00:00:40]

It took me a few years to... You have to be elected, right? So they want to know whether you have any value.

[00:00:48]

***T.A. Rosolowski, Ph.D.***

[00:00:48]

OK. (laughter)

[00:00:48]

***Norman Leeds, MD***

[00:00:50]

So you have to be here to get it. That's my presumption.

[00:00:54]

***T.A. Rosolowski, Ph.D.***

[00:00:54]

OK, yeah. Well, that makes sense. I wasn't quite sure how that worked. It was --

[00:00:58]

***Norman Leeds, MD***

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[00:00:57]  
No, I came here as head of the Section of Neuroradiology.  
[00:01:01]

***T.A. Rosolowski, Ph.D.***  
[00:01:01]  
Oh, OK.  
[00:01:03]

***Norman Leeds, MD***  
[00:01:03]  
And Professor of Radiology, which I had been elsewhere.  
[00:01:08]

***T.A. Rosolowski, Ph.D.***  
[00:01:08]  
OK. And so, again, you've retired twice. The year of your first retirement was...?  
[00:01:15]

***Norman Leeds, MD***  
[00:01:15]  
Two thousand three.  
[00:01:17]

***T.A. Rosolowski, Ph.D.***  
[00:01:17]  
Two thousand and three. OK. And your status today, Professor Emeritus, or...?  
[00:01:24]

***Norman Leeds, MD***  
[00:01:24]  
I am Professor Emeritus, but not really. I'm just plain Professor, because I couldn't get this  
[indicates his institutional badge] for Professor Emeritus.  
[00:01:33]

***T.A. Rosolowski, Ph.D.***  
[00:01:33]  
Oh, the badge, right.  
[00:01:34]

***Norman Leeds, MD***

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[00:01:34]

So I had to... I could not be—even though they wanted to give it to me, the Chairman wanted, I had to forego my Professor of, you know, and be just a plain professor.

[00:01:51]

***T.A. Rosolowski, Ph.D.***

[00:01:51]

So that you could be on two days a week.

[00:01:54]

***Norman Leeds, MD***

[00:01:53]

Be on—so that I could get... No, I'd get an ID.

[00:01:56]

***T.A. Rosolowski, Ph.D.***

[00:01:56]

Oh, OK, OK.

[00:01:57]

***Norman Leeds, MD***

[00:01:57]

It's interesting: I had to be selected to be Professor Emeritus, but it has no value.

[00:02:07]

***T.A. Rosolowski, Ph.D.***

[00:02:07]

Oh, interesting.

[00:02:08]

***Norman Leeds, MD***

[00:02:07] You're not considered interesting. (laughter)

[00:02:11]

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## **Chapter 01**

### ***A Good Education and an Early Focus on Being an Academic***

#### **A: Educational Path;**

Codes

A: Personal Background;

A: Professional Path;

A: Inspirations to Practice Science/Medicine;

A: Influences from People and Life Experiences;

A: Professional Values, Ethics, Purpose;

A: Military Experience;

***T.A. Rosolowski, Ph.D.***

[00:02:13]

All right. Well, this is our first session, and wanted to thank you for coming in this morning. And if it's OK with you, we'll start kind of in the normal place for oral history, and let me ask you where you were born, and when, and tell me a little bit about your family.

[00:02:36]

***Norman Leeds, MD***

[00:02:37]

I was born June the 9<sup>th</sup>, 1928, in West New York, New Jersey. My father was a physician, and worked very hard. He was a pediatrician and general practitioner with a huge practice, and I—that's—that was what I had. My mother was a very intelligent, articulate woman, so I was very fortunate.

[00:03:12]

***T.A. Rosolowski, Ph.D.***

[00:03:13]

And your parents' names?

[00:03:14]

***Norman Leeds, MD***

[00:03:14]

Hmm?

[00:03:15]

***T.A. Rosolowski, Ph.D.***

[00:03:15]

Your parents' names?

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[00:03:16]

***Norman Leeds, MD***

[00:03:18]

Frieda and Jacob.

[00:03:21]

***T.A. Rosolowski, Ph.D.***

[00:03:23]

OK. Now, what do you...? You said your dad worked very hard. Did he have his practice near your home, or...?

[00:03:31]

***Norman Leeds, MD***

[00:03:32]

Yeah. It was in the home.

[00:03:34]

***T.A. Rosolowski, Ph.D.***

[00:03:34]

Oh, it was. OK.

[00:03:35]

***Norman Leeds, MD***

[00:03:35]

But he was also Chief of Pediatrics at Christ Hospital in Jersey City, New Jersey. And he was really an outstanding doctor.

[00:03:45]

***T.A. Rosolowski, Ph.D.***

[00:03:45]

Now, was that kind of an inspiration to you? Did you feel that that influenced your choices later?

[00:03:52]

***Norman Leeds, MD***

[00:03:54]

Yes and no. I'm not sure it... Well, it influenced that I didn't want to do what he did, because I didn't want to work like he did, which was seven days a week, 12 hours a day, and I thought that was... I started there, but I changed to radiology.

[00:04:15]

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***T.A. Rosolowski, Ph.D.***

[00:04:15]

OK. OK, so the clinical practice was something that you were—had reservations about.

[00:04:21]

***Norman Leeds, MD***

[00:04:20]

Did not—yes.

[00:04:21]

***T.A. Rosolowski, Ph.D.***

[00:04:21]

Yeah, OK.

[00:04:23]

***Norman Leeds, MD***

[00:04:23]

But I wanted to be an academic, and I realized that if you practiced medicine, internal medicine, you really didn't usually, unless you stayed in a university—you were a general practitioner.

[00:04:40]

***T.A. Rosolowski, Ph.D.***

[00:04:40]

Why did you want to be an academic?

[00:04:43]

***Norman Leeds, MD***

[00:04:44]

I don't know why. I guess I always liked teaching, and leading, and doing things. And I think that means you... Plus I had an outstanding residency, and I felt it would be a shame to go into [private] practice having had such outstanding training. I had unique training, so I was lucky.

[00:05:12]

***T.A. Rosolowski, Ph.D.***

[00:05:13]

Before we get to that point, let me ask you kind of when it was in your early education that you began to realize, yeah, I've got a gift for the sciences, or I'm interested in academic work. How did all that evolve?

[00:05:28]

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***Norman Leeds, MD***

[00:05:29]

(laughs) I really don't—I don't know. You know, as I was growing I realized that I was better as a—would be better as a doctor than as anything else, because none of the other things seemed to interest me as much.

[00:05:50]

***T.A. Rosolowski, Ph.D.***

[00:05:50]

Did you have outside interests beyond sort of science classes, math, all that?

[00:05:56]

***Norman Leeds, MD***

[00:05:57]

Yeah, I did all the sports, like everyone else, I guess, and I enjoyed life.

[00:06:05]

***T.A. Rosolowski, Ph.D.***

[00:06:05]

What were the schools you went to?

[00:06:07]

***Norman Leeds, MD***

[00:06:07]

I went to Memorial High School in West New York, New Jersey. And then I went to prep school at Mercersburg Academy in Mercersburg, Pennsylvania for my senior year and part of my junior year. And I graduated with honors.

[00:06:33]

***T.A. Rosolowski, Ph.D.***

[00:06:33]

So this—so you lived away from home during that period.

[00:06:37]

***Norman Leeds, MD***

[00:06:37]

Yes, it was very... I must tell you, it was hard. I had gone to camp for many—since I—and didn't think twice about—but being at school and not having family was not easy. I had to learn how to... I think it was a good experience, because it prepared me for college.

[00:07:02]

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***T.A. Rosolowski, Ph.D.***

[00:07:03]

So how come your family made the decision to send you to a boarding school?

[00:07:06]

***Norman Leeds, MD***

[00:07:06]

Because the—one of the teachers called my father and said I was bored, and that he thought the school wasn't giving me enough information to keep me interested, and he thought I should go to a good boarding school. And my parents, I guess, listened, so I ended up at Mercersburg.

[00:07:32]

***T.A. Rosolowski, Ph.D.***

[00:07:32]

Lucky you that this person called, you know?

[00:07:35]

***Norman Leeds, MD***

[00:07:35]

Yes. (laughs) I realized I was not an easy pupil, because the school—you know, it's a regular high school, and some of the children are bright, some are average, and some are below average. So since they teach, usually, to the lowest common denominator, it can be boring in public school. Not all public schools. My kids did go to such a public school, because the edu—you know, the standards that kids in my—where we lived, which we chose, had very bright kids, so it taught at a higher level. In fact, some of the parents—I was on the School Committee, so I—they complained that the teachers taught at such a high... See, it was the opposite of where I went to school. They taught at a much higher level, so that kids really learned something.

[00:08:43]

***T.A. Rosolowski, Ph.D.***

[00:08:43]

What school was this?

[00:08:44]

***Norman Leeds, MD***

[00:08:44]

This was in Chappaqua, New York, Horace Greeley High School. Was excellent. Both my kids went there.

[00:08:51]

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***T.A. Rosolowski, Ph.D.***

[00:08:54]

So how did this experience at prep school...? I mean, you said it was emotionally hard, and socially. What about academically?

[00:09:02]

***Norman Leeds, MD***

[00:09:02]

No, academically, it was a very strong academic program, and did prepare—as they said, it prepared me for the rigors of college. I mean, it was a tough program at Mercersburg.

[00:09:16]

***T.A. Rosolowski, Ph.D.***

[00:09:17]

So tell me about selecting your college.

[00:09:20]

***Norman Leeds, MD***

[00:09:21]

Well, I... (laughs) I think I made a mistake. (laughter) How's that? And you'll say, "Well, what...?" Well, I went to Yale. Why I chose Yale people have asked. I really don't know why I decided I wanted to be a Yalie, but for some reason I did. That was my first choice.

[00:09:45]

***T.A. Rosolowski, Ph.D.***

[00:09:45]

Why did you think it was a mistake?

[00:09:47]

***Norman Leeds, MD***

[00:09:47] Because New Haven is a small city. You know, Harvard is in Cambridge. Cambridge is very nice, compared to New Haven, and Harvard College is broader, and who knows what I would've been. I mean, you get... You know, you have to learn it's your exposure, and I think Harvard College is really better. I mean, I hate to say this, but I think it's true.

[00:10:21]

***T.A. Rosolowski, Ph.D.***

[00:10:21]

Well, it may be better for you.

[00:10:24]

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***Norman Leeds, MD***

[00:10:24]

And I think Princeton was nicer to be at, and actually Mercersburg was a prep school for Princeton, which I could've gotten into, but I had chosen Yale, and no one would've... And I can't say—I can't complain. It was a—I had a good education. I met very nice people. I enjoyed myself. But as I got older I realized that I had made a mistake. So I had a little more understanding for my children, based on what happened to me, that not always picking what's among the best, and focused on it, is the correct thing.

[00:11:11]

***T.A. Rosolowski, Ph.D.***

[00:11:10]

So what about the education there? How did you find yourself evolving there, and your interests developing?

[00:11:19]

***Norman Leeds, MD***

[00:11:19]

Well, that—then I really began to think about premed, I think partly, I guess, because of my life's experience, but also for what I could do. Seemed like medicine was the right thing for me.

[00:11:39]

***T.A. Rosolowski, Ph.D.***

[00:11:40]

Were there certain types of sciences, or certain types of classes, that you were more attracted to than others?

[00:11:46]

***Norman Leeds, MD***

[00:11:47]

No, I really did try to take a broad education. I studied Russian literature, and I had a varied program. I majored in psychology, but which was, again, a poor major, I decided, because psychology is commonsense. I mean, when you look at everything in life, most of it is commonsense. I mean, I took business courses later on as I got ahead. The chair at Montefiore wanted us to learn everything, so I took the course in business, another colleague and I, the two more senior people, to learn. And I learned business. It's commonsense. Most things require experience and common sense. And, I mean, I think that's a factor of life, which I've tried to teach my children, that the broader your experience, the broader your common sense is. So you want a broad exposure. And I think I had that at college. I mean, I was not overwhelmed with the sciences. I took everything.

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[00:13:12]

***T.A. Rosolowski, Ph.D.***

[00:13:14]

That also seems to be very common. I mean, many people who kind of went through college in earlier generations talk about their education being very broad, and, of course, that really has changed now. People specialize really, really early.

[00:13:31]

***Norman Leeds, MD***

[00:13:31]

I think that's—by the way, I think that's a mistake.

[00:13:35]

***T.A. Rosolowski, Ph.D.***

[00:13:35]

Really?

[00:13:35]

***Norman Leeds, MD***

[00:13:36]

Yeah. I think... I think understanding everything is—you know, being exposed is critical. It's like, I use my son as [an example]. I mean, he's the last one I would have thought, but the thing that influenced him, and made me realize why Columbia was such a good school, was because he had to take that core curriculum, so he learned about music and opera, and he... And the museums. So he was very interested in everything. And I realize now that that's very [important]. Today, I mean, social studies and all, which are important for thinking, are not... I don't think the educational system of teaching people earlier is better. It doesn't make you a better doctor. It doesn't make you a better scientist. Doesn't make you a better anything. I think a broader education is critical, and I think that's missing now. Remember, I'm probably one of the most super-specialized people, but it all came later. So it came. I didn't need to sub-specialize. I got sub-specialized, is what I'm saying. So why did I need it before?

[00:15:14]

***T.A. Rosolowski, Ph.D.***

[00:15:15]

It was sort of a natural progression.

[00:15:17]

***Norman Leeds, MD***

[00:15:17]

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It just happened, yeah.  
[00:15:18]

***T.A. Rosolowski, Ph.D.***  
[00:15:18]

Right, right. While we're—you mentioned your son. Tell me your children's names.  
[00:15:23]

***Norman Leeds, MD***  
[00:15:24]

My children's names are Frederick G., or Rick—he's called Rick—and Patrice G. She's called—I call her Patti. Her kids (laughs) call her Patrice. And they're both very well-educated and have achieved.  
[00:15:44]

***T.A. Rosolowski, Ph.D.***  
[00:15:45]

Neat, neat.  
[00:15:46]

***Norman Leeds, MD***  
[00:15:46]

So I'm very proud of both of them. And they both went to excellent schools, so—  
[00:15:52]

***T.A. Rosolowski, Ph.D.***  
[00:15:52]

It sounds like education is a huge value, both in your family—your parents' generation, your generation.  
[00:15:58]

***Norman Leeds, MD***  
[00:15:58]

Yeah. Well, I think it's critical. I mean, I think I wouldn't be where I was, and I don't think I would've had all the... That was the one advantage Yale gave me. I mean, I—it sort of sorts you out. When you go to a better school, and you apply for things, you have a better [opportunity]. No matter what everybody tells you, which is babble, it makes a difference. When somebody sees Yale or Harvard or Princeton, they see an Ivy League, they somehow have an expectation that you are selected. I mean, there—people make choices, and there are clues, and one of the clues is if you go to Ohio State, it's not—Ohio State is excellent, but still, it doesn't say anything

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about you. But if you go to Yale or Harvard or Princeton or Brown or Columbia, you're sort of labeled as an achiever. Huh? I mean, people are impressed.

[00:17:09]

***T.A. Rosolowski, Ph.D.***

[00:17:09]

Yeah, they are. They are.

[00:17:10]

***Norman Leeds, MD***

[00:17:10]

And I can't say it hasn't... I'm saying that because I'm sure it helped me at many steps in my education.

[00:17:20]

***T.A. Rosolowski, Ph.D.***

[00:17:21] Now, your next step was medical school, so tell me about selecting your medical school. Oh, and just for the record, you graduated with your BA in 1948, correct?

[00:17:31]

***Norman Leeds, MD***

[00:17:31]

Yes.

[00:17:31]

***T.A. Rosolowski, Ph.D.***

[00:17:32]

OK, and then your next move to medical school, tell me about your choice.

[00:17:36]

***Norman Leeds, MD***

[00:17:38]

Choice was where you got picked. You know, I came at the most inopportune time, because I graduated in—if you looked, I graduated from college in 1948. This is when everybody was applying because of the war. We had people—I think the largest number of applicants. For example, George H.W. Bush, who's now—was in my class at Yale.

[00:18:13]

***T.A. Rosolowski, Ph.D.***

[00:18:13]

Really?

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[00:18:13]

***Norman Leeds, MD***

[00:18:13]

But he was—I'm not a child, but he was five years older than me, because he was in the service, and I was lucky enough during the war not to be drafted. So I had all these people—I mean, getting into medical school there were many more applicants. When I got into college, I guess it was easier, because (laughs) everybody was going into the services, so it was—so that way it was easier. But when I went to medical school it was harder. So you, you know... And I think the thing that helped me was I went into the service, and—public health service, which I selected over going [into the army]. I got drafted. I was a medical resident.

[00:19:07]

***T.A. Rosolowski, Ph.D.***

[00:19:08]

So I have your years of public health service 1955-57.

[00:19:12]

***Norman Leeds, MD***

[00:19:12]

Yeah, well, that's when I had to—they drafted me. They called me and said I had to choose—I had to go in the service. So I... But fortunately, I had finished medical school, so they took me out of my medical residency, which was at Montefiore in New York, and I went in the service, and I said, I don't really want to be a medical resident. I want to choose another specialty, because my best friend had been Chief Resident at Montefiore, and I went making calls with him. That's what I meant. We would go out with... I was married, and he was married. The women would talk, and I'd go making calls with him. And I watched the way... And after an outstanding medical residency he was doing general practice, like my dad. So I said, why should I become a specialist and end up doing general practice? So that was why I made a decision to change specialties. Why I chose radiology, I—don't ask me. I don't know.

[00:20:30]

***T.A. Rosolowski, Ph.D.***

[00:20:30]

Can I ask you another question, though? Because I'm curious of... You know, did—what was public health service like? I mean, how did that...? Did it have an impact, or...?

[00:20:41]

***Norman Leeds, MD***

[00:20:40]

That was great. Yeah, it was great. I enjoyed it. It was a two-year vacation.

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[00:20:45]

***T.A. Rosolowski, Ph.D.***

[00:20:45]

Was it really? (laughs) What did you do?

[00:20:47]

***Norman Leeds, MD***

[00:20:46]

Yeah, well, I served in New York City, and the—it was really lucky. I was given a choice of New York City or Memphis, Tennessee. Well, not being very practical, I had never been to Memphis, so I said to my wife, “Why don’t we go to Memphis?” And my wife said to me, “No, no, no. I want to continue my education. Let’s stay in New York City.”

[00:21:14]

***T.A. Rosolowski, Ph.D.***

[00:21:14]

Your wife’s name?

[00:21:15]

***Norman Leeds, MD***

[00:21:16]

Bette. Beatrice Gordon Leeds. Gordon. Beatrice Gordon, and otherwise known as Bette.

[00:21:24]

***T.A. Rosolowski, Ph.D.***

[00:21:24]

OK. And what was she—what was her program at the time?

[00:21:28]

***Norman Leeds, MD***

[00:21:29]

Bette was a... Well, she had to support me, because I was [an intern and a resident]. We didn’t get paid in those days. So I graduated from medical school and got married at the same time. Bette was a senior at Wellesley, and then she went to work as a schoolteacher, so she supported me. And she wanted to stay in New York City. Well, we always lived by discussion, and I knew, since she was doing the working, really—I mean, I was in the service—that I chose New York. And it turned out to be the best choice, because we got an apartment. We lived in an apartment, actually, as—I was in Riverdale in New York when I was a resident in medicine, and I could stay there during the service. So I—we stayed in our apartment, and I worked in the outpatient clinic. I started because I was the newest guy in the surgical clinic, for which I was

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not ideal, but I didn't have a choice. That's where they put me. So you either would adapt or you suffer, right? So I adapted.

[00:22:57]

[00:22:57]

But then the opportunity came to go work in the medical clinic, which I did, and then they actually offered me to go to the hospital, because Staten Island Hospital was a major public health service hospital. The only reason I didn't want it was it would be an hour-and-a-half trip from where I lived, and since I was not going to go into medicine I didn't see any advantage in going to the hospital and traveling, so I stayed at the clinic, which was nice, and I actually stayed two months longer, because it paid well. This is where we made some money, because I hadn't anticipated this. But in the service you got paid, so I got more money, because I was a captain, I guess. That's what doctors were in those days. And I did get—and then I chose radiology, and I was lucky. I got probably one of the best residencies in the country, Columbia Presbyterian Medical Center, which is part of Columbia University's medical school, and Columbia Presbyterian had an ideal program in radiology, and that's where I got my start. And actually the founder of the American Society of Neuroradiology was my—one of my teachers at Columbia [Juan Taveras, MD].

[00:24:33]

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## **Chapter 02**

### ***Choosing Neuroradiology at the Field's Infancy***

#### **A: Professional Path;**

Codes

A: Overview;

A: Definitions, Explanations, Translations;

C: Mentoring; D: On Mentoring;

C: Leadership; D: On Leadership;

C: Discovery and Success;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

***T.A. Rosolowski, Ph.D.***

[00:24:34]

Now, you said you have no idea why you selected radiology.

[00:24:38]

***Norman Leeds, MD***

[00:24:38]

No, I don't. I just—I thought, I like seeing... I watched the radiologists work, and it was solving puzzles. Radiologists look at things and solve puzzles. And I thought that sounded interesting. I read the book, and it seemed a lot of math. And I had been good at math until I got to college, and I found I wasn't a great mathematician. So I wondered whether I would make it, but I did. I did very [well].

[00:25:20]

***T.A. Rosolowski, Ph.D.***

[00:25:20]

What about looking at the visual images? Are you a visual thinker? Is that easy for you?

[00:25:25]

***Norman Leeds, MD***

[00:25:24]

I guess I am a visual thinker. I like puzzles.

[00:25:27]

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***T.A. Rosolowski, Ph.D.***

[00:25:28]

Yeah. I mean, you're interested in art and sort of visual complexity and all that.

[00:25:32]

***Norman Leeds, MD***

[00:25:33]

Yeah, so I loved [radiology]. And then I got into neuroradiology. Now, I chose it because it—the clinicians—you know, [came to neuroradiology for answers to problems.] I'd been through everything. I didn't get there until I'd been through everything in radiology. We rotated through each... In fact, we were the only radiology program—it's now standard—that had all the subspecialties.

[00:26:00]

***T.A. Rosolowski, Ph.D.***

[00:26:00]

Oh, really?

[00:26:00]

***Norman Leeds, MD***

[00:26:00]

So I—yeah, it was probably the only program in the country. I mean, I didn't know that at the time, but that—I was lucky. And I got to neuroradiology last, after pediatrics. And I said to my wife, "You know, I really like neuroradiology."

[00:26:18]

***T.A. Rosolowski, Ph.D.***

[00:26:18]

What was it that was grabbing you about that?

[00:26:20]

***Norman Leeds, MD***

[00:26:21]

I'll tell you, it was very simple: one, it was the person, Dr. Taveras; and two, the fact that the neurosurgeons couldn't do a [ ] thing until they went over the images with Dr. Taveras, and I felt you were therefore very important to your colleagues to making the diagnosis. So I said, "This is what I want to be." So I was lucky. That's what I said to you. I was there at the inception. There was no American Society of Neuroradiology. It was formed by Dr. Taveras. In fact, it started in 1960. And he asked me if I wanted to be a Fellow. He had—I was the first NIH Fellow in Neuroradiology.

[00:27:19]

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***T.A. Rosolowski, Ph.D.***

[00:27:19]

Wow.

[00:27:20]

***Norman Leeds, MD***

[00:27:20]

That's not because I was—there were other Fellows, but they were in Europe. There were no programs in America until Dr. Taveras started that program at Columbia. So he asked me. I went, and everything—my wife and I did everything together, because we worked together. So I felt it was—since I was going to have to spend two years—I was only counting on three years of radiology, but I told her I thought in the long run neuroradiology would be a better specialty for me for the future, for our future. I stressed “our.” You use the right term, you have a better chance of winning, right? (laughter)

[00:28:08]

***T.A. Rosolowski, Ph.D.***

[00:28:09]

Strategic man there.

[00:28:10]

***Norman Leeds, MD***

[00:28:10]

Right. Well, no, and she—Bette supported it. I explained to her why. I mean, I didn't just come in and say, “This is what we're doing.”

[00:28:21]

***T.A. Rosolowski, Ph.D.***

[00:28:21]

Now, what was your reasoning at the time?

[00:28:23]

***Norman Leeds, MD***

[00:28:24]

Just what I said to you. I thought it was a new specialty. It was—and it turned out I was right, because I was there at the foundation.

[00:28:34]

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***T.A. Rosolowski, Ph.D.***

[00:28:34]

Now, let me ask you, because I was actually doing a little reading online about the history of neuroradiology, because this is my first—

[00:28:43]

***Norman Leeds, MD***

[00:28:41]

See, I am... I... See, that's something I know. I was there at the beginning.

[00:28:47]

***T.A. Rosolowski, Ph.D.***

[00:28:47]

Well, that's why I wanted to ask you, because, you know, I think today, I mean, people make a lot of assumptions, because we're living in a context where there have been a lot of discoveries. But what were the challenges of neuroradiology that you were confronting at the time? I mean, what was this field looking at in terms of discovery territory?

[00:29:06]

***Norman Leeds, MD***

[00:29:06]

Well, (laughs) this is a long... All the things that attract people today, you know, the tools—AMR and so forth—were not—nothing was in existence. I mean, that was the other—it was a challenge to make the diagnoses. We did mostly angiography, and we were better at it than anybody. Taveras was really better, and so I learned. I was probably superior to some of my teachers who had more experience in neuroradiology, but not experience in angiography, than I had. Because I started, you know, doing angiograms all the time. I mean, when people talk—I did thousands of angiograms, so you learn the anatomy, which, by the way, is still critical. I still use the things. And I actually did work in some of the exciting physiological problems with angiography that then translated into all the other things that followed. [We also performed pneumoencephalography, which disappeared after CT.]

[00:30:18]

***T.A. Rosolowski, Ph.D.***

[00:30:19]

Now, what were some of the physiological challenges you were looking at? I mean, what were some of the things you worked on?

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[00:30:26]

***Norman Leeds, MD***

[00:30:25]

You know, what... In the brain, we looked for stains, in tumors. I actually wrote a paper, which then became a book, with Dr. Taveras on circulatory changes, and not—and pointed out that the veins were really more important than the arteries in identifying tumors. That's, you know, a book. Unfortunately, the book came out when CT came out, (laughter) so it sort of—

[00:31:02]

***T.A. Rosolowski, Ph.D.***

[00:31:02]

Eclipsed it, yeah.

[00:31:03]

***Norman Leeds, MD***

[00:31:03]

But still, it helped me. And people talk about... Angiography was complex, but nobody understood it.

[00:31:12]

***T.A. Rosolowski, Ph.D.***

[00:31:12]

Now, how does it work? Because I actually can't even visualize what you were doing when you do an angiography, angiogram.

[00:31:19]

***Norman Leeds, MD***

[00:31:19]

You injected the carotid artery, which was the main [artery to the brain]. The artery's mainly to the forebrain, not the hindbrain. And we looked for circulation: circulation time, stains, slow veins, fast veins, early veins. We identified early veins, slow veins, all of which I described in my book and several of my earlier papers, which later have profound significance. So understanding it was simple when CT and MR came, because I knew all that, because I had [performed cerebral angiograms].

[00:32:01]

[The recorder is paused]

***T.A. Rosolowski, Ph.D.***

[00:32:16]

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OK, we're back after just, like, a 30-second pause. So this was all during your residency period.  
[00:32:23]

***Norman Leeds, MD***

[00:32:23]

No, fellowship.

[00:32:24]

***T.A. Rosolowski, Ph.D.***

[00:32:24]

Fellowship period, OK. And just so your... Let me just go back, because residency was '57 to 1960, and then your fellowship period at the Neurological Institute of Columbia was 1960-1961.  
[00:32:39]

***Norman Leeds, MD***

[00:32:39]

Yeah, it was actually, you know, later in '61, so it was almost the two-year fellowship that was required. I got a job, so they allowed me to leave. And that's why I went to USC. I wanted to live in California, I thought.

[00:32:58]

***T.A. Rosolowski, Ph.D.***

[00:32:59]

OK. So obviously this was just amazing training. Is there anything you want to—else you want to say about that fellowship period that was so key?

[00:33:09]

***Norman Leeds, MD***

[00:33:09]

No, it... Well, it prepared me—that's why I became a founding member, because I was the 14<sup>th</sup> member. There were 14 members selected, and these were the greats in American and Canadian neuroradiology, picked by Dr. Taveras. And I got picked because I was there, so I was the youngest, and I was the only Fellow.

[00:33:39]

***T.A. Rosolowski, Ph.D.***

[00:33:41]

So did those folks become kind of your network later on? I mean, was that...? That must've been really significant.

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[00:33:47]

***Norman Leeds, MD***

[00:33:45]

Oh, yeah. I know all of them. Yes, very well. And they're all dead, except... There are only three of us—this is interesting—three of us alive who were founding members. The other two are not practicing anymore, so I'm the only one practicing still. And we all shared this—believe it or not, the three of us shared an office at the Neurological Institute. They were my teachers, but I was thrown in with them, because I was the Fellow.

[00:34:30]

***T.A. Rosolowski, Ph.D.***

[00:34:30]

So you mentioned Dr. Taveras as being really significant. Are there any of these other folks that really were key?

[00:34:36]

***Norman Leeds, MD***

[00:34:35]

They were all significant.

[00:34:37]

***T.A. Rosolowski, Ph.D.***

[00:34:37]

They were all significant?

[00:34:37]

***Norman Leeds, MD***

[00:34:37]

Yeah. Gordon Potts [MD] was... He ended up [ ] at Cornell. He left Columbia and went to New York Hospital, and then went to Canada, at the big university in Toronto, which ran five hospitals, and we were still friends. And Norman Chase [MD], who was a resident with me, but ahead of me by two years, was Head of Neuroradiology at NYU, and then became Chairman of Radiology at NYU. So those were the three: Norman Chase, Gordon Potts, and me. So it was—yes so we were the—we were like brothers then. I mean, there were very few of us. I mean, it was—yes. I began this specialty is what I'm saying. That's my good fortune. It's [luck]. Better to be in the beginning than the end.

[00:35:44]

***T.A. Rosolowski, Ph.D.***

[00:35:46]

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So tell me about taking the position in California.  
[00:35:52]

***Norman Leeds, MD***  
[00:35:53]

That was—it was a wonderful job. It was the University of Southern California, Los Angeles County General. It was a totally different. I went from a private practice of [neuroradiology,] neurosurgery and neurology at the Neurological Institute, to a [ ] city hospital in Los Angeles. Why did I leave? It was very silly, but I left because I—one, I got a little homesick for New York. But more importantly was most people were not very academic. They enjoyed California. It was hard to get people to work. They enjoyed the weekends and so forth. And I must say my wife and I had a wonderful time in Los Angeles. We had made very good friends, which we ended up giving up. But I thought my career was not moving. I was separated from everybody, because the West was like [a wasteland]. It still is—not as... The Western part of academics is not as populated as the Eastern section.  
[00:37:18]

***T.A. Rosolowski, Ph.D.***  
[00:37:18]

Now, it sounds to me like you really had a lot of ambition in your career. I mean, you were thinking about career and advancement.  
[00:37:26]

***Norman Leeds, MD***  
[00:37:26]

But that's what I said. But man, everybody—that's why I said to you, that's why everybody wants to be a chairman. You know, that's your goal. It's like being in the Army, you want to be a general. Everybody's focused. And it becomes a—it's something you think about. And I moved up to that, but when I got there I found out it wasn't what I [wanted]. I mean, it's administration, and a lot of nonsense, whereas doing neuroradiology was really being in the center. And I enjoyed—and I found out it really wasn't important. It took me a long time. Until I did it, I didn't realize I didn't like it. And when I had the opportunity, and then they called me from here with the job to come, and I thought that was exciting, to deal with [earlier]. And I tried to explain to my wife I was not leaving New York—I was leaving because I had the opportunity to come to the preeminent cancer center to learn—to deal with brain tumors. And I've been grateful, because I know more about brain tumors now than anybody alive, as well as knowing more about neuroradiology than anybody.  
[00:38:53]

***T.A. Rosolowski, Ph.D.***  
[00:38:53]

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Now, there were obviously a lot of years intervening, because you left—  
[00:38:58]

***Norman Leeds, MD***

[00:38:58]

Not that many, actually.

[00:39:00]

***T.A. Rosolowski, Ph.D.***

[00:39:00]

Yeah?

[00:39:00]

***Norman Leeds, MD***

[00:39:01]

No, not that many. I went from—I went from USC—

[00:39:06]

***T.A. Rosolowski, Ph.D.***

[00:39:06]

In '63.

[00:39:07]

***Norman Leeds, MD***

[00:39:06]

—to Philadelphia, and found that they had—the bad choice was Graduate Hospital was a disaster. It was nothing there. And then my friend came from Columbia as Neurosurgical Chair at Children's Hospital [Philadelphia, CHOP], which is one of the great centers, and I—he wanted me to come to Children's. So I worked part-time at Children's, being the first neuroradiologist at the Children's Hospital of Philadelphia, which is probably still the preeminent hospital in pediatric radiology, which I really loved. So I did that with Ken Shulman [MD], and—who was the Chair of Neurosurgery—and I really enjoyed it. And I worked at Albert Einstein Northern, which was fine. It was more of a private practice, but we had some outstanding [cases]. I trained some outstanding residents.

[00:40:20]

***T.A. Rosolowski, Ph.D.***

[00:40:20]

That was '68-74.

[00:40:22]

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***Norman Leeds, MD***

[00:40:22]

Yeah. No. No. No.

[00:40:26]

***T.A. Rosolowski, Ph.D.***

[00:40:26]

No?

[00:40:26]

***Norman Leeds, MD***

[00:40:26]

No.

[00:40:26]

***T.A. Rosolowski, Ph.D.***

[00:40:27]

OK.

[00:40:27]

***Norman Leeds, MD***

[00:40:27]

Nineteen sixty-four to 1968. That's when I moved to Montefiore. And I moved to Montefiore in, I think, [ ] '69, and stayed there through 1985. But I left because Montefiore offered me a job with one of the best radiologists in the country, Harold Jacobson [MD], who later became President of the American Board of Radiology, President of the RSNA, and President—you know, he was really one of the—of the American Board. He was preeminent. And I enjoyed working for him. He was really, I should say, very outstanding. I've had some outstanding... First was [Juan] Taveras [MD], then was William Seaman [MD], who was my Chair at Columbia, and thought I shouldn't be a neuroradiologist, but a chair in radiology. He was wrong, but I respected him and liked him. And then... And then, after that, I took the job, as I wanted to be a chair, so I went to—in New York City, to Beth Israel Hospital. And I really didn't like being a chairman, because I was bored.

[00:42:02]

***T.A. Rosolowski, Ph.D.***

[00:42:03]

So I'm looking for the Beth Israel—

[00:42:06]

***Norman Leeds, MD***

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[00:42:06]

That was 1985.

[00:42:09]

***T.A. Rosolowski, Ph.D.***

[00:42:09]

Oh, here it is. Yeah, '85-91.

[00:42:11]

***Norman Leeds, MD***

[00:42:11]

Right, and I was also, at that time—it didn't—I was Professor of Radiology at Mt. Sinai, because that was the academic... Again, you had to be [ ]selected [ ]. They had to agree. And I actually was on the faculty senate at Mt. Sinai. And then the opportunity to go to MD Anderson came, and I decided to take that.

[00:42:37]

***T.A. Rosolowski, Ph.D.***

[00:42:37]

Now, before we get to the MD Anderson piece—

[00:42:41]

***Norman Leeds, MD***

[00:42:41]

No problem.

[00:42:42]

***T.A. Rosolowski, Ph.D.***

[00:42:42]

—I'm wondering, were there sort of intellectual landmarks during this period, when you're at these other institutions, where you felt your thinking or your discoveries about neuroradiology changed?

[00:42:58]

***Norman Leeds, MD***

[00:42:57]

No, it was just progressive, right.

[00:42:58]

***T.A. Rosolowski, Ph.D.***

[00:42:58]

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Just progressive.  
[00:42:59]

***Norman Leeds, MD***  
[00:42:59]

Progressive, and experienced. I mean, Children's was a great experience for me in neuroradiology, and at Montefiore I ran the program, and I worked with two great people, two giants. I was very lucky. And my predecessor couldn't get along with those giants. But I [did]. One was Harry Zimmerman [MD], who was probably one of the greatest neuropathologists, and we became very close friends.  
[00:43:34]

***T.A. Rosolowski, Ph.D.***  
[00:43:34]

And you've published papers with him. I remember his name.  
[00:43:37]

***Norman Leeds, MD***  
[00:43:36]

Yes. Right, I did. He was—he was one of the [best]. He trained the chairs in neuropathology at Mass General, at UCLA, I mean, University of Pennsylvania—I mean, so you get the idea. He was one of the best neuropathologists. And then the other was one of the great neurosurgeons, Leo Davidoff [MD] [ ] who was a Cushing-trained neurosurgeon. Cushing was really—[one of the great] neurosurgeons, when glorified in their early years, if you were a Cushing-trained neurosurgeon, you were special. And Leo Davidoff was a Cushing-trained neurosurgeon, and Harry Zimmerman had—knew him very well. He had the office next to Cushing at Yale. When Cushing retired at the Brigham and came to Yale Medical School, Zimmerman was the neuropathologist at Yale, and had the office next to Cushing. So he told me many Cushing stories.  
[00:44:50]

***T.A. Rosolowski, Ph.D.***  
[00:44:50]

I got the feeling that there were a lot of big personalities in the field.  
[00:44:54]

***Norman Leeds, MD***  
[00:44:54]  
Yes.  
[00:44:54]

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***T.A. Rosolowski, Ph.D.***

[00:44:54]

You know, so—

[00:44:55]

***Norman Leeds, MD***

[00:44:55]

And Dr. Davidoff, who's one of the great neurosurgeons, and we became good—believe it or not, we—I was told by Dr. Jacobson he was difficult. I had no problem with Dr. [Davidoff].

[00:45:07]

***T.A. Rosolowski, Ph.D.***

[00:45:07]

I mean, why was he considered a difficult person?

[00:45:09]

***Norman Leeds, MD***

[00:45:09]

Because he... (laughter) I don't know, but he [was] imperious, and so... But I didn't have that problem [with him]. He treated me very well, so I never forgot him.

[00:45:22]

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## **Chapter 03**

### ***A Detailed Understanding of Brain Circulation***

#### **A: The Researcher;**

Codes

A: Overview;

A: The Researcher;

C: Discovery and Success;

A: Definitions, Explanations, Translations;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

D: Technology and R&D;

***T.A. Rosolowski, Ph.D.***

[00:45:23]

Tell me a little bit about the research that you were doing, how it was evolving over these years.

[00:45:28]

***Norman Leeds, MD***

[00:45:28]

Well, most of it was, really—is research that I did, that I accomplished, was first in angiography, and I was the first one to do magnification cerebral angiography, which I wrote [about].

[00:45:48]

***T.A. Rosolowski, Ph.D.***

[00:45:47]

What does that mean?

[00:45:48]

***Norman Leeds, MD***

[00:45:49]

Making things bigger. In other words, we would separate the head from the film and from the X-ray machine, so that caused enlargement. Well, it was also—because it was done that way, it was bigger and sharper [ ]. We saw things we couldn't see any other way. And we did that. I did angiotomography, because that was very critical. So I did a lot of understanding of—and I understood because I wrote that original—you know, sometimes you've got to do a lot of the work from which comes many things. I understood circulation time, and, after all, what's critical with the vessels is the circulation. And so I learned that, and that was—I've written, what, two books, and that's when I stopped writing books, because you don't make enough money to

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warrant the amount of effort that goes into writing a book. I mean, it really is a challenge to collect the cases, to make the cases, to write it, to put it all together. And you have to read a lot.  
[00:47:25]

***T.A. Rosolowski, Ph.D.***

[00:47:25]

So this was not books that you edited where other people were contributing; this was your effort start to finish.

[00:47:32]

***Norman Leeds, MD***

[00:47:31]

These are—this was a book Dr. Burrows and I did. Burrows was in—he was [in] Southampton in England, and we wrote this book. Oh, by the way, how long are we going to work today?

[00:47:47]

***T.A. Rosolowski, Ph.D.***

[00:47:47]

Until 11:30. Is that OK?

[00:47:49]

***Norman Leeds, MD***

[00:47:49]

OK.

[00:47:50]

***T.A. Rosolowski, Ph.D.***

[00:47:50]

OK. I mean, I'm fine if you need—

[00:47:52]

***Norman Leeds, MD***

[00:47:51]

Yes.

[00:47:52]

***T.A. Rosolowski, Ph.D.***

[00:47:52]

OK, good, good.

[00:47:53]

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***Norman Leeds, MD***

[00:47:54]

That's what I was planned for, so that's—

[00:47:55]

***T.A. Rosolowski, Ph.D.***

[00:47:55]

No problem.

[00:47:56]

***Norman Leeds, MD***

[00:47:56]

Yes, ma'am.

[00:47:56]

***T.A. Rosolowski, Ph.D.***

[00:47:57]

OK, good, good. So tell me, you know, the circulation studies... Well, let me just observe, you know, it's something that I've had conversations with other people about where they—you know, they talk about being in at the beginning of a field. They have to do a lot of basic stuff. Sometimes they have to build equipment. They have to do everything from scratch. And they talk about the value of that, because it enables you to understand a system in such detail. And that's kind of what you're telling me here.

[00:48:27]

***Norman Leeds, MD***

[00:48:27]

That's... Yes, but I didn't build it. I mean, but you have to—

[00:48:31]

***T.A. Rosolowski, Ph.D.***

[00:48:30]

No, no, no, of course, not, but that... Yeah.

[00:48:32]

***Norman Leeds, MD***

[00:48:32]

I review... Look, anything you do a lot of, you learn. You should—let's put it this way: you should learn. You don't necess... But by [ ] reviewing the hundred normal angiograms, which I did to develop circulation time, I began to understand what circulation time meant. We studied the arterial phase, the intermediate phase, which includes the capillaries, and then the venous

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phase. So there are really three phases. And we timed it, and we wrote what the—I think it was 4.27 [seconds]. See, I never forgot that—is the normal circulation time.  
[00:49:23]

***T.A. Rosolowski, Ph.D.***

[00:49:23]

So what is the significance of circulation time, when we start coming to—  
[00:49:27]

***Norman Leeds, MD***

[00:49:27]

Well, if it's too long it's not good, and if it's too short... But it's what happens... Children have a shorter circulation time than adults: 4.27 is normal. After six seconds, it's bad. Your circulation time is longer than 6 seconds, not good.

[00:49:50]

***T.A. Rosolowski, Ph.D.***

[00:49:51]

And so this is something—is it a diagnostic thing, that if cancer can—  
[00:49:55]

***Norman Leeds, MD***

[00:49:55]

No, it's just learning. It's just—

[00:49:56]

***T.A. Rosolowski, Ph.D.***

[00:49:56]

It's just learning.

[00:49:57]

***Norman Leeds, MD***

[00:49:57]

It has... It has... But in doing that, I learned when things occur. So we described the early veins, early filling veins. I mean, the things I described in that book with Taveras were all new, literally, that the veins were the things that allowed us to localize the tumor.

[00:50:21]

***T.A. Rosolowski, Ph.D.***

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[00:50:21]

Interesting.

[00:50:21]

***Norman Leeds, MD***

[00:50:21]

No one... Well, I got up and I said the neurosurgeons used two things: stains—means abnormal circulation—and shifts, vessels being displaced. But we added the more important thing, which was the localization, which the veins did for you [defining the tumor localization].

[00:50:46]

***T.A. Rosolowski, Ph.D.***

[00:50:47]

Interesting.

[00:50:47]

***Norman Leeds, MD***

[00:50:47]

Which no one had described until we did all that. So it's all—most neuroradiologists don't understand it. I mean, I had to go through writing that book and learning to do it. Do you follow? [ ]

[00:51:06]

***T.A. Rosolowski, Ph.D.***

[00:51:06]

I do, absolutely.

[00:51:07]

***Norman Leeds, MD***

[00:51:07]

I mean, it was—that was my—instead of building, that was my structure was the [ ]... And that stood me... I mean, we described it in angiography. I had described it in MR. So the newest things in MR are all interrelated. I mean, none of these things are wasted. In fact, they—you begin to understand critical things that no one else can do. Because I didn't depend on other people. These were... Well, the circulation time was not mine; it was Torgny Greitz, who was a great neuroradiologist from Sweden. And believe it or not, we became friends, because I went to learn how to use a catheter. We didn't use catheters. We used to use very [direct sticks]. Everybody today uses catheters for angiography. We did direct sticks of the carotid. That was what—it was [how I] started, and that's what I learned at Columbia. And then I realized I had [to learn to use a catheter]. So I told Dr. Jacobson, [ ] "I want to go to a place that does the catheter angiography." I mean, I didn't have to learn how to do it. I wanted to see how they did

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it. Come on, I stuck arteries all the time. I would know how to do it once I saw what they did. I didn't... You know, you don't need the experience if you understand. So I went to UCSF [to work with Dr. Hans Newton.]

[00:52:46]

**T.A. Rosolowski, Ph.D.**

[00:52:46]

What was the advantage of the catheter over the direct stick?

[00:52:49]

**Norman Leeds, MD**

[00:52:50]

Because you go into four different arteries. And, you know, one was sticking in the groin, and the other was going in somebody's neck. So it was easier to do—use a catheter. So I watched the way Newton did it at UCSF, and I learned. It took me a week, and I was lucky. You know, again, luck. Torgny Greitz was in UCSF that week that I was there, so we spent a week together. I mean, I didn't know him from the man in the moon, but he was one of the greats of neuroradiology from Sweden, and we spent that week together. We used to have dinner every night, so he knew me and I knew him. You know, I knew... And I learned a great deal. And [we have remained friends].

[00:53:50]

**T.A. Rosolowski, Ph.D.**

[00:53:50]

What were some of the things you learned from him?

[00:53:52]

**Norman Leeds, MD**

[00:53:54]

Well, I didn't learn... I... Well, I learned a lot about his life and things, but I—I mean, he had written the first paper about circulation time. It had actually been published in *Acta Radiologica*, and I had read it, because that's where I developed... [ ] you know, I'm reviewing it, and I learned it, and then it was great to meet him, because he was considered one of the greatest, and we became very close friends from then on. You know, you get to know somebody in a week, eating dinner with them [and sharing ideas].

[00:54:35]

**T.A. Rosolowski, Ph.D.**

[00:54:35]

Absolutely.

[00:54:35]

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***Norman Leeds, MD***

[00:54:36]

—every night.

[00:54:37]

***T.A. Rosolowski, Ph.D.***

[00:54:37]

Well, and with huge areas of commonality like that.

[00:54:40]

***Norman Leeds, MD***

[00:54:40]

Yeah, we became very good friends, Torgny and I.

[00:54:43]

***T.A. Rosolowski, Ph.D.***

[00:54:44]

Now, tell me: how did you build on this understanding of circulation? What other research did it lead to?

[00:54:51]

***Norman Leeds, MD***

[00:54:51]

Well, it led to... You know, it's—you're doing all those angiograms. All of them have circulation time. And then I looked at all the changes that occurred. Remember, I—and I was also the first pediatric neuroradiologist, because I was at CHOP, and we did angiograms. In fact, I gave a talk at Yale [on infectious disease of the brain demonstrating varying forms of meningiomas].

[00:55:21]

***T.A. Rosolowski, Ph.D.***

[00:55:22]

And CHOP is...?

[00:55:23]

***Norman Leeds, MD***

[00:55:24]

Children's Hospital of Philadelphia.

[00:55:26]

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***T.A. Rosolowski, Ph.D.***

[00:55:26]

Of Philadelphia, OK.

[00:55:27]

***Norman Leeds, MD***

[00:55:27]

It is—which is still one of the preeminent... In fact, I'm going to send them some money. I was so impressed with what new things they're doing for kids and things—

[00:55:37]

***T.A. Rosolowski, Ph.D.***

[00:55:37]

Oh, really?

[00:55:38]

***Norman Leeds, MD***

[00:55:38]

—that... Yeah, they—I'm still on the list. I get their paper, I guess, because I was there for years. And, I mean, I saw things in pediatrics that were totally different—you know, the circulation time, etc.—which I described in many... So I did all the stuff on inflammatory diseases of the brain, which are totally different, and I think my first—one of my first talks was an invitation to Yale Medical School to talk about inflammatory diseases of the brain. (laughs) And someone foolishly asked me if this was the way to [diagnose] inflammatory disease.

[00:56:28]

[00:56:28]

What a question! You know, it shows naiveté. I said, “No, no, the lumbar puncture and the history is still more [useful].” I mean, the angiography is helpful, but I pointed out why it's helpful. You can distinguish some of the [meningitis cases] with the—but the angiography was just interesting, and I did it, because you're at a children's hospital, and those are... You know, each thing has its own [diseases]. We have tumors. Children's Hospital, inflammatory diseases were more important and things. So... And I think I did the genetic work on the—what was it? Was... The genetic [chromosome] was 13/15 genes, and what abnormalities. I wrote this with one of the scientists from University... We noticed they had narrow interorbital distances as a hallmark of [these entities]. [ ]

[00:57:44]

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***T.A. Rosolowski, Ph.D.***

[00:57:44]

Seeing the...

[00:57:45]

***Norman Leeds, MD***

[00:57:45]

Let me—it's identification. It's—your brain is o... I was there at the beginning, so I did a lot of the new stuff, because I knew what the old stuff was. And I think most of the vascular changes, I'm the father of. I don't get the credit for all of it, but a lot of it is based on the observations that we made very early on [in neuroradiology, since I was there early on]--

[00:58:13]

***T.A. Rosolowski, Ph.D.***

[00:58:13]

Interesting.

[00:58:14]

***Norman Leeds, MD***

[00:58:14]

—in this. I mean, I'm ahead not because I'm smarter, [ but] I was there first, and if you don't make 'em, you don't make 'em, so...

[00:58:25]

***T.A. Rosolowski, Ph.D.***

[00:58:25]

How was the field evolving in general at the time? You know, technologically, I mean, all these different ways.

[00:58:32]

***Norman Leeds, MD***

[00:58:31]

It was evolving. Angiograph—

[00:58:34]

***T.A. Rosolowski, Ph.D.***

[00:58:33]

Fast, or...?

[00:58:34]

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***Norman Leeds, MD***

[00:58:34]

No, it just... It's just time, and it's... I think we had high-quality people, were interested in neuro, and, you know, it became a choice. I don't think it's a choice anymore. I think a lot of people like interventional radiology more, but in that—in those days it was everything. We stuck needles in people. We did air studies, which I'm glad [are no longer being performed since CT].

[00:59:07]

***T.A. Rosolowski, Ph.D.***

[00:59:07]

What's an air study?

[00:59:08]

***Norman Leeds, MD***

[00:59:08]

Pneumoencephalography.

[00:59:10]

***T.A. Rosolowski, Ph.D.***

[00:59:10]

Yeah. I mean, that's—I read about injecting air into the brain. What was the reason for that, and why? What were the pros and cons?

[00:59:17]

***Norman Leeds, MD***

[00:59:18]

Pff... (laughter) No, people didn't like it. Patients usually said, "I'd rather commit suicide." They did not like... But, you see, that's what show—your statement shows a lack of understanding. It's good because what is the brain? It has ventricles. So with an air study, you see the ventricles. You fill the subarachnoid spaces with air. So you learn a great deal with an air study, but it has—it makes sense when you think about it in terms of angiography, because you have a lot of the same things which we use on angiograms, which told us how big the ventricles were. We didn't need to do an [PEG]. I mean, if I had to choose, I'd rather do an angiogram.

[01:00:15]

***T.A. Rosolowski, Ph.D.***

[01:00:16]

What—was it painful? I mean, why didn't the patients like the process?

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[01:00:20]

***Norman Leeds, MD***

[01:00:19]

They did complain. They got headaches. They vomited. It was not a pleasant study. I had patients tell me they would rather commit suicide than have an air study. The one thing it did do is it told you about dementia. I once got a judge for dementia to study in Philadelphia, and when we injected the air he didn't feel a thing. They don't feel it. They don't know that... I mean, it was just interesting that they have a total lack. But everything has a value. Air studies have a value. But you have to understand them. I mean, they can kill... We used to—we did what we called fractional pneumoencephalography. We took out the fluid, subarachnoid fluid, and injected air. Neurosur—when I wasn't at Children's, sometimes they did an air study without me. And they would just [remove] fluid and inject air. You know, we did it positionally, because you want the air to go someplace, you have to keep it there. Otherwise, it... (laughs) You know, air moves!

[01:01:37]

***T.A. Rosolowski, Ph.D.***

[01:01:37]

What's the point? Yeah.

[01:01:38]

***Norman Leeds, MD***

[01:01:38]

So, I mean, it was just a joke. The neurosurgeons didn't understand. They all—they damaged children. Oh, another thing I learned was you don't do an air study in children under three months. The first—I first had one, and we had to revive him. I almost lost three kids, and then I realized you can't do an air study below three months [of age]. Well, it took me... You know, when you're founding, (laughs) you'll find out what you shouldn't do, as well as what you should do.

[01:02:18]

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## **Chapter 04**

### ***An Evolving Field; Dealing with Patients; Leadership Advice***

#### **A: Overview;**

Codes

A: Overview;

D: The History of Health Care, Patient Care;

C: Mentoring; D: On Mentoring;

A: Definitions, Explanations, Translations;

A: Professional Values, Ethics, Purpose;

A: Career and Accomplishments;

C: Offering Care, Compassion, Help;

C: Patients; C: Patients, Treatment, Survivors;

C: Leadership; D: On Leadership;

***T.A. Rosolowski, Ph.D.***

[01:02:18]

I was curious when you said that the surgeons were going ahead and injecting the air themselves. Is that what you...? Am I interpreting that correctly?

[01:02:27]

***Norman Leeds, MD***

[01:02:26]

When I got there, they did all these things.

[01:02:28]

***T.A. Rosolowski, Ph.D.***

[01:02:28]

So, I mean, was that—

[01:02:30]

***Norman Leeds, MD***

[01:02:30]

[ ] Ma'am, you have to understand, we had to fight a battle. They didn't want to give [up procedures to the neuroradiologist].

[01:02:39]

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***T.A. Rosolowski, Ph.D.***

[01:02:39]

That's what I was getting to.

[01:02:40]

***Norman Leeds, MD***

[01:02:40]

Well, I—when I started doing angiograms at Columbia, one, they got paid for it. You know, money is also—you know, if you get money, you like things, right? They didn't want to give me those, but a couple of them were very helpful and said, "No, no, no, we need the neuroradiologist." So I was the fellow. And I pointed out to them, "You don't have to be here and hang around. I do—I know what I'm doing it for, and I'll answer your question."

[01:03:13]

***T.A. Rosolowski, Ph.D.***

[01:03:13]

So that was—that was what I was trying to get to. You know, this being a new field, it was kind of like you had to assert what is my territory, what is my value here.

[01:03:22]

***Norman Leeds, MD***

[01:03:22]

I had—exactly. Well, I made that—when I went to Montefiore, when I came to Montefiore to run the program, I did the same thing in Los Angeles. I did the studies. I took over all the studies from them. But when I got to Montefiore—you know, at Los Angeles County they weren't getting paid, so (laughs) no one objected to my doing angiograms. Do you follow what I mean?

[01:03:51]

***T.A. Rosolowski, Ph.D.***

[01:03:51]

Mm-hmm, absolutely.

[01:03:52]

***Norman Leeds, MD***

[01:03:52]

They didn't object. When I got to—when I went to, let's say, Philadelphia, there was not a problem. At the graduate hospital they were happy to have me do the studies. They didn't have to be there. The chair of Neurosurgery at the University of Pennsylvania was the chair, and he was happy that I did them and explained it to him.

[01:04:17]

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***T.A. Rosolowski, Ph.D.***

[01:04:19]

How long did it take in the field before people accepted—

[01:04:25]

***Norman Leeds, MD***

[01:04:24]

It took a while. It was not... They didn't want to give it up, because it's money in the bank.

[01:04:32]

***T.A. Rosolowski, Ph.D.***

[01:04:33]

So it wasn't purely an intellectual issue, "I don't know quite—we know just as much as you do."

It was a financial issue throughout.

[01:04:41]

***Norman Leeds, MD***

[01:04:41]

When we started, it was a financial issue. The surgeons wanted to do it. They didn't want us to do it, not because they didn't... Well, they did think they were better. They believed that. But one of them, who was the best neurosurgeon around, said, "Let Leeds do it." So it took me... I missed my first five angiograms [and then I succeeded].

[01:05:06]

***T.A. Rosolowski, Ph.D.***

[01:05:06]

Oh, really?

[01:05:07]

***Norman Leeds, MD***

[01:05:07]

I didn't stick the [carotid artery]. You know, it took a while, and then I did it. Then I was very good. But, you know, again, I remember doing a baby, a little baby, at Children's, and I spent the morning. And I had a rule: three tries and you're out. I did not stick people incessantly. So I did three tries. If did not get in., I said to them, "Not a problem." I didn't realize... I said, "We'll do it tomorrow." So they brought the child back tomorrow, and it went in in one stick. Why you don't get in? I have to tell you—you don't know. Either you're not ready, the patient's... Whatever it is... You know, that's why I believe in the three stick. I never went over three sticks.

[01:05:57]

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[01:05:57]

If I did three sticks in a carotid and didn't get in, I stopped. I explained to the patient. If there were plenty of people to do it, I would tell the patient, you know, "Someone else is going to try." "Why did you?" "Because I'm very good at it, but I can't—I wouldn't write you a guarantee that I'm going to hit the artery." I mean, I'm going to hit it before anybody else now, but I can't tell when I'm going to miss. Like that one I missed on the three sticks came—little baby—came back the next day and I went right in. So, you know, is there a reason? No. I don't know what it is, but it happens to you. And once you know that, I don't feel guilty. I don't want to punish the patient. If I can't get in in three, I'm not sticking anymore, because I'm not happy, and I'm not comfortable, and I shouldn't stick anymore. So I stopped.

[01:06:58]

***T.A. Rosolowski, Ph.D.***

[01:06:58]

Interesting, interesting. So you have no kind of suspicion about what's different from one day to the next.

[01:07:05]

***Norman Leeds, MD***

[01:07:05]

I don't. I do everything the... No, ma'am. I follow the same... It's like reading them: I don't make many mistakes, but I'm sure I made some. But I'm as good as anybody, and better than most. So I have a great deal of confidence in myself now. But no, missing is not—you know, I have done [over ten thousand angiograms].

[01:07:30]

***T.A. Rosolowski, Ph.D.***

[01:07:29]

Yeah, I mean, it's a biological system. (laughs)

[01:07:31]

***Norman Leeds, MD***

[01:07:30]

Well, no, I learned a lesson. My wife had the baby. The worst thing was the resident's IV. When I saw my wife's arm with all these black and blue, I said, "Sweetheart, how did you let them do that?" I was really angry at her. It was a female resident, and I think she was just trying to prove she could... There's a time to stop. I said, "After..." I said, "You do not allow them to make more than three sticks. And it doesn't—it's not—and you can tell them it's your husband's rule, and he's a... You can blame me, dear." I was really angry. I didn't say anything, but I was angry.

[01:08:17]

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[01:08:17]

I mean, doctors should know that. If you can't get in, it's not because you're bad; it's just not your day that day, whatever it is. Either you're thinking about an argument you had with your wife, or you're thinking about a party or you... You know, whatever the distract—there's always a distract... You know, we're normal human beings. Things happen, and you have to understand none of us—and I know more than most—are perfect. And I'm as good as it gets, but you've got to know when to stop. It's like when somebody makes a mistake, you have to be careful what you say to them to—you know, in training them, because it can have a terrible impact [on the trainee]. [ ]

[01:09:11]

***T.A. Rosolowski, Ph.D.***

[01:09:10]

Tell me about that. Yeah, tell me more about that.

[01:09:12]

***Norman Leeds, MD***

[01:09:13]

Well, you know, if you start hollering or complaining, or... You're badgering someone. I mean, people don't like making mistakes, particularly people below you, and so you have to be very cautious in how you train them, because most people feel badly when they can't [perform]. That's the other thing that I think makes you miss, because you become more [anxious]. You know, it's normal: you get more anxious. If you get more anxious, you're not quite as good. And I think, well, you know, it took me a while. I'm not a child, and I know I've learned, and I continue to learn. Do I make mistakes? Absolutely, but I try to correct them. I don't try to keep—do the same things. I do try to correct my errors. And I think when someone does something, it may be better to talk to them later. [ ]

[01:10:22]

***T.A. Rosolowski, Ph.D.***

[01:10:22]

When they have a little distance on it.

[01:10:23]

***Norman Leeds, MD***

[01:10:23]

Yeah, give everybody a chance to cool down, because, you know, it's all psychological. And you're angry because [you] missed. They're—they have anxiety, and that's why they did these things. And some are just stupid. [ ] But the way to correct it is if you are overzealous in correction, it's worse. So I try to correct things later, OK, without, [upsetting the person you're

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training]. Because everybody's unhappy when they make mistakes. All of us. I'm unhappy, and they're unhappy. And I think—that's why I said three sticks, because I find after that, you know, you're so anxious, because you don't want to fail, that I... That's why I learned bring them back the next day. It's not fair to the patient.

[01:11:34]

***T.A. Rosolowski, Ph.D.***

[01:11:34]

Sounds like a good rule, yeah, yeah.

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## **Chapter 05**

### ***A New Opportunity at MD Anderson***

#### **A: Joining MD Anderson/Coming to Texas;**

Codes

A: Definitions, Explanations, Translations;

A: Overview;

D: Understanding Cancer, the History of Science, Cancer Research;

A: Joining MD Anderson/Coming to Texas;

A: Personal Background;

D: Technology and R&D;

C: Leadership; D: On Leadership;

D: On the Nature of Institutions;

B: MD Anderson Culture;

C: Leadership; D: On Leadership;

C: The Institution and Finances;

#### ***T.A. Rosolowski, Ph.D.***

[01:11:34]+

You had started a while ago telling about, you know, getting the call about coming to MD Anderson. Let's go back to that. Tell me how that all happened, that you made the decision to come here.

[01:11:47]

#### ***Norman Leeds, MD***

[01:11:48]

Well, I got a call from Jack Edeiken, MD. I knew Jack, vaguely. Jack Edeiken is one of the world's—was—I shouldn't say—was one of the world's great bone radiologists. His daughter works here still. And his daughter-in-law now works here, in Radiology. And she became a neuroradiologist, his daughter-in-law. But Jack called me and said, "There's an opening at MD Anderson." And he was picked—Gerry Dodd [oral history interview] was the first Chair of Radiology here. And actually, I was very friendly with Gerry, because Gerry was a very close friend of Jack, and Jack Edeiken became, when I came down here, became my best friend, and we were very close friends ever since I came here. Well, he called me and said, you know, "We have an opening." And I said, you know, "I don't know."

[01:13:03]

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[01:13:03]

You know, so I talked to him. I had to talk to him. I think I—he called me a couple of times. And I finally said, “OK, I’m going to come and look.” Because I told my wife, she said, “Texas? You’ve got to be kidding.” For once, she was really angry at me. And when you’re married as long as I was—you know, we had two kids and so forth... I mean, there were jobs I didn’t take, or look at, because I couldn’t move. I mean, you know, when your kids are in school, it really—you know, I learned you can’t move, because the kids suffer. And no matter how important it is, it’s probably more important not to move, although sometimes, you know, the job is so good you... Anyway, so he called—and he called me a second time, and I did, I came down. And, well, and then I had written one of my first papers with Sid Wallace [oral history interview]. Sid Wallace [MD; oral history interview] was number two to Gerry Dodd [MD].

[01:14:17]

***T.A. Rosolowski, Ph.D.***

[01:14:17]

Yeah, I interviewed him.

[01:14:18]

***Norman Leeds, MD***

[01:14:18]

And I knew Gerry Dodd well because we had been in Philadelphia. When I was in Philadelphia, at Albert Einstein Northern, and the Children’s Hospital, I knew Jack and Gerry and Sid. And Sid and I had written one of these great papers on cavernous carotid artery branches, which no one knows anything about. But we had written that paper. So I said, “OK, I’ll come...” They want—I was one of the Philadelphians—I was very big in their eyes, because I was a Philadelphian—I was from Philadelphia. That was—to them, they thought it was the greatest. (laughs) So it was an advantage. It’s—like I said to you, you know, certain things fall in [place].

[01:15:13]

[01:15:13]

So I came down and I looked. You know, I didn’t know anything yet. I knew enough about MD Anderson, but I didn’t realize, you know. And I started to think about it. And since I was a chairman, I—and I really wanted to give it up. And I was leaving Beth Israel, because I wasn’t happy there, and because I didn’t like the president of the hospital. And I thought, gee, a change. I didn’t want... And I decided I didn’t want a chair. I didn’t want... There were several chairs available to me when I was looking, but I really didn’t want a chair. And I thought doing brain tumor neuroradiology might be exciting, because I brought a, you know, a new approach, an understanding. So I decided I wanted it. [ ]

[01:16:27]

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***T.A. Rosolowski, Ph.D.***

[01:16:27]

Wasn't going to ask.

[01:16:28]

***Norman Leeds, MD***

[01:16:27]

And I said to him, "This is what I want." So he said, "This is too much [money]," Sid said to me. So I said, "Sidney, then I can't come." I said, "If I can't get what I need, my wife is going to be unhappy, and if I don't get what I need, her unhappiness will outweigh whatever offer you make." So I said, "I'm sorry. Go to the rest of your list." I, by the way, turned down Harvard Medical—Mass General to be [head] of neuroradiology, because Taveras offered me that job. I said, "How much do you pay?" He told me. I said, "Juan, my wife will divorce me." I told you, we had a great relationship. She gave in, I gave... You know, we talked everything out. And I said, "I can't go. If you're not going to pay me enough, my wife's not going to be happy, and I'm not going to be happy." So it's the same thing. So I went home. I think two or three weeks later he called me and said—Sid said, "We'll meet your price if you can come in December." I said, "Let me just go home and talk to my wife, and then I'll call you." But I said, "I believe I'm coming, since you've..." And I did. My wife was not happy since. [She was teaching reading in New York City]. So she lived in New York and I lived in Texas.

[01:18:12]

***T.A. Rosolowski, Ph.D.***

[01:18:12]

Oh, really? So you—she stayed in New York.

[01:18:14]

***Norman Leeds, MD***

[01:18:15]

Well, because I—wait, you know. It wasn't give or take.

[01:18:19]

***T.A. Rosolowski, Ph.D.***

[01:18:19]

Yeah, no, I understand.

[01:18:20]

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***Norman Leeds, MD***

[01:18:20]

She had a job, like you. And she liked her job.

[01:18:24]

***T.A. Rosolowski, Ph.D.***

[01:18:25]

Yeah, no, I wasn't being judgmental at all.

[01:18:27]

***Norman Leeds, MD***

[01:18:26]

No, no, no, but, I mean, I wasn't judgmental. I figured she really liked what she did, so I understood. It wasn't me. She liked—and she wasn't prepared to give it up. So we worked it out. I was fortunate enough to be able to travel, as the head of the section, so I left early on Fridays and came back at—Monday at 9:30 in the morning, on the earliest flight from New York to Houston, because I found... She would come. No, she was willing to do the [travel]. But I didn't have enough of her. It was a lot of work, because when she came, you know, I made the bed. I cleaned—had the apartment cleaned, and so forth. And she was gone. You know, she worked in a school system. She couldn't come late, or come... So she left late on Friday, because she had to wait until school was finished, and she had to be back on Sunday. So it was easier for me to travel than for her. So I did it. So we did it for a while. You know, I understood. I had no... I mean, she wanted to work, and she enjoyed what she did, and she was a—she had an EdD in Psychology of Reading. So I just did the traveling.

[01:20:01]

***T.A. Rosolowski, Ph.D.***

[01:20:01]

And sometimes when you're doing a long-distance thing like that, the time that you spend apart really enables you to focus on your work, so when you're together you [are more connected].

[01:20:10]

***Norman Leeds, MD***

[01:20:10]

No, no. But yes, but I still missed her, and I think she found she missed [me]. In the beginning she was angry at me, but then when she saw me she was happy. So I realized it was that she wanted the work, and it was that we both—it was not easy for me being here without her. And I did miss her, terribly. But I understood. There are two of us. So I made the trip, and I traveled every other week. I came to New York.

[01:20:48]

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***T.A. Rosolowski, Ph.D.***

[01:20:49]

Well, that's something. A lot of men wouldn't do that, you know?

[01:20:52]

***Norman Leeds, MD***

[01:20:52]

Well, I had... (laughter) We didn't have a choice. Well, the kids were away, and I had... No, I love my wife, so I did it, without complaint, because I understood... And, you know, holidays she came, and summers she came, but... And she finally took a sabbatical and came. But otherwise, she was busy doing her thing, and I understood. So I... You know, when you live together a long time, you have to make adjustments. She made them for me; I made them for her.

[01:21:32]

***T.A. Rosolowski, Ph.D.***

[01:21:32]

Absolutely. So tell me about why you felt the opportunity at MD Anderson was too good to pass up.

[01:21:41]

***Norman Leeds, MD***

[01:21:40]

Because it was—I could suddenly look at brain tumors. I mean, brain tumors is one of the things that's a challenge, and always was, but I didn't know as much about them, because we never... I mean, we did them, but most of them in those days died, so it really didn't matter, in a sense. But I thought it would be exciting to really [learn about brain tumors]. And when I got here, I did. And then I also learned head and neck [tumors] when I got here, because that was part of neuroradiology. And since I was the section head, I had to learn it.

[01:22:24]

***T.A. Rosolowski, Ph.D.***

[01:22:25]

Now, you said that you brought a different perspective, because your experience was quite different. What was that? I mean, what—

[01:22:32]

***Norman Leeds, MD***

[01:22:32]

Well, because I understood all these things these other people didn't... Well, I don't think they still understand how much smarter we were. I mean, you know, I was—I've been there from the

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beginning, so I've seen the mistakes. I've seen the advantages. I was actually at the first talk at—on CT in the United States, was at the Einstein [neuroradiology] course, and I was professor at the Einstein, so... But I had [to shorten my talk] about advances in neuroradiology. It was a good talk, and they made me cut it in half because they wanted half my time for Dr. [James] Bull from London to talk about CT. And I was talking about magnification, which I told you, subtraction, and angiogramography. Those were the... Which were good. But compared to CT, I mean, it was revolution—you know. We heard—we sat there and heard the talk. I suddenly realized I was at the beginning of a new way of looking at the inside [of the brain]. We'd looked at the surrounding [brain]—the vessels, the ventricles, the subarachnoids—but we didn't look at the brain. All of a sudden, we could see the brain. It was revolutionary.

[01:24:15]

[01:24:15]

Three of us walked out and—three top neuroradiologists—and we said, “There's—this is something new.” One of them said, “They stole my idea.” (laughter) And we really laughed. They didn't steal my idea! I had no concept of it. But I realized the two old [elders]—Dr. Jacobson, who was a great bone radiologist, and Milton Elkin was a great GU radiologist, who was at the Einstein—these were two of the presidents of the RSNA, the best society, and the American Board of [Radiology]. They didn't understand—they weren't neuroradiologists. You know, we understood. They thought it might not... I was about to buy a—we were bidding on a machine with the chair, which—we had a chair, because Dr. Potts developed the Potts chair for rotating the patient so we could move the air around the ventricles. And this was a chair—and had tomography, so you could slice through things. So it was really revolutionary. But it cost as much as the CT, and was obsolete once the CT was there, because the ventricles, because of the fluid in the ventricles—you could see. So you saw the ventricles, and the brain.

[01:25:55]

[01:25:55]

So we recognized—again, it was knowledge. We recognized that it was new. And when MR came, I mean, we recognized the advance of MR over CT. So I was there for both. But a lawyer once asked me, he said, “You came after CT and MR. You know, how can you be an expert?” (laughs) You know, I didn't know how to address this idiot, because he was a defense counsel. He was trying to challenge me anyway to tell—you know, that I talk about these things.

[01:26:42]

***T.A. Rosolowski, Ph.D.***

[01:26:43]

What was the situation where you were...?

[01:26:45]

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***Norman Leeds, MD***

[01:26:45]

I was defending a case. He didn't understand. What does a lawyer know? I don't know anything about the law. What do they know about medicine? And they read a book and they think, you know... And I've—I don't hesitate to tell them so-and-so was great, somebody said that's wrong, because I then say, if they asked me, from that—then they say, "Well, you think Dr. Josephs is great." I said, "Yes, he is." They said, "Well, he says this, which is in..." I said, "Wait, I didn't say I believe everything Dr. Josephs said." I said, "You know, I'm an expert myself. I disagree with things he said. Doesn't mean he's not great, or this book is not good, but there are mistakes." And I don't hesitate to say that, I mean, if I think so. And I think, you know, my CV tells you that I know a little something about the specialty.

[01:27:51]

***T.A. Rosolowski, Ph.D.***

[01:27:50]

Absolutely. Sure. So, I mean, we were talking about, you know, the opportunities that MD Anderson allowed. I assume that MD Anderson was very interested in having all the newest technological stuff, and...

[01:28:03]

***Norman Leeds, MD***

[01:28:03]

Well, we had to... It... Not necessarily. They had their first MR, and, you know, they really—I tried to explain to them I think it wasn't [enough for our patients]. Dr. LeMaistre [oral history interview] did not understand. You know, it's expensive. Do you know that three months after we bought a new MR, or added a new MR, it was full? In three months, the schedule went from nothing for that, because you had an MR, you know, to be full. You realize we can fill a scanner in three months, you're making a lot of money after that. They didn't understand... I kept explaining it to them. And they finally got a COO who I explained... He understood. He said, "You fill it in three months?" I said, "Yes." He said, "We got to buy a new [MRI]."

[01:29:12]

***T.A. Rosolowski, Ph.D.***

[01:29:12]

Who was this? The chief operating officer?

[01:29:15]

***Norman Leeds, MD***

[01:29:15]

Yeah, I forgot—

[01:29:17]

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***T.A. Rosolowski, Ph.D.***

[01:29:17]

Yeah, we'll think of it.

[01:29:18]

***Norman Leeds, MD***

[01:29:17]

He got axed.

[01:29:19]

***T.A. Rosolowski, Ph.D.***

[01:29:19]

Oh, he did? (laughs)

[01:29:20]

***Norman Leeds, MD***

[01:29:20]

But he was the one who understood. I talked to people at Montefiore about things. They did not—they just heard the price, and it scared them, without realizing that if you have the unit and you're charging, it [generates income].

[01:29:40]

***T.A. Rosolowski, Ph.D.***

[01:29:40]

Yeah. How long will it take to make up the...? Yeah.

[01:29:42]

***Norman Leeds, MD***

[01:29:41]

You make—it more than makes up... They didn't... This COO understood that if you could fill it in three months, we better get more. He never argued with me. But LeMaistre was very, you know... I sent Gerry Dodd down. I couldn't—I—you know, we argued for it. But it took us a while to get enough going. I mean, it was a battle. They don't want to spend the money, because they don't understand that if it generates money then it's worth doing. What gives you a name or a reputation, and so forth.

[01:30:23]

***T.A. Rosolowski, Ph.D.***

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[01:30:23]

And makes research possible, too, in other areas, absolutely.

[01:30:26]

***Norman Leeds, MD***

[01:30:24]

Exactly, right. So it was—no, it wasn't... No, we had to fight for equipment. I had to... Well, I was here at the beginning. You know how many we had? I mean, we had... (laughs) Yeah, we have about 20 now. I mean, we have an infinite—I had to fight for people, I mean, to add a person. And remember, every person generated money. I mean, our section generated the most money in the department.

[01:30:55]

***T.A. Rosolowski, Ph.D.***

Really?

[01:30:56]

***Norman Leeds, MD***

[01:30:57]

So, you know, not because we were better, but MRs are expensive.

[01:31:01]

***T.A. Rosolowski, Ph.D.***

[01:31:01]

Right. We're almost at 11:30, so do you want to close off for today, and then we can schedule another session next week or the week after?

[01:31:11]

***Norman Leeds, MD***

[01:31:10]

Yes, ma'am. Yes.

[01:31:12]

***T.A. Rosolowski, Ph.D.***

[01:31:11]

OK, great. Well, I want to thank you for your time, and let me just say I'm—

[01:31:16]

***Norman Leeds, MD***

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[01:31:16]

Thank you.

[01:31:17]

***T.A. Rosolowski, Ph.D.***

[01:31:17]

—sure—turning off the recorder at about 27 minutes after 11:00.

[01:31:22]

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## **Norman Leeds, MD**

**Interview Session Two: June 20, 2017**

### **Chapter 00B** ***Interview Identifier***

***T.A. Rosolowski, Ph.D.***

[00:00:01]

OK, we are recording, and the day—date is June 20<sup>th</sup>, 2017, and I'm in the Reading Room of the Historical Resources Center at MD Anderson Cancer Center in Houston, Texas for my second session with Dr. Norman Leeds. So thank you very much for joining me this morning.

[00:00:22]

***Norman Leeds, MD***

[00:00:23]

Thank you.

[00:00:23]

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## **Chapter 06**

### ***Early Research that Leveraged the MD Anderson Team Approach***

#### **A: The Researcher;**

Codes

C: Discovery and Success;

D: Understanding Cancer, the History of Science, Cancer Research;

B: Critical Perspectives on MD Anderson;

A: Personal Background;

B: Multi-disciplinary Approaches;

C: Leadership; D: On Leadership;

A: Overview;

A: Definitions, Explanations, Translations;

D: Technology and R&D;

***T.A. Rosolowski, Ph.D.***

[00:00:23]

And just for the record, my name is Tacey Ann Rosolowski. So... Oh, and the time is 25 minutes of 10:00.

***T.A. Rosolowski, Ph.D.***

[00:00:23]+

So we wanted to start with your research, the arc of your research since you came to MD Anderson. Please tell me about that.

[00:00:43]

***Norman Leeds, MD***

[00:00:43]

Well, we worked particularly on several things, some of which I supported with my chair funds, a physicist. We worked on looking at diffusion of the spine with MR to evaluate and separate tumors from trauma and other causes, and actually resulted in two papers on the use of MR diffusion of the spine. In addition, we worked on tractography.

[00:01:34]

***T.A. Rosolowski, Ph.D.***

[00:01:35]

Can I interrupt you just one sec? When did you start doing that work with the MR diffusion in the spine?

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[00:01:42]

***Norman Leeds, MD***

[00:01:45]

Let me think... Probably in—around 1998 to 2000, and then... Then we started to do tractography, which is to define the tracts in the brain with the Physics Department, and—

[00:02:12]

***T.A. Rosolowski, Ph.D.***

[00:02:13]

What does that mean, “tracts in the brain”?

[00:02:15]

***Norman Leeds, MD***

[00:02:18]

(laughs) The brain communicates with everything, so therefore there are tracts in the brain—

[00:02:24]

***T.A. Rosolowski, Ph.D.***

[00:02:23]

Oh, I see. So these are neural tracts.

[00:02:25]

***Norman Leeds, MD***

[00:02:25]

Neural tracts in the brain, and we identified them, and looked at them, and an excellent paper came out on 3D imaging, which we were able to also perform here with the aid of an excellent researcher to get 3D maps of the tracts of the brain. And this also was presented at national meetings.

[00:02:56]

***T.A. Rosolowski, Ph.D.***

[00:02:57]

Now, what is the significance of that for neurooncology?

[00:03:01]

***Norman Leeds, MD***

[00:03:02]

Oh, very significant, because it determines where you can operate, where you can't operate, where function is. We're looking about, defining—we do functional imaging, which is where the various centers are: speech, motor, vision, etc. And to identify speech and motor is critical

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to determine the approach to use for surgery, and areas you probably should avoid, or prepare the neurosurgeon to do an awake craniotomy because of the proximity of the tumor to these important tracts that you don't want to damage. So we did that. And then, in 1998, one of the significant things we developed, which led to a lot of others following our footsteps, was called—let's see, what title did I give it? It's... It is looking at the contrast... DCE, it's called, dynamic contrast enhancement. And the way it occurred to identify the more malignant tumors within the brain, if you can't reach the tumor, or take it out, and you want to know its activity, it's at least the site for the—best site to do a stereoscopic biopsy to find out what you're dealing with. And dynamic contrast enhancement has become a significant factor in advanced brain tumor imaging, which I'm still doing at MD Anderson. And this we started in 1998, and it is getting better and better, and also has been published.

[00:05:34]

***T.A. Rosolowski, Ph.D.***

[00:05:34]

So I'm assuming that this is all very reliant on evolving technology.

[00:05:40]

***Norman Leeds, MD***

[00:05:41]

Yes.

[00:05:41]

***T.A. Rosolowski, Ph.D.***

[00:05:41]

So can you sketch a little bit about what those advances are that enabled this kind of imaging?

[00:05:48]

***Norman Leeds, MD***

[00:05:47]

Well, it's—what it was is we were able to take multiple images in a shorter series of time. In fact, the physicist who worked with me on the project came to us from General Electric, where he had worked on their advanced imaging techniques, so he was really able to optimize these, and he also was able to help and design the diffusion imaging. In addition, to help one of our neurosurgeon researchers, who is now the Head of Research at the Fred Hutchinson Cancer Center, Eric Holland, [MD], who left MD Anderson to go to Memorial, and then to the Hutchinson Cancer Center, he developed—we developed a small [bore magnet with GE], a means to image the mouse. He had developed a mouse tumor [after] he injected a virus [into the brain], and then got, first mouse tumor. We designed a—with General Electric—a small tube, which I demonstrated first with plastic that the mouse would fit in. And so it was made to put the mouse in closer proximity to the MR. And we used that, and that, too, was later published.

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We also demonstrated that these tumors, for the first time, showed what the human tumor does. It was infiltrating. So we demonstrated this with Eric, and this, too, was published.

[00:08:01]

***T.A. Rosolowski, Ph.D.***

[00:08:02]

Now, just to make sure I'm clear, is Eric Holland the person from General Electric, or is...?

[00:08:06]

***Norman Leeds, MD***

[00:08:06]

No, Eric Holland is the neurosurgeon who was at the Fred Hutchinson Cancer Institute. I think he's the head of the Fred Hutchinson, but he was here. He came here, and he and I worked together, and he was really a PhD neurosurgeon, an excellent neurosurgeon, as well as being a top researcher. And he wrote an excellent paper in which he published that whatever you see in the mouse, you know, and think you've got is really not the human. And it's important to know [this]. But this was the first time, I believe, that we're able to show not a localized tumor as it metastasized, but an actual infiltrating neoplasm.

[00:08:57]

***T.A. Rosolowski, Ph.D.***

[00:08:57]

Wow. Do you recall the name of the man from General Electric who helped design this?

[00:09:02]

***Norman Leeds, MD***

[00:09:03]

Oh, the... No, the... Yes, the one who worked here, that worked with me on several of—on all—almost all these projects, he and I, and I supported his graduate student with my research funds from the Kennedy Chair was Joseph Zhou, Z-H-O-U, PhD, who moved from here to Illinois, University of Illinois. I tried to recruit him at Mount Sinai but wasn't able to [come].

[00:09:36]

***T.A. Rosolowski, Ph.D.***

[00:09:36]

OK. I mean, it sounds like you had a really, you know, tremendous group of people to work with. You were underscoring that last time, too.

[00:09:44]

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***Norman Leeds, MD***

[00:09:45]

Well, I think the important thing—and I think what makes us unique—is the team. I mean, I think we approach brain tumors with a team. It—you know, you need excellent people, but if you don't have the group doing their function jointly, or responsibly, together, you don't accomplish. And I think that was one of the reasons we grew. Dr. Sawaya [oral history interview], who is—was and is still—the Chair of Neurosurgery and I worked very closely together. We are very good friends now, as a consequence, and we came together. We both were within two weeks. I came two weeks later than he did.

[00:10:40]

***T.A. Rosolowski, Ph.D.***

[00:10:40]

You know, I was going to ask you about that, because I happened to be reviewing his transcript just yesterday, and I noticed the date when he came to the institution. And I thought, oh, yeah, that's really around the same time.

[00:10:55]

***Norman Leeds, MD***

[00:10:55]

We came together, yes. And we worked [together]. And we still do. We still work together. So we built that relationship, and it became a friendship.

[00:11:06]

***T.A. Rosolowski, Ph.D.***

[00:11:07]

And he had a very clear vision, because when I was interviewing he said—he pointed behind him to that picture of the tree in his office that showed all of the elements of treatment of brain tumors that went beyond neurosurgery itself to all the other specialties.

[00:11:25]

***Norman Leeds, MD***

[00:11:24]

Well, you need... Well, that's—what we're saying is the—to improve the care—and I think... This is the particular advantage of MD Anderson: everything is centered on cancer. So we have experts in neuropathology, like Dr. Fuller, who's another friend of mine, and I helped bring Dr. Fuller here. Because I was recruiting someone from Duke, and he said to me they have an excellent fellow in neuropathology, in brain tumors, who's from Texas and really wanted to go back. So we got Dr. Fuller here, and [he's great].

[00:12:11]

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***T.A. Rosolowski, Ph.D.***

[00:12:11]

His first name?

[00:12:11]

***Norman Leeds, MD***

[00:12:12]

Gregory Fuller [MD]. I think—he said to me he recommended that you interview me early, but he said it must—it took them a while more. But it’s—the team is only as good as the whole. It’s the gestalt: you need all the parts. And we were very fortunate. I think Greg was the last piece to fill the hole. I mean, there were good neuropathologists, but there is no one quite like Greg Fuller.

[00:12:47]

***T.A. Rosolowski, Ph.D.***

[00:12:47]

What makes him so good?

[00:12:49]

***Norman Leeds, MD***

[00:12:50]

Well, he’s interested in the whole area. He’s got interested in neuroradiology, and he will, you know, say that you need both to accomplish things, so...

[00:13:04]

***T.A. Rosolowski, Ph.D.***

[00:13:05]

So I’m kind of getting the impression as you’re talking—and you use the word “unique” and “advantage”—that this team approach you don’t find so strongly expressed at other institutions.

[00:13:18]

***Norman Leeds, MD***

[00:13:18]

Not at every institution. No, we were very lucky. We all came together. But that’s the advantage of the institution: the neuropathologists... Really, it’s the material. I’ve come to the conclusion that this place is unique because it has a breadth of experience, not just in brain tumors, which—but in other tumors. I mean, I’ve helped two people, including a family member, with breast cancer, which was seen at other—which, unnamed—leading institutions, some of which were misdiagnosed, or not understood. And the interpretations of these clinicians, including breast cancer, were far superior to... Very good. And so we’re not talking

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about Podunk. We're talking about elegant institutions. So I think that showed, to me, the advantage of seeing so much.

[00:14:32]

[00:14:32]

I mean, we have really such a good team, and such a volume of material, that you learn. You learn from your errors. They are not truly errors, but, you know, it's lack of knowledge. And we've built our knowledge base on many, many, many cases. I don't think there's another institution that has the number of cases, the number of neurosurgeons, just devoted to brain and spine tumors. So that our group is very experienced, but not just—I mean, when I say this—I just wanted to bring this up—it's not just that we are leaders in brain tumor, but in all other things, as well. I mean, I was very impressed with the breast [oncologists]. I had nothing to do, I just called on the right clinical people here. And again, like in the neuro field, they are—and we're talking about outstanding institutions—making significantly different diagnoses, and leading to... Now, are results always good? No. Cancer is a bad thing, and I experienced it. I lost my wife from ovarian cancer. So I am... And this is despite all we know, and she got the best of care here and at Memorial Sloan Kettering. It didn't help. But I think there are things we can accomplish, and that is because of the team effort.

[00:16:28]

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## **Chapter 07**

### ***Research on Brain Necrosis and Work in Neuro-Pediatrics***

#### **A: The Researcher;**

#### Codes

A: The Researcher;  
D: Understanding Cancer, the History of Science, Cancer Research;  
D: The History of Health Care, Patient Care;  
C: Discovery and Success;  
C: Patients; C: Patients, Treatment, Survivors;  
C: Cancer and Disease;  
B: Multi-disciplinary Approaches;  
A: Overview;  
A: Definitions, Explanations, Translations;

***T.A. Rosolowski, Ph.D.***

[00:16:28]

Well, let me ask you. I mean, we—I'd like to talk more about the evolution of that team in the department, but I don't want to derail you from talking about your research. Which would you like to continue with right now?

[00:16:41]

***Norman Leeds, MD***

[00:16:41]

Well, I've literally... (laughs) The only thing we've done is, you know, we've also written, and one of the things that we've really contributed is on necrosis of the brain from treatment, whether it's chemotherapy or radiation. And I think we have probably one of the best articles, by the number of citations, on that subject. So that I accomplished because I was here, and we had all that material, and we utilized it.

[00:17:21]

***T.A. Rosolowski, Ph.D.***

[00:17:21]

So this was something—were you using samples from the tumor bank, and—or...?

[00:17:27]

***Norman Leeds, MD***

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[00:17:27]

No, no, from our—you know, from the clinical experience. We had, you know—we had an excellent neurooncology team, and in the radiation, and working together with Victor Levin [MD] and the radiotherapist, Moshe Maor [MD], we were able to better evaluate the treatment effects on tumor.

[00:18:04]

***T.A. Rosolowski, Ph.D.***

[00:18:04]

So this—so the necrosis was something that had been observed for quite a while, or you had observed it?

[00:18:09]

***Norman Leeds, MD***

[00:18:08]

Quite a while. But no one realized that necrosis kills.

[00:18:14]

***T.A. Rosolowski, Ph.D.***

[00:18:15]

Oh. Oh, you mean it has an effect on surrounding tissue.

[00:18:19]

***Norman Leeds, MD***

[00:18:18]

Yes, it has a... Well, it destroys the brain. And we actually had an autopsy on one of our tumor cases, a 22-year-old, and there was—his brain was damaged diffusely, and there was no, N-O, no tumor at autopsy. It was all treatment effect. So we pointed out tumors kill, which everyone knows, but that sometimes *treatment* is an offender. So I think—I would say, you know, I didn't—that was probably one of the significant things, because we have the [material]. Again, that didn't come because we're smart, but because we had the volume of material, and putting everything together, and having that team. And I underlined that. I think that's what reinforces the value of places like MD Anderson, specialty hospitals, which are devoted, in which the pathologists are devoted to cancer, and have seen all variants. And that's what I think, and why I believe our breast cancer did those great results on patients from elsewhere, that had been at outstanding places that were unable to act as well...

[00:20:02]

[00:20:02]

So we have the advantage of not only the people but the team and the material. I think you—you know, no matter how good you are, it's the material. And Dr. Sawaya is obviously one of the

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neurooncological [neurosurgeons]—and developed—helped develop with us—you know, neurooncological neurosurgery is now a big fellowship here. I mean, it used to be where the neurosurgeons would allow the juniors to do the brain tumors, because they were going to die anyway. Well, you know, if you can't do anything, it's a way to train people, but now we can do something. I mean, the quality of life is improving. The—I mean, yeah, glioblastoma is still the smartest brain tumor, and probably the smartest tumor. It understands the treatments, and avoids them. And—

[00:21:06]

***T.A. Rosolowski, Ph.D.***

[00:21:06]

So how—what does that mean? You know, tell me, how does it avoid them?

[00:21:11]

***Norman Leeds, MD***

[00:21:11]

I don't know how it—but it develops defenses against [therapies]. That's why they have checkpoint inhibitors, and other activities to try to change this with the new immune therapies. But so far we have not—I must tell you, I think we've improved the length of life. They used to live six months to a year. Now, patients live two to three years. But we used to have a tumor conference, which we shared with UCSF, which the patients came back—it was just for the patients to understand brain tumors and therapy. And one patient asked, “Why don't we live longer than three years?” Well, three years is a long time in glioblastoma, because I remember when I was a resident at the neurological institute, which was one of the best places in the world at that time, you know, it was six months to a year, a year and a half. Now it's up to three to four years in cases, because of improved neurosurgery, improved chemotherapy, and improved radiation, the combinations have... But still, that's why they now have a Moon Shot Program on glioblastoma, because over the years the length of survival has not really, looking at the curves, the Kaplan-Meier survival curves have not significantly changed. They are living longer, but it's not... So that's why it was put forth was to see if we could improve the results. Yeah, things—I mean, if you look to what it was when I got here, survival has increased, I mean, because of all the efforts, but it still, when it comes to glioblastoma, is dismal.

[00:23:31]

***T.A. Rosolowski, Ph.D.***

[00:23:34]

What was the time period in which you were doing the work on the necrosis?

[00:23:39]

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***Norman Leeds, MD***

[00:23:40]

That we... I think I started that in... Let's see, I got here in '91. We published the paper in 2000. I think by 1994, 1995 we started to really work on this, and accumulate the cases, and evaluate the findings. And with the help of Dr. Fuller, the neurooncologist, we were able to do the—put the materials together.

[00:24:20]

***T.A. Rosolowski, Ph.D.***

[00:24:21]

Now, I wanted to ask you: last time we spoke you mentioned that you were the first pediatric neuroradiologist.

[00:24:27]

***Norman Leeds, MD***

[00:24:27]

Well, yeah.

[00:24:28]

***T.A. Rosolowski, Ph.D.***

[00:24:28]

Tell me about that. (laughter)

[00:24:29]

***Norman Leeds, MD***

[00:24:30]

Well, that was easy, because I trained at the Neurological Institute, and I was actually the first NIH fellow in neuroradiology, which started under Dr. Juan Taveras, who was my—the head of neuroradiology at Columbia Presbyterian. And we had an outstanding pediatric neurology program at the Neurological Institute. And I left Columbia and took my first position as the Head of Neuroradiology at the University of Southern California, and I was at the Los Angeles County General Hospital, which was a major teaching hospital for that hospital, and was an outstanding place. The only problem was it was too nice. People used to escape. You know, there was sunshine and the sea.

[00:25:38]

[00:25:38]

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And so I moved east, because it wasn't as academic as, I guess, I was at that time. And I went to the Graduate Hospital of the University of Pennsylvania, which wasn't as busy but was right next door to the Children's Hospital of Philadelphia. So I always had an interest in pediatrics because of my experience at the Pediatric Hospital connected to Columbia, and my colleague, Dr. Kenneth Shulman, who I had been a co-resident with, who in—he was in neurosurgery; I was in neuroradiology—came to Philadelphia, and he asked me if I would come to Children's to help with the neuroradiology. Up until that time, I don't believe there were any neuroradiologists in pediatrics. Yes, we did it at Columbia, but we—you know. And so I learned a great deal, because we had a very large neurosurgical program, and it was outstanding, so I was lucky. And—

[00:27:05]

***T.A. Rosolowski, Ph.D.***

[00:27:05]

Let me ask you—I mean, this is obviously a very naïve question, but why were children of such a special interest? What are the particular challenges that they present? How is it different?

[00:27:16]

***Norman Leeds, MD***

[00:27:16]

It's... (laughs) That's easy: because, one, you know, one doesn't like to see children suffer. Children's tumors are definitely different than adult. They are very different. And in evaluating a patient, the age is critical. And some pediatric tumors—and we've written on this—disappear. If you... I mean, you just take a piece out, and even if you leave it sometimes they go away. They just, you know... Children, you know, no one wants to see suffer. So pediatrics is very interesting. And, again, I was helped, because not only did I have Ken Shulman [MD], but we got one of the outstanding pediatric neuropathologists, who is still alive in Philadelphia, named Lucy Rorke [MD; Lucy B. Rorke-Adams], and she's still at the Children's Hospital—

[00:28:21]

***T.A. Rosolowski, Ph.D.***

[00:28:22]

I'm sorry, her last name?

[00:28:24]

***Norman Leeds, MD***

[00:28:24]

Rorke, R-O-A-R-K [sic], I believe. Lucy Rorke. She's one of the outstanding pediatric neuropathologists. So I was lucky. We had Ken Shulman. We had Lucy Rorke. And we actually had good pediatric neurology at the Children's Hospital. So I had a wonderful five years there, and helped build the program, and start, and today it's one of the leading centers, and

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I'm very proud of being at CHOP [ ]. Children's Hospital of Philadelphia is one of the [best]. And I see all the wonderful things they're still doing that are just tremendous. It was always... I had the privilege of working there, and consider myself lucky. You know, it's good to be at the beginning, when there are [many] opportunities, and I guess I seized that one at Children's, and really learned pediatric neuroradiology.

[00:29:30]

***T.A. Rosolowski, Ph.D.***

[00:29:30]

And obviously, you know, brought that knowledge to MD Anderson. What was the situation with pediatric neuroradiology when you came here?

[00:29:38]

***Norman Leeds, MD***

[00:29:40]

I don't know. It was OK. But I guess we improved on it, and worked on it. And I—we got good pediatric neurosurgery going, and it's a love of mine, because it was—I was there at the beginning of it. Well, most of it. So I was, you know, fortunate to have gone into the specialty before it was a specialty. It was while I was a fellow that the Society was formed, the American Society of Neuroradiology. And having been there at the beginning, and worked with Dr. Taveras, I was fortunate enough to be selected as one of the founding members of the Society, and am now getting to the end, and I'm the last working, living neuroradiologist and [founding member]. But it's interesting: I told you I had two others who shared an office at the Neurological Institute. They were my teachers, Norman Chase [MD], who later became the Chair of Radiology at NYU, and Gordon Potts [MD], who came over from New Zealand. I told him his English was quite [good]—and he laughed. He said, "No, they think I'm a foreigner. I'm from New Zealand." And he came from Queens Square to the Neuro Institute. So he was one of my teachers. And he and Norman Chase and I shared an office at the Neuro Institute, and we were all founding members. And Gordon Potts is still alive, but he's retired. And Norman Chase is still alive, but he's retired. So I'm the only one [working. The others have died.]

[00:31:41]

***T.A. Rosolowski, Ph.D.***

[00:31:41]

Late-working member.

[00:31:42]

***Norman Leeds, MD***

[00:31:42]

—working. And I'm getting close. (laughter)

[00:31:45]

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## **Chapter 08**

### ***More Research on Techniques to Determine Physiology***

#### **A: The Researcher;**

Codes

A: The Researcher;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

C: Discovery and Success;

A: Overview;

A: Definitions, Explanations, Translations;

B: Education; D: On Education;

B: Research;

D: Technology and R&D;

***T.A. Rosolowski, Ph.D.***

[00:31:47]

So tell me about how your research evolved after the necrosis project.

[00:31:52]

***Norman Leeds, MD***

[00:31:53]

Hmm?

[00:31:53]

***T.A. Rosolowski, Ph.D.***

[00:31:53]

After you did the work on necrosis, how did your research evolve from there?

[00:31:58]

***Norman Leeds, MD***

[00:31:59]

Then I did all that other physiological studies. I was always—I was always interested in the physiological factors of blood flow and changes, and actually wrote a seminal book, which came out at the wrong time, because it came out when CT [started], so it got lost. But it was written with Dr. Taveras on dynamic changes with cerebral angiography, in which we foresaw most of the current changes that are really being seen better, obviously, with CT, and then with MR. But

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we did come up with circulatory changes, and I guess that was the title of the book: *Circulatory Changes in Neuroradiology*.

[00:32:59]

***T.A. Rosolowski, Ph.D.***

[00:32:59]

So am I understanding correctly that the fact of doing the imaging changes circulation patterns in the brain, or that you were using imaging to—

[00:33:10]

***Norman Leeds, MD***

[00:33:08]

No, no, no. No, we're using the... No. (laughs) No, it doesn't change. It gives physiological information. It's a physiological feature. The circulation in the brain, understanding the normal, and then the abnormal, I mean, you know, many things came from that. We wrote about when just angiography, the shaggy vessel brought into focus. But that came from my understanding of that dynamics. We talked about all the circulatory changes, which helped us. What—we learned that the flow in children, the circulatory time in children is obviously shorter, and then reaches a normal, about 4.2 seconds, and then goes to six seconds. Anything over six seconds was pathological.

[00:34:04]

[00:34:04]

That came out of our circulatory dynamic research. But we also pointed out the importance of the veins. I mean, I pointed out to the neurosurgeons prior to our work all they were interested in was shifts, midline shifts of veins and arteries, and stains, tumor stains. But we pointed out that the veins were critical because the veins around the lesion identified the exact location of the tumor, and was extremely helpful. So we identified many important things on physiological change. I wrote a paper subsequently based on that, on simulating brain tumors, circulatory changes. We had stains in infarcts, and we distinguished those stains from tumors, which I wrote. And then that was what we see in then CT and then MR. So it was an evolving. But it was the knowledge that learned from... I mean, angiography has never left. It was a lot of the knowledge of the flow that I learned that enabled me [to] call a meningioma [ ] a mother-in-law lesion. She came early and stayed late. (laughter) And that was the stain of a meningioma. Came early and stayed late. So we used those stains, which we still use to identify tumors. So we had done a lot of this early work, you know, with the angiography. And I think that gave me an advantage. We also did air studies, which were terrible, and I was happy to see them disappear.

[00:36:34]

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***T.A. Rosolowski, Ph.D.***

[00:36:33]

Yeah, you were mentioning those last time, they didn't like them.

[00:36:37]

***Norman Leeds, MD***

[00:36:35]

Patients did not like them.

[00:36:36]

***T.A. Rosolowski, Ph.D.***

[00:36:37]

Yeah. Now, how did—you said that you returned to more physiologically-based work after you looked at the necrosis, so how did your focus shift in physiology? Because a lot of years had passed. What were you doing then?

[00:36:51]

***Norman Leeds, MD***

[00:36:51]

Nothing. No, it's just using the material to redefine the brain tumors to understand the various patterns, to be able to figure out what was what. To tell what the stain meant, to identify the various patterns to separate gliomas from meningiomas, and from other lesions. Also, it's amazing how vascular lesions, meaning infarcts in the brain, can look like tumors. I said I wrote that paper that turned out to be mostly strokes that gave these unusual stains in the brain, which we identified and wrote about, which helped me to analyze. And it's knowledge. You build up a knowledge base. And it's critical that you understand stroke, because to separate a brain tumor, it is not always so easy. I mean, we've gotten cases referred both here and in New York that were called brain tumors that we're able to analyze and say, "No, no, these are not brain tumors. These are strokes. Leave them alone, leave-me-alone lesions," like an infarct.

[00:38:21]

[00:38:21]

When we established the fellowship program in neurooncological neuroradiology, we wanted it to be someone who had had a neuroradiology training so that they would understand brain tumors, because if you don't know about infarcts, and you don't know about trauma, and these other things, you're going to make significant errors. So we want people to have a knowledge base of neuroradiology so tumors can become more meaningful to them. So it all builds, and if I look at my material, it's all there now. But understand—knowing the angio—we had the advantage of having looked at the early vein, and the significance of the early vein. How does it become an early vein? Which is seen in stroke and in tumors. But how to identify it, how to

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know it, how to avoid making those errors. You don't want to treat a stroke as a tumor and a tumor—

[00:39:38]

***T.A. Rosolowski, Ph.D.***

[00:39:38]

And vice versa.

[00:39:39]

***Norman Leeds, MD***

[00:39:39]

—as a stroke, which happens in a lot of places. So knowledge is critical. And basic knowledge is more so. So I had the advantage of starting with very little and growing it. And, you know, I tried to do that to teach others, because I'm not going to be here forever, and I'm trying to instill the search, the interest, and the knowledge in those that follow.

[00:40:13]

***T.A. Rosolowski, Ph.D.***

[00:40:13]

Yeah, I was just going to ask you how you communicate that depth of knowledge to trainees.

[00:40:19]

***Norman Leeds, MD***

[00:40:19]

By training the residents, pointing out the various changes that will enable them to be better than I am. The more I can teach, the next generation will get better and better. Hopefully they will continue to improve. And there are always new things coming. I mean, I will not—we are not at the end. I mean, we are at the beginning. I mean, I think—you know, who would have—I mean, we just got CT, and we're beginning to understand that, and along came MR, and changed the whole approach and visualization. I mean, looking—for the first time, we could look inside the brain, I mean, with CT, but really now with MR, you know, with the different pulse sequences, looking at the different changes, look at the dynamism and the contrast. And I think we'll get different contrast, which we got. Look, myelography was terrible with the oil contrast. It became—then we had the nonionic contrast, which is safer, and we didn't have to take out. We had to take out the oily contrast, which was painful to the patient, which led to a lot of problems. But it was the best we had.

[00:41:51]

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## **Chapter 09**

### ***Perspectives on Serving as an Expert in Lawsuits***

#### **A: Overview;**

Codes

A: Overview;  
A: Critical Perspectives;  
C: The Professional at Work;  
A: Activities Outside Institution;  
D: The History of Health Care, Patient Care;  
C: Funny Stories;

#### ***Norman Leeds, MD***

[00:41:51]

And, you know, I worry about the lawsuits. I mean, they come up with these things. They want to sue doctors for drugs that do... But, you know, until they—they've done some good, and, you know, this is the risk. There's always a risk-benefit. A patient takes a risk. When you're on a drug, you never know what can happen. And when I see these—I watch these programs, "If you have this, and if you've taken this drug, we're going to sue them." I mean, this is terrible. This stops advances, because people say, "We don't want to..." And I think they've got to stop. There is no malpractice. You've used it because it's the best you've got at the time. These same lawyers who are making all this money don't care. It's just how much money do they earn, I mean, on this, and that bothers me. And it also obstructs. People are afraid to do certain things because there is risk. But everything is risk. If you do nothing, there's a risk. If you do something there's... I mean, this hasn't been pointed out, but I think if I were a lawyer I—on the other side you'd point out if you didn't do this, if these things weren't available, many patients would have died. And new drugs come along that are better, but that's the same in everything we have. Nothing lasts—penicillin was great, and then it caused problems, you know, and allergies and so forth. And, you know, that's the same with everything. Nothing la... And the infections and the tumors learn how to deal with the therapy.

[00:43:41]

#### ***T.A. Rosolowski, Ph.D.***

[00:43:41]

Do you feel that the informed consent processes in institutions, and the IRBs, help protect researchers against those lawsuits?

[00:43:50]

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***Norman Leeds, MD***

[00:43:49]

No.

[00:43:49]

***T.A. Rosolowski, Ph.D.***

[00:43:50]

No, you don't.

[00:43:51]

***Norman Leeds, MD***

[00:43:51]

No. No. I think—I saw a classic TV program on suits, and actually they were—it was Denton Cooley, the famous Texas [heart surgeon]. Probably one of the great heart surgeons of all time, Denton Cooley. And he talked about having this patient, including the patient's rabbi, and they prepared this huge list of problems that if you operate on the heart these things can happen. Everything conceivable was in that risk essential, right? The patient signed. Something went wrong. They sued [anyway]. So no matter what, you know... People will sue. If you can, you will. Do you always collect? No. In fact, those were the only cases I really tried to help. I did not like malpractice, but if a doctor was being sued and I thought it was wrong, I would take [the case]. I didn't like dealing with lawyers, because they're not really considering the outcome—the true outcome, which is the risk. It's risk and reward. You don't know what the risk is.

[00:45:25]

***T.A. Rosolowski, Ph.D.***

[00:45:26]

What was the first occasion when you were called to testify at one of these lawsuits?

[00:45:31]

***Norman Leeds, MD***

[00:45:32]

I guess the first time was when I was a fellow, and just—and... And a neurosurgeon called me about a stroke case, and asked if I could represent him. And I said—I talked to him, look—I said yes. And they brought a—you know, and I had done thousands of angiograms. And they brought a neurosurgeon, the other side, who was close to 90, and I guess I was 39. And, you know, and he's talking about a hundred cases. I sat there, and when the judge—when they asked me, I had done, you know, almost a thousand. I didn't—you know, he was a man that was three times my age, and supposedly trained with Cushing, which I doubted, and I said—and I had to say how many cases, you know. And I felt embarrassed, because, you know... And then his lawyer asked me, he said, "Dr. Leeds, do you ever make a mistake?" And I knew that was a

double-edged sword. If I said “No, I never make a mistake”—you know, I thought this all over very quickly—the lawyer would say “Ladies and gentlemen, this doctor thinks he’s God. He never makes a mistake.” That was not the answer.

[00:47:35]

[00:47:35]

If I said I make a mistake, then “Why isn’t he wrong in this case?” So I said, “The answer is yes and no.” He didn’t want that. You know, lawyers only—always want a [yes or no]. I said, “I can’t give you a yes or a no. I mean, a yes or a no, it is a yes-slash-no.” The judge figured it out, what I had figured out, and he looked at me and he said, “Doctor, do judges ever make mistakes?” And I looked at him and I said, “When I’m in your court, sir, no.” (laughter) The judge laughed. The jury laughed. The lawyer stopped. Because there was no answer to that question is what I’m saying. You have to know... It’s like people say—they ask you about a book, and if you say you believe in that Dr. Smith is a world authority, and they say, “Here, he disagrees with you on this,” so what I usually say is “Dr. Smith is a great authority, but do I agree with everything he writes? No. Do I disagree with everything? No. But he is one of the authorities.” And no one is always right or always wrong. There’s a mixed opinion on things. You know, you look at things, there are two answers on many things, both of which could be right. So I know I don’t know everything, and I don’t know what’s coming. But I don’t like lawyers.

[00:49:23]

[00:49:23]

I’ll tell you the best case I had. I had a case where they called me in to look at a cervical spine. It was said she had a fracture of the spine, and her head would fall off. She happened to be a Rockefeller relative in an automobile accident. Well, the—I was working for the defense, and the lawyer brought me the films. I looked at the films, and I said, “No, no, this is not a fracture. This is a congenital anomaly, well-known.” And I brought the research books to show the picture that was identical to this. And I said, “This is not a fracture. This is an anomaly of the cervical spine that this patient has.” Well, you know, and that was that. So the other side says, “How do you know that, doctor? How can we prove that?” I said, “I wouldn’t want to prove it, because we’re only going to do harm by operating. This is a normal... And I’ve brought the example from the literature to show—just to verify what I’m saying.” The lawyer almost kissed me, you know, before, because now he had a defense. Well, they did pay off, because she had an accident, but it wasn’t the payment that lawyer was expecting, because, yes, she suffered an injury, but not with her head falling off. And he... (laughs) It was only funny in that when the case was, you know—when the jury stepped out, and I was leaving with the lawyer, the lawyer for the other side came up to me and congratulated me, because it was obvious—he said, “You did a won...” But boy, I mean, he made me sweat. But that’s a good lawyer. So I—you know, there—it’s not easy, and it’s, you know... And there is never always yes and no. There are always two sides, and you have to amplify that for the jury to benefit the patient.

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[00:51:47]

***T.A. Rosolowski, Ph.D.***

[00:51:50]

How many cases have you testified on?

[00:51:53]

***Norman Leeds, MD***

[00:51:53]

I don't know.

[00:51:53]

***T.A. Rosolowski, Ph.D.***

[00:51:54]

A lot of 'em?

[00:51:54]

***Norman Leeds, MD***

[00:51:55]

But many. But mostly because I thought the—I testified—I didn't have to testify, but they asked me to consult. The lawyer actually called me here for Dr. DeBakey. And I wouldn't have done it, but since it was Dr. DeBakey I couldn't say no, so I did look at the case. But fortunately they didn't need me, so I didn't have to go any further.

[00:52:23]

***T.A. Rosolowski, Ph.D.***

[00:52:23]

Yeah, it's interesting experience. I've never talked to somebody who has—or at least the conversation has never, you know, touched on any kind of testifying in legal cases before. I'm sure I've interviewed people who have, but it's not come up.

[00:52:36]

***Norman Leeds, MD***

[00:52:37]

No, it's just something—you know, I don't like doing it because lawyers are just trying to... And good lawyers win bad cases, and good lawyers lose good cases. I mean, you know, the jury hears, the jury doesn't hear. You do the best you can.

[00:52:57]

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## **Chapter 10**

### ***Educating the Next Generation and Concerns about the Future of Healthcare***

#### **A: Overview;**

Codes

A: Overview;

A: Definitions, Explanations, Translations;

B: Education; D: On Education;

B: Research;

D: Technology and R&D;

D: Understanding Cancer, the History of Science, Cancer Research;

D: The History of Health Care, Patient Care;

A: Career and Accomplishments;

A: Post Retirement Activities;

C: Dedication to MD Anderson, to Patients, to Faculty/Staff;

B: The Business of MD Anderson; C: The Institution and Finances;

***T.A. Rosolowski, Ph.D.***

[00:52:57]

Sure, sure, yeah. Would you like to talk more about your research, so we can bring that part of the story to a close?

[00:53:04]

***Norman Leeds, MD***

[00:53:05]

I'm done.

[00:53:06]

***T.A. Rosolowski, Ph.D.***

[00:53:07]

You're done?

[00:53:07]

***Norman Leeds, MD***

[00:53:08]

Yes. I've told you all the things... I can't—didn't...

[00:53:11]

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***T.A. Rosolowski, Ph.D.***

[00:53:12]

No more research? What—you aren't working on anything right now?

[00:53:15]

***Norman Leeds, MD***

[00:53:13]

I'm right now—right now I'm just working on advanced brain tumor imaging, so, you know—

[00:53:20]

***T.A. Rosolowski, Ph.D.***

[00:53:19]

And what does that mean, exactly?

[00:53:21]

***Norman Leeds, MD***

[00:53:21]

That means using the advanced techniques, physiologic techniques, to better define tumor grade and tumor location and kind of tumor, why do we suspect it is. And learning more and more.

[00:53:46]

***T.A. Rosolowski, Ph.D.***

[00:53:47]

What do you think is sort of the next big phase for neuroradiology?

[00:53:51]

***Norman Leeds, MD***

[00:53:51]

I don't know.

[00:53:52]

***T.A. Rosolowski, Ph.D.***

[00:53:52]

Yeah, really?

[00:53:53]

***Norman Leeds, MD***

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[00:53:54]

No, it's going to be some development in equipment, in either MR or... You know, there are several new techniques that are sitting there, waiting.

[00:54:05]

***T.A. Rosolowski, Ph.D.***

[00:54:05]

What are those techniques?

[00:54:07]

***Norman Leeds, MD***

[00:54:07]

Well, they're using temperature, and using other means with MR, and possibly even newer magnets, just like newer computers are possible. Advanced computing. Who knows? I am not going to be part of that, because I'm just now—my main goal right now is education. I'm working to educate the newer generation to be as good as they can be, to advance diagnosis, and education, and stimulate them to do work on research. But I've done my fill. But I'm enjoying it, so I think this is the other benefit, I think, is that I've enjoyed it so much that I like passing on the knowledge to the next generation, hopefully to make it better, smarter, and more advantageous to the patient.

[00:55:27]

***T.A. Rosolowski, Ph.D.***

[00:55:28]

What do you think of the—how has the quality of students or fellows shifted? Or what's—how are they different?

[00:55:37]

***Norman Leeds, MD***

[00:55:37]

I don't think they are. I think people are people. I mean, I think the people I trained with are very good, and through the years I think they're smarter, kids are smarter now. I mean, I see what they learn in school. My daughter was learning things, you know, about drugs and the brain in high school that I didn't learn until medical school. So the kids are really smarter, and, I expect, better trained, because of us and all the... You know, knowledge builds. Hopefully bad knowledge gets discarded, but there are occasionally bad things. But I think children are smarter, and they're growing smarter. And I think that's the advantage. So I think it will get better, because...

[00:56:41]

[00:56:41]

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The only thing I worry about is the single-party payer and the cost of medicine. I mean, to go to medical school is very expensive. If there's a single-party payer, the salaries will decrease, the number interested will decrease, and eventually the thing that's going to be sold is nobody's going to want to go into medicine. Look, in Europe they do what they—they don't pay to go to medical school. Nobody pays. Do you realize what we earned? I earned \$80 a month as an intern and didn't get food. Eighty dollars a month. And I worked long hours. I'm really glad that they cut the hours. I once worked Friday, Saturday, till Sunday—I mean, no, I should say Saturday, Sunday, and Monday morning. I didn't get home until five o'clock.

[00:57:56]

**T.A. Rosolowski, Ph.D.**

[00:57:56]

Is this as a resident or intern?

[00:57:57]

**Norman Leeds, MD**

[00:57:57]

As an intern.

[00:57:58]

**T.A. Rosolowski, Ph.D.**

[00:57:58]

As an intern.

[00:57:58]

**Norman Leeds, MD**

[00:57:59]

Five o'clock. So I had worked 48, almost 53 hours. And I didn't think that was right. But, you know, you're an intern. No one pays any attention. So I think... But it worries me, because I think if medicine comes like the traffic, like getting a license, which is what... You're talking about the VA system, where—right? What's going to—what is the VA system? A one-payer system. What's going to happen when the government... And I think eventually it's going to happen, because—I don't care whether it's Republican—because people think everybody deserves medical care. So once you come to that conclusion, which is correct, there's only one fallacy: if you don't have enough to eat, that's a significant... Nobody believes in free food, but they believe in free medical care. Well, you know, there is no free lunch. You know it as well as I know it, and if... Somebody has to pay. And if you make the physician pay, which means he makes less, then what's going to happen to medicine? I mean, it's not that MD Anderson or any of these places are going to disappear; it's that the quality will diminish. A lot of people go into medicine, as my son said when he was at Columbia College—the kids were going, he said, because they earn—they expected to earn more money. But it's going to come that that's not

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going to happen. Then they're not going to come running. And then the quality will go down, because the top people are going to go where the dollar is.

[00:59:59]

**T.A. Rosolowski, Ph.D.**

[00:59:59]

Where the dollar is, sure, sure.

[01:00:00]

**Norman Leeds, MD**

[01:00:00]

You know that. I mean, that's... I mean, you—I mean, no, people are—good people are going to go into things. They still do. I mean, the social studies would have disappeared if we went on just dollar. But, again, it's an inhibition. And I think one of the qualities in medicine has been the number of people and the quality of the people. You know, it's not easy to get into college, good colleges now, and it's harder to get into medical school. Well, what's going to happen...? I told you that when I went, we were inundated, because I had the people going, plus the people who had been delayed because of the being in the war and so forth. So there were so many... They're still hard to get into medical school. So I don't know what's... But when they do this, and—which is what is happening—I think then the quality will change.

[01:01:08]

**T.A. Rosolowski, Ph.D.**

[01:01:09]

Let me ask you—I mean, you've talked about these kind of big changes, you know, in the marketplace, and in kind of attitudes about medicine. What are some changes that you've seen at MD Anderson since the early '90s, when you arrived? How would you comment on that?

[01:01:26]

**Norman Leeds, MD**

[01:01:27]

I... Just that it keeps getting better, I think. Unfortunately, some good people leave, which you feel their absence. And the leadership is critical. They need a healing for the faculty. I never had that problem because I was always happy with what I did, but it did impact me—and I will tell you this—I told my kids not to go to medical school.

[01:01:59]

**T.A. Rosolowski, Ph.D.**

[01:01:59]

Really?

[01:02:00]

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*Norman Leeds, MD*

[01:02:00]

Well, because I saw the beginnings of this happening, and I wondered when we would get socialized, or one-party medicine. And I felt it would be—I didn't know—actually, from what I see, it wouldn't have impacted them. But I didn't know. I just saw it happening with the cost of medicine going up, and I thought with the thinking that medicine is for everybody, and there is no free lunch. I mean, Bernie Sanders said, yeah, it could start as a free lunch, but eventually somebody has to pay for it. And who's going to go into medicine?

[01:02:51]

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## **Chapter 11**

### ***Some Views on Change and a Big Vision for the Future of the Neuro-Services***

#### **B: Institutional Change;**

Codes

C: Leadership; D: On Leadership;

C: Portraits;

B: Multi-disciplinary Approaches;

B: MD Anderson Culture;

B: MD Anderson History; B: MD Anderson Snapshot;

B: Growth and/or Change;

B: Critical Perspectives on MD Anderson;

B: Working Environment;

***T.A. Rosolowski, Ph.D.***

[01:02:52]

Now, you mentioned that you thought the leadership at MD Anderson was really critical. So you came in at the end of Charles LeMaistre's tenure, and then through—

[01:03:03]

***Norman Leeds, MD***

[01:03:03]

It didn't... For me, it had no significant impact. The significant impact for me was when Bill Murphy was—left the department. You know, I—

[01:03:18]

***T.A. Rosolowski, Ph.D.***

[01:03:18]

How did that change things?

[01:03:20]

***Norman Leeds, MD***

[01:03:21]

Well, I think Bill built—laid the foundation for a strong department, and I thought he did great work for Doctor... I mean, he did the finance, the tough stuff, and was a great leader. And I felt the loss when he stepped... But, you see, at my level, it didn't impact me.

[01:03:46]

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***T.A. Rosolowski, Ph.D.***

[01:03:47]

Well, it—well, we're talking, too, about leadership of a department. So what was it that Bill brought to the department that was so key?

[01:03:55]

***Norman Leeds, MD***

[01:03:55]

He brought in a knowledge base and a brain that functioned at a higher level. He really started the new department, the growth, the building of the department, and he did bring a new life to MD Anderson. And I respected Bill very much. Well, he was very good to me. We got along very well. Our goals were similar, and—

[01:04:28]

***T.A. Rosolowski, Ph.D.***

[01:04:28]

How would you describe those goals?

[01:04:29]

***Norman Leeds, MD***

[01:04:30]

To build and make a better quality of department, to strengthen the department—

[01:04:37]

***T.A. Rosolowski, Ph.D.***

[01:04:37]

Now, did he—

[01:04:38]

***Norman Leeds, MD***

[01:04:38]

—to get new equipment. So he was really—he could—he was a seer and a doer. I really respect Bill.

[01:04:48]

***T.A. Rosolowski, Ph.D.***

[01:04:48]

And did he also share the kind of team focus that—

[01:04:52]

***Norman Leeds, MD***

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[01:04:52]

Yes, I thought so. And he built a strong department, and he encouraged younger people, and he helped us build. And I really miss Bill. We became very good friends, and he was very good to me, so I couldn't complain.

[01:05:16]

***T.A. Rosolowski, Ph.D.***

[01:05:16]

Now, who replaced him?

[01:05:17]

***Norman Leeds, MD***

[01:05:18]

Don Podoloff [oral history interview].

[01:05:19]

***T.A. Rosolowski, Ph.D.***

[01:05:19]

OK. And how did kind of the focus shift when Dr. Podoloff came in?

[01:05:25]

***Norman Leeds, MD***

[01:05:24]

Well, Podoloff—Dr. Podoloff is more of a people person. Bill—the problem Bill had was really not a people person. He had a vision, but he was not... Dr. Podoloff was really more of a diplomat, more of getting together, but he really, I don't think, understood a lot of the complexity. So...

[01:05:58]

***T.A. Rosolowski, Ph.D.***

[01:05:59]

So you're saying there was maybe more of an intellectual kind of focus with Dr. Murphy, and more of a collaborative people focus.

[01:06:07]

***Norman Leeds, MD***

[01:06:08]

Yes.

[01:06:08]

***T.A. Rosolowski, Ph.D.***

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[01:06:08]

OK, that's interesting.

[01:06:10]

***Norman Leeds, MD***

[01:06:10]

He knew how to build—Podoloff... That was Bill's weakness, if anything, was that he was not a people person. But he was good.

[01:06:24]

***T.A. Rosolowski, Ph.D.***

[01:06:28]

What do you think—I mean, when you and Dr. Murphy were working together, what were you kind of hoping for as a next step, you know, that kind of got cut short when...? You know, where might the department have gone if Dr. Murphy had stayed on?

[01:06:46]

***Norman Leeds, MD***

[01:06:46]

Oh, I think it would've gone further, and the hires would've been important, because Bill was really... I admired Bill, because even though he was a musculoskeletal radiologist, he had great comprehension in most of the specialties. He really... And, you know, when he was at a conference, he would ask very excellent questions, you know, if someone was asking a question. He had great perception. And he's... I think it's great that he's here, but—and I understand he's partially responsible for this project.

[01:07:29]

***T.A. Rosolowski, Ph.D.***

[01:07:29]

Yeah, he's on the Steering Committee, yeah. Yeah.

[01:07:32]

***Norman Leeds, MD***

[01:07:32]

Well, he's a wonderful guy, and I... I liked him and his wife, Virginia.

[01:07:39]

***T.A. Rosolowski, Ph.D.***

[01:07:42]

Yeah, I'm not asking you to talk out of turn or anything, just, you know...

[01:07:46]

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***Norman Leeds, MD***

[01:07:44]

No, I... By the time Bill... You know, I was getting very senior, so it impacted me, and then it went well.

[01:07:57]

***T.A. Rosolowski, Ph.D.***

[01:07:59]

Now, tell me about—you talked a little bit about your decision to kind of split your time between New York and MD Anderson, and now you're here full-time, though.

[01:08:11]

***Norman Leeds, MD***

[01:08:11]

Yes.

[01:08:11]

***T.A. Rosolowski, Ph.D.***

[01:08:11]

Yes, OK. And what are your next plans?

[01:08:15]

***Norman Leeds, MD***

[01:08:16]

Well, (laughs) now I'm planning for what my grandchildren are going to do. So no, I'm reaching the end of the road, shall we say, and so my main goal is what I told you, is I'm going to help the new faculty—I mean, young faculty—try to make them better, and leave them with my knowledge, and articles to write, and working with Ray Sawaya to talk about things. And I work with Greg Fuller. So I am working with the neuropathologists. I go to their conference now regularly on Thursday morning. And talking to Ray about neurosurgery.

[01:09:17]

***T.A. Rosolowski, Ph.D.***

[01:09:17]

Yeah, what are the big ideas that you and Ray Sawaya are kicking around? Because I bet you two big thinkers are talking about some interesting things.

[01:09:26]

***Norman Leeds, MD***

[01:09:25]

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Well, we're... Yeah, a neuro institute.

[01:09:28]

***T.A. Rosolowski, Ph.D.***

[01:09:28]

Oh, OK. So tell me about that.

[01:09:30]

***Norman Leeds, MD***

[01:09:30]

Well, to bring together all the forces in the same building, to be together, to think together, and I think if we're in the same building and we work together as closely, ideas will percolate. And by putting all of us in proximity, and to bring the sciences, the basic science, the neuroscience, all the activities in one place will stimulate the whole group. And it's just—we've lost that, I think. We used to have that, but it's gone.

[01:10:23]

***T.A. Rosolowski, Ph.D.***

[01:10:23]

Is that a factor of the growth of the institution?

[01:10:25]

***Norman Leeds, MD***

[01:10:25]

The growth, and... Well, everybody used to have lunch on the 11<sup>th</sup> floor, and there was the center table. And even doctor—the president sat at that table, the CFO, you know. And there was a communication. And many faculty sat, and we communicated. We knew each... I mean, I knew the chest surgeons very well, and liked them, and met—you know, talked to people I didn't know, that I wouldn't run into on a daily basis. So it was great. And then that disappeared. There's no single place where people meet anymore, so there's a lot of diversity, and not communication. So I think if we had that Neuro Institute, and if it had a dining room, like, that we would get to... I don't know any of the radiologists any... I used to know all the section heads—you know, the musculoskeletal, the chest, the... We don't know then anymore. You don't see them.

[01:11:39]

[01:11:39]

Each group is by—neuro, with its 20 people, doesn't communicate. Neurosurgeons, you know—it's... So I think if we were all together and had a place to congregate, they would probably put in, because you don't know—you have doctors, you have nurses, you have technicians, and scientists. So we think that putting everybody in one place would mean—you

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know, meetings will be held jointly when new things happen. So there will be an intermingling. Right now that's missing here. There is not a comingling. I mean, I don't know most of the people, but—and if I took the—they know less. I at least know many of the people that were here before, but we're all over the place now. The place is too big. That's... You know, bigness is not always... It's like any corporation: it gets so big you lose—OK—you lose this—how shall we say—communication.

[01:13:02]

***T.A. Rosolowski, Ph.D.***

[01:13:03]

Do you think that's had an impact on the institution as a whole, beyond neuro?

[01:13:09]

***Norman Leeds, MD***

[01:13:08]

I think it may have a... I said that, that, you know, we used to have that center table, and we all knew what was happening before it happened. I mean, people talked. I knew someone was leaving or coming long before it happened, because people would talk. That's how we got that CFO who I said, you know, "We need more MRs." And when I explained it to him he looked me in the eye and he said, "Norm, you're right. It generates income. I'm going to work on it." And he did.

[01:13:43]

***T.A. Rosolowski, Ph.D.***

[01:13:42]

So that was a conversation over lunch.

[01:13:45]

***Norman Leeds, MD***

[01:13:45]

Over lunch. But they were here. You could talk to people, and communicate. And I think that is missing now. I mean, everybody eats someplace else. You know, you either bring your lunch... There's no purpose. There's no group. We used to look forward—it was a social get-together, and to say hello, and you met people from various disciplines.

[01:14:14]

***T.A. Rosolowski, Ph.D.***

[01:14:14]

I mean, I've talked to a number of people who've tried to figure out how within their own department to create a sense of community, and it's a struggle. It's really a struggle.

[01:14:24]

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***Norman Leeds, MD***

[01:14:22]

It—right now... Well, because you just—you hinted. Think about it: anything that gets too big becomes a pro... The advantage in bigness is having more people. The disadvantage is the communication levels drop. And I think that's another advan... The Neurological Institute will bring together all disciplines, and bring head and neck, which works with us very well, as well as neurosurgeons, neurologists, oncologists, together, neurooncologists, head and neck oncologists, radiation oncologists, to discuss things and problems more easily.

[01:15:16]

***T.A. Rosolowski, Ph.D.***

[01:15:16]

So are you kicking around concrete plans to raise funds to create this, or get this...?

[01:15:23]

***Norman Leeds, MD***

[01:15:23]

No, we're just talking about...

[01:15:25]

***T.A. Rosolowski, Ph.D.***

[01:15:25]

Just talking, yeah, yeah. I mean, it's a wonderful idea. It's very exciting.

[01:15:28]

***Norman Leeds, MD***

[01:15:28]

Well, he brought—Ray brought it up to Dr. Mendelsohn about the need, and also to Dr. DePinho. But they have to be responsive. I mean, these things don't happen in a vacuum, and we're not important enough... I mean, it really comes—certain things come from the top, and there has to be thinking on how to improve the communications between departments and in departments that is missing. Size is an advantage and a disadvantage, and you have to think about—that would be the first priority would be how to bring people together to realize that together there is strength. Separation is only weakness. So yes, I think a discussion of what can be done, what can't be done, what's possible, what could be possible with the proper resources, and how to bring them all together is what is necessary. So it's building. I believe that's critical for the institution.

[01:17:02]

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## **Chapter 12**

### ***Reflections on a Marriage and Family***

#### **A: Personal Background;**

***T.A. Rosolowski, Ph.D.***

[01:17:02]

Is there anything else you would like to add this morning?

[01:17:04]

***Norman Leeds, MD***

[01:17:05]

No, I can't think of anything else to add to this. I'll be interested to see what you've summarized.

[01:17:14]

***T.A. Rosolowski, Ph.D.***

[01:17:14]

Well, I won't summarize. These are your words, and I will leave them as is, and I will send you a copy of your transcript to have a look, and make sure you're OK with everything. But no, I don't—

[01:17:27]

***Norman Leeds, MD***

[01:17:27]

What do you mean? What...? But...

[01:17:28]

***T.A. Rosolowski, Ph.D.***

[01:17:29]

Oh, oh, kind of—

[01:17:29]

***Norman Leeds, MD***

[01:17:29]

Yeah, but you... Yeah, but still, you're writing things, comm... When I said "summarize," I mean I'll see what... That's fine. I want to see what you say.

[01:17:42]

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***T.A. Rosolowski, Ph.D.***

[01:17:42]

Yeah. Well, I create materials so that people can find their way around your interview, so that—in that sense I do summarize.

[01:17:51]

***Norman Leeds, MD***

[01:17:50]

That's good.

[01:17:51]

***T.A. Rosolowski, Ph.D.***

[01:17:51]

Yes, yes, absolutely. So it'll get read and used.

[01:17:53]

***Norman Leeds, MD***

[01:17:52]

That's what I said, huh?

[01:17:54]

***T.A. Rosolowski, Ph.D.***

[01:17:54]

Yeah. Yeah, yeah, yeah.

[01:17:55]

***Norman Leeds, MD***

[01:17:55]

No, that's why I was happy to do this. No, I'm—look, I was smart enough to recognize the opportunity when it came, and realize it. And I had to sell it to my wife. And I had to live through... And—but on the other hand, I lived through it. I knew she was good at what she did. She actually came here, and she was a... She was at St. Thomas. She taught at the... Bette was always interested. She got her EdD. You know what an EdD is.

[01:18:35]

***T.A. Rosolowski, Ph.D.***

[01:18:36]

That's—no, education... The education PhD.

[01:18:40]

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***Norman Leeds, MD***

[01:18:38]

That's a doctorate... Yeah, an educational... She just didn't take a language. Her work was excellent. And she was always interested in reading, and reading development. And she worked—she was a reading teacher in New York City, and she was the one who developed programs for improving reading for people. In fact, the best story about her is she took—she's constantly—I mean, she had her EDD, but in the New York City school system you get paid, you know, for how much—

[01:19:20]

***T.A. Rosolowski, Ph.D.***

[01:19:19]

Right, by level.

[01:19:20]

***Norman Leeds, MD***

[01:19:20]

And so—levels—and she was at too high a level. But she was taking this graduate course at New Rochelle College, and the child she got in this evening course wasn't reading. So she sat down. She diagnosed the process, because that—she was really a good diagnostician, you know, having had that PhD, and was very good at it, and outstanding. And she figured out a program for him. And the professor cited her for having, you know... When they asked, she said what she had done in the program. The professor was very impressed, because this child who couldn't read was now reading, and she had developed the program.

[01:20:20]

***T.A. Rosolowski, Ph.D.***

[01:20:21]

Customized for that person, yeah.

[01:20:22]

***Norman Leeds, MD***

[01:20:21]

And she was—she was really good at what she did. She was one of the few people who could test almost any child. She made them feel comfortable, and, well, she always made me feel comfortable, so I was lucky. So I understood she didn't want to give it up, and I figured out after a short time that I had the ability to leave early on Friday and... Because I put in ex... She wasn't here, so during the week I worked—and the week she... We met every other week, because that way it gave me time to build up... And no one—I didn't recall, but, you know, I put in probably more hours than I took.

[01:21:12]

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***T.A. Rosolowski, Ph.D.***

[01:21:12]

So she taught for a couple semesters or so at St. Thomas, and then went back to New York?

[01:21:17]

***Norman Leeds, MD***

[01:21:16]

She did, and then went back, and then came—and then when she came back here she did that. And she taught courses on teaching at St. Thomas with the lady who ran the graduate program and then became the dean. You know, first was the professor of remedial reading, and then she ran the school, which Bette taught at. But Bette also taught at St. Thomas a couple of courses, and they made her—I forget what; they gave her a special... And I came to that program to—when she got her award. And Bette was special. I knew that. I knew that from the minute I saw her, or spoke to her.

[01:22:04]

***T.A. Rosolowski, Ph.D.***

[01:22:05]

What do you think Bette loved about you?

[01:22:09]

***Norman Leeds, MD***

[01:22:10]

I don't know, but I know that when I got through my first phone call with Bette... And by the way, that's why I'm very friendly with my sister, and travel... She introduced me to Bette. She gave me her phone number, because she thought she was pretty, and she was popular. And I called her. When I got through with that phone call—two hours, not knowing her—I said to my mother, "I just spoke to the girl I'm going to marry." How's that? And it happened. Then I finally got a date I had to talk myself into, because she was too popular. But I figured that that two hours I must have made an indent. And once we started going out we were immediately almost going steady, and I think we were going steady until the summer, and then I proposed. And she was a junior in college, and I was a senior in medical school. So we went through—she went through the whole thing with me.

[01:23:21]

***T.A. Rosolowski, Ph.D.***

[01:23:21]

Yeah, she did. Yeah.

[01:23:22]

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***Norman Leeds, MD***

[01:23:23]

And she was great. We—

[01:23:26]

***T.A. Rosolowski, Ph.D.***

[01:23:26]

Well, it sounds there—like there was a lot of respect on both sides, and—

[01:23:29]

***Norman Leeds, MD***

[01:23:30]

We—well, we loved each other, but she had her own mind, which is what I wanted. I didn't want a... (laughs) I didn't want a dummy, or someone who followed everything. And I respected her wanting to stay, because she loved being a reading teacher.

[01:23:49]

***T.A. Rosolowski, Ph.D.***

[01:23:50]

What are your kids' names?

[01:23:51]

***Norman Leeds, MD***

[01:23:52]

Frederick, and Frederick is a federal judge, and Patrice G., and she has two kids which are—she's raising. And she broke a glass ceiling: she became a vice president of a conglomerate that included that company that treats the bugs in... The big company. It was one of the conglomerate, the one... No, you know it. The one that adver—it takes care of termites.

[01:24:30]

***T.A. Rosolowski, Ph.D.***

[01:24:30]

The Terminex?

[01:24:31]

***Norman Leeds, MD***

[01:24:31]

Terminex. I think it was one of the companies in her group, until she got married. But believe it or not, both my kids married doctors.

[01:24:42]

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***T.A. Rosolowski, Ph.D.***

[01:24:42]

Oh, really? (laughter)

[01:24:43]

***Norman Leeds, MD***

[01:24:43]

Despite my... My son's wife is a doctor, and my daughter's husband is a doctor.

[01:24:52]

***T.A. Rosolowski, Ph.D.***

[01:24:52]

So how many grandchildren do you have now?

[01:24:54]

***Norman Leeds, MD***

[01:24:54]

Four grandchildren.

[01:24:56]

Two twins with my son, who speak four languages, because his wife is Bulgarian, so they speak Bulgarian, Russian, they speak Armenian, and I don't know what the—and English. And they're the cutest things alive. They're only—they're going to be six. And my daughter has two, one of whom is going to be—is really bright. He gave one of the best speeches I have ever heard, sixteen years old, at his confirmation. And the speech was outstanding. We had breakfast, brunch together that morning, and I said, "How's your speech going, Hagen?" And he said, "I've got to finish the ending. I don't like the ending." So he got up and gave it, and it was a... Do I remember what...? No, I just remember I was just brought in, and it was just wonderful. He expressed himself beautifully. When he got through I said to him, I said, "Hagen, I've been around a long time, and that was one of the best..." He said, "Grandpa, this is something I hope to do in the future." So he's very... And, in fact, I thought about bringing him down here for a few—a month, because he's interested in something... I told him—he's interested in—what is it? He wants to do—be an oceanographer, and work on speaking to dolphins.

[01:26:43]

***T.A. Rosolowski, Ph.D.***

[01:26:43]

Oh, how cool!

[01:26:44]

***Norman Leeds, MD***

[01:26:44]

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Yes, but I said to him, “Yeah, it’s cool, but it’s...” I said, “Hagen, this is a materialistic world. You have to think about what you can do that you will generate the income to support what you want to do.” So I said, “You may want to think about science, communication.” So he—so I got him thinking, and he said, “You know, maybe I would be a bioengineer.” I said, “That sounds interesting. And I think communication would be helpful.” But I said, “Maybe you ought to come down to MD Anderson for a month, and I’ll talk to Sawaya, after this year, between your junior and your senior years, when you’re better able to make a decision. And if Ray is still around, I will see if... And I already mentioned it to Ray, as I did to him, that—  
[01:27:46]

***T.A. Rosolowski, Ph.D.***

[01:27:46]

That’d be a great opportunity.

[01:27:47]

***Norman Leeds, MD***

[01:27:48]

He’s such a... He’s a great kid, and he’s a leader, and he’s an organizer, he’s smart, and he’s very active. But—

[01:27:59]

***T.A. Rosolowski, Ph.D.***

[01:27:59]

You’re looking out for the next generation.

[01:28:01]

***Norman Leeds, MD***

[01:28:01]

Yes, and he... No, he’s really... Well, he’s going to a science and math school, and he’s the president as a sophomore of the robotic club—

[01:28:11]

***T.A. Rosolowski, Ph.D.***

[01:28:11]

Oh, wow. (laughs)

[01:28:12]

***Norman Leeds, MD***

[01:28:12]

—which he hopes to build. And he’s done some wonderful things. So I’m very proud of him.

[01:28:18]

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***T.A. Rosolowski, Ph.D.***

[01:28:19]

Well, is there anything else you would like to add this morning?

[01:28:21]

***Norman Leeds, MD***

[01:28:21]

No, I've given you, I think, above and beyond, (laughter) to give you a full picture. And I agreed with my wife. That's why I said I traveled back and forth. In some ways it strengthened our relationship. Sometimes a little absence makes the heart grow fonder.

[01:28:40]

***T.A. Rosolowski, Ph.D.***

[01:28:40]

It can, indeed. It can, indeed.

[01:28:41]

***Norman Leeds, MD***

[01:28:41]

Huh?

[01:28:41]

***T.A. Rosolowski, Ph.D.***

[01:28:42]

It can.

[01:28:42]

***Norman Leeds, MD***

[01:28:43]

I said, yes. And we, you know, we had a wonderful life together. I still miss her, and that's the way life is. I mean, I'm grateful for the time I had. So I was lucky.

[01:28:56]

***T.A. Rosolowski, Ph.D.***

[01:28:56]

Well, let me thank you for talking to me this morning.

[01:28:59]

***Norman Leeds, MD***

[01:28:59]

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OK. When can I expect to see what you're...?

[01:29:02]

***T.A. Rosolowski, Ph.D.***

[01:29:03]

Well, I'll send—

[01:29:04]

***Norman Leeds, MD***

[01:29:04]

I'm not put—I am not... You have a lot to do.

[01:29:08]

***T.A. Rosolowski, Ph.D.***

[01:29:08]

No, no, I'm... Why don't we let me kind of tie up the loose end here with the recorder, and then I can tell you what the next phase of the process is, so...

[01:29:15]

***Norman Leeds, MD***

[01:29:15]

OK.

[01:29:15]

***T.A. Rosolowski, Ph.D.***

[01:29:16]

So let me just say for the record that I'm turning off the recorder at about five minutes after 11:00.

[01:29:22]