ORAL HISTORY PROJECT

Jerold F. Lucey, MD

Interviewed by
Lawrence M. Gartner, MD

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Burlington, Vermont

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PREFACE

Oral history has its roots in the sharing of stories which has occurred throughout the centuries. It is a primary source of historical data, gathering information from living individuals via recorded interviews. Outstanding pediatricians and other leaders in child health care are being interviewed as part of the Oral History Project at the Pediatric History Center of the American Academy of Pediatrics. Under the direction of the Historical Archives Advisory Committee, its purpose is to record and preserve the recollections of those who have made important contributions to the advancement of the health care of children through the collection of spoken memories and personal narrations.

This volume is the written record of one oral history interview. The reader is reminded that this is a verbatim transcript of spoken rather than written prose. It is intended to supplement other available sources of information about the individuals, organizations, institutions, and events that are discussed. The use of face-to-face interviews provides a unique opportunity to capture a firsthand, eyewitness account of events in an interactive session. Its importance lies less in the recitation of facts, names, and dates than in the interpretation of these by the speaker.

ABOUT THE INTERVIEWER

Lawrence M. Gartner, MD

Lawrence M. Gartner was born and grew up in Brooklyn, New York. His undergraduate education was at Columbia University, followed by medical education at Johns Hopkins University, where he received his medical degree in 1958 and pediatric internship from 1958 to 1959. Returning to New York, he continued his pediatric residency at the Albert Einstein College of Medicine, where he was Chief Resident in Pediatrics from 1961-62. He continued at Einstein, doing a fellowship in hepatology, neonatology and research. In 1964 he became a faculty member, rising to Professor of Pediatrics and Director of the Divisions of Neonatology and Gastroenterology and of the Pediatric Clinical Research Center. During this period he carried out a major research program in neonatal bilirubin metabolism. In 1980, he became Professor and Chairman of the Department of Pediatrics at The University of Chicago and Director of Wyler Children's Hospital. In 1998, Dr. Gartner retired from the University of Chicago. He now lives and works from his ranch in Valley Center, California (San Diego), continuing lecturing and writing in neonatal jaundice, breastfeeding and history of neonatology.

In 1956, he married Carol B. Gartner, who subsequently became Professor of English at Purdue University and Dean of the College of Arts and Sciences at the Calumet campus. She also writes and lectures on the history of medicine, sometimes with her husband. She also assists in the oral history project, with specific responsibility for the video recording and photographs that accompany each oral history. They have two children, Alex Gartner, a movie producer, and Madeline Gartner, a breast and endocrine surgeon.

Interview of Jerold Lucey, MD

DR. GARTNER: We are here in Dr. Jerold Lucey's home in Burlington, Vermont taking an oral history on October 10, 2002.

There are the four major areas that we want to cover with you. The first is that you yourself were a major figure in American and global pediatrics and we want to know something about you and your life and your education, your career, your family. Second, we want to record for future researchers your scientific, clinical and scholarly contributions to field of pediatrics. Third, you have a very special position in the world of pediatrics as the editor of *Pediatrics*, the journal, and this gives you a unique view of pediatrics, particularly the research and the clinical direction it has taken. The fourth, because this is specifically a history of neonatology program, particularly American neonatology, we are interested in understanding how the field of neonatology developed, where it came from, and how you see various aspects of neonatology.

DR. GARTNER: Let's start with you and your personal history. Tell me about your origins, your parents, ancestors. Where were you born? Where did you grow up?

DR. LUCEY Okay. Well, I'm from an all-Irish background. I was born in Holyoke, Massachusetts in 1926 to a 17-year-old mother and an 18-year-old father. We moved then to Northampton. I was pretty much raised by my grandmother, as you might expect, who spoke mostly Irish and Gaelic in those days.

Then we moved to Northampton and my father and mother ran a bookstore there; but that wasn't my father's major occupation. He was addicted to gambling. The store kept my mother busy, but my father was mostly a gambler. So at different phases of my life, we were rich and we were poor and [laughs] I was in all kinds of different schools. We never left Northampton, but we did move around a lot in Northampton.

DR. GARTNER: This is Northampton, Massachusetts?

DR. LUCEY: Massachusetts, yes. My mother had 17 people in her family, so I have a huge number of uncles. Many of them were killed in World War I, and then in World War II a lot of my cousins were killed at Iwo Jima and Tarawa. They were Marines. That was a big event in the family that I can remember, when I was about 16.

At that point, I went to a Catholic school from the age of six until probably I was about ten and then I was transferred to a small boarding school, Williston Academy in Easthampton, Mass, which is about eight miles away. I became no longer Catholic at that point. The boarding school was an interesting place, it only had about fifty or sixty students. [General] George [S.] Patton's son was one of them and then (inaudible) Yates, who is very well known in the television industry and then Dale Long, who was a professional baseball player. He was the only man that hit three triples in one game in a World Series, if you want to win a quiz program. [Laughs]

Those were my early friends. And then things didn't go too well. At first, I was yanked out of the prep school and sent to high school, which was the big deal. I loved that; that was great for me. I probably peaked in high school, because I was the captain of football team. We had a terrible team; we lost a lot of games. But the one big game of the year, [laughs] we were playing the team that was to go on and become the state champion. They were almost the state champion then, and we had lost most of our games. I caught the winning football pass. I was the class president and what have you. High school was full of nothing but good memories, for me.

I always knew I was going to go to medical school. I mean, really always and it began when I was about six years old. We were living in Holyoke, Mass, and I can still see the house and I can still see this garage. There were a bunch of little kids playing and somebody said, "Let's play doctor." Many people don't know what playing doctor means these days. [Laughs]

DR. GARTNER: [Laughs]

DR. LUCEY: I didn't at that time. So I said to the guy who proposed it, "What's doctor?" He said, "Oh, we all take our clothes off and the doctor examines us." I was a modest little guy, so I said, "Well, I will be the doctor." [Laughter] Well, I don't know how far we got but I can see the back seat of this old automobile and the garage door opens up and all kinds of kids, with no clothes, bare ass, running out in all directions. But little Jerold was there, with his clothes on. [Laughter] I was the only one who wasn't grounded. This looked pretty good, because you tell other people to take off their clothes and you don't get grounded for it.

But the serious part of it was, my mother and father didn't divorce, but they separated for long periods of time. I was raised a lot by my uncle, who was the leading doctor in Northampton. In those days, I mean, doctors had huge

practices. I mean, he was on seven days a week, 360 days a year. So, I lived with them for probably one or two years all told. At this point I was probably twelve or thirteen, before high school. He was the most respected man in town, because he took care of something like fifteen thousand of the thirty thousand people in Northampton at that time. And the city paid him to take care of everybody who was poor; he got $600.00 for that. When the war came along, everybody got rich but they still kept him as a doctor. He delivered hundreds of babies. But, you know, you never saw the guy. He was there in the morning and he would be there at night. He had office hours from seven o' clock in the morning and went to the hospital. He would come home from five to six, and then he would be back at six to eleven PM at the office.

I loved the respect that he got and I admired him very much, but I realized then that that's [laughs] not a great life. So when he would talk to me, I would always say, "Well, I am going to be a doctor, but I don't think I'll be a general practitioner like you." He would agree with me that this is a wise move.

So the war came along. At sixteen I wanted to join the Marines and my mother wouldn't let me. You could join in those days [at age 16]; the Marines would blink one eye, and all my friends were joining, but I couldn't. So I ended up joining the Navy, the Naval Air Corps training program, at seventeen. This recruiting guy said to me, "Where do you want to go?" And I said, "I want to go to the flight school." He said, "No, no, not that. What college do you want to go to? Take your pick." And so, boom, first thing, I said, "Dartmouth." He said, "Great, that's fine." That was it. That was the admission to Dartmouth College. and they sent me to Dartmouth [College]. So it was a lovely scene. I didn't know where I thought I was going to go to college. Really, you're just thinking of the war. You were thinking of where you were going to go and what service you are going to join? There is none of this worry about what you are going to do during college days at all.

But I'd been to Dartmouth to one wonderful winter carnival weekend where they played Princeton. They beat Princeton the last minute of the game. It was a pretty campus. My father at that point was running a--- his main occupation was still gambling. But he owned a bar at this point. a place called Rahas which, if you were an Amherst or Smith College girl, you'd remember Rahas. He was down on Dartmouth students because he felt they were too wild when they drank too much. And he thought Amherst was the pits.

DR. GARTNER: And what year was that?

DR. LUCEY: That had to be 1944, because I was in the Navy from 1944 till the middle of 1946 and the war ran down when I was at Dartmouth; the war had started ending. I can remember when [Franklin D.] Roosevelt died and we were all parading in our sailor suits. Then I had wanted to supposedly be a naval aviator, I remember that program, and then they closed that program down. And they said, "Well, now we are going to send some of you out." So, I ended up at Great Lakes [Naval Station] and then I ended up in San Francisco.

In San Francisco in the middle of a big storage place, thousands of guys are in this giant gymnasium. I don't know where it was, but the beds were six high and we had ladders to climb up on them. Then the fog horn was going off all night, and they were saying, "Okay, Jones, Smith, Clark, report to the front desk," and they'd disappear. What they were doing was, ships were coming back and they were turning them around real quick and they left the people who have been in combat and everything else off and then they put the new people on, then go back they got more people.

One night, the horn went off and I got up there and I got on this ship, which was supposed to be an attack cargo ship. It had seen quite a bit of service in Okinawa. I got on in the middle of the night, there were two of us, and the officer that welcomed us aboard had this funny look on his face and he said, "Well, see you in the morning." So, I get on and said, "Where's the ship going?" "To China." "Great, wonderful!" [Laughs] I didn't know that I was going to be seasick most of the time.

The next morning we report to him and he said, "I don't know what you two are doing here." And I said, "Well, we were assigned." He said, "Yeah, but this is an unusual ship." He said, "This is a ship for fuck-ups, and you don't have anything wrong with your record. You two guys have been in, you know, officers training school or something. What did you do wrong?" "We didn't do anything wrong." [Laughs] So, he said, "Well, you know, everybody on this ship has been in jail. They just got out of the brig. We just emptied the brigs out."

Well, in those days not everybody was a hero, especially in San Francisco, and what would happen is they'd punch an officer out, the night before they

were going to sail for the war or something or they'd get roaring drunken and not show up. Well, there was an automatic sentence for that; that's two years in the brig. And these were not nice brigs, because you have to realize that they are full of probably a lot of people who were potentially cowards, who then are in jail, and want to show each other how tough they are. [Laughter] The best thing to have done, I found out later, was to really punch an officer, fight with an officer and that was the legitimate reason for being in jail. If you just got drunk and didn't show up, that was a little suspect, and if you just ran away to Iowa and they caught you, that was the bottom of the pecking order. Well, I didn't really think much about it and then I got assigned to various places to live and- -

DR. GARTNER: You mean this is on the ship?

DR. LUCEY: On the ship. Yes, on a ship you only have--the bunks are about this close--you can barely turn over your shoulders. You are really close to somebody, and I got the least desirable. We were the last ones on the ship, as it was sailing out of San Francisco. I just remember we got the least desirable kinds of bunks and the man above me peeks over and says, "What are you doing here? I don't recognize you. Where are you from?" Meaning, what jail are you from? [Laughter] And there was a pecking order of the jails. If you were in jail and got into more trouble, you are transferred to another jail; and those were the guys that, when they got on the ship, they automatically got the best jobs. And the best jobs were those where you could get access to food, and you could steal stuff and trade things.

He realized I had no pecking order; he went through the places where everybody had been in jail [laughs]. It wasn't any of these. So he said, "You may need some protection." He said, "I will be your friend, if you read to me." Read to him? He said, "I can't read my letters; I can't read my girl's letters," and he had this whole stack of letters. He said, "If you read to me and you keep your mouth shut, I'll see that nothing bad happens to you." And I was like, "Okay. Nothing will happen to me. What's going to happen to me? I'm in the Navy, you know. I'm going to China."

Well, to make a long story short it was an evil experience because at that point I hadn't had any contacts with criminals. You know, there is not any crime in Northampton and I don't think I even knew the word gay or homosexual or anything. Well, the jails had a lot of guys who were all pumped up with tattoos on muscles. They have been pumping iron for weeks, years and there were some very strong gays and very militant

homosexuals and everything else, and I was a new guy. It wasn't a week before somebody threatened to break my arm, for I don't know what, and he pulled this huge knife; everybody had a knife, big knife. He pulled a huge knife on me. So it was worthwhile reading the letters. The letters were shocking. I mean, they were unbelievable letters. I can't tell you what was in the letters [laughs], but they were sex education in itself, as I read them.

Well, our ship got out in the middle of nowhere and it turned around and came back, and we went through the Panama Canal. And then they decided to decommission the ship. We went to Norfolk and then I got put on another ship. I was on a battle ship, USS Mississippi, for a very short time. Then I was on a very small ship, the USS Robert I. Paine, up in Maine, Casco Bay, Maine. Then after two and a half years I got out of the Navy, very happily, because it turned out that I was very susceptible to seasickness and I never got over it. I went into the Navy weighing 185 and I came out weighing 145, so the pictures look great now because I was really nice and thin.

DR. GARTNER: You never got to China?

DR. LUCEY: Never got to China.

DR. GARTNER: You never got to fly.

DR. LUCEY: I never got to fly and but I did have an education; I went back to Dartmouth. In those days you could go in summer and winter; you could take extra courses. So I speeded up everything, I went through Dartmouth in about a year and a half. That's how long I was there, by taking extra courses and going both summers. And I regret doing that. I don't know why the hell I was in such a hurry because it was a nice place. But at this point, I know why I was in hurry; I wanted to get to medical school.

I met some interesting people at Dartmouth College. Sam [Samuel L.] Katz was in the class. Sam went to Dartmouth Medical School; I went to NYU [New York University School of Medicine]. My best friend at the time was [W.] Hardy Hendren [III], who became a Mr. Hardy He-Man kinda. He was pretty much the same guy then, a really hard driver, and we used to study together a lot. At Dartmouth Medical School in those days, the school was only about twenty four students in each class and only for two years. (Students transferred to a four-year medical school for their last two years of medical school.)

DR. GARTNER: Did you go to Dartmouth Medical School?

DR. LUCEY: No, I didn't make the cut then; I gave it a shot. When I went there in the Navy, they made me take all kinds of courses, heat and power is the one I remember most, and mechanical drawing. I couldn't draw worth a damn and heat and power made no sense to me whatsoever. So I had whole bunch of Cs. When I got back and I could take the courses I was interested in, my record improved to As and things. If you look at a graph, that was the year that there were so many people coming out of the service, who wanted to go to medical school. Ten thousand that year, or two years; every other year it is down.

DR. GARTNER: That was 1946?

DR. LUCEY: That would be 1948 and a lot of people didn't get out right after the war. The war may have ended in 1945, but a lot of people who went in in 1944 didn't get out till 1946 or 1947. The problem was boats coming back. I had friends who were in France and they had spent six months just fooling around in France in these terrible camps, just waiting to get out.

DR. GARTNER: Okay.

DR. LUCEY: So, I applied to a lot of medical schools.

Those summers were probably the most key in my life. The summer of 1948, when I knew I had gotten into medical school at NYU, I went to Mt. Desert Island [Biological Laboratory], in a biology lab. There was a big group of people there. My Dartmouth professor was a renal physiologist and he had a little cabin there, and next to him was a cabin, a shed as they called them in those days, full of people working for Homer Smith. They were working on renal blood flow and the dive reflex and its effect on renal function. It is name dropping, but there were a lot of people in there that became very well known later on; Daniel Shannon was there. There was Bradley, Stan [Stanley] Bradley became a Dean. Shannon was at the NIH [National Institutes of Health]. Who else? Well, there was Homer Smith, who used to come around a lot and work with everybody.

DR. GARTNER: And that was what year and what date?

DR. LUCEY: **That would be the summer of 1948.**

DR. GARTNER: And that was in your last year of Dartmouth?

DR. LUCEY: **I'd been to Dartmouth, gotten out, was going to medical school and went during the summer to Mt. Desert Island. I was to come back there in 1949. Two summers I spent doing renal studies on fish. Those summers at Mt. Desert Island were really sort of pivotal. As I mentioned I knew I wanted to go into medicine and I knew I didn't want to go in to practice. The last thing in my mind was that I would ever end up doing research; nobody thinks they are going to do research. I had done some at Dartmouth though; I must have had a little inkling. I'd try to culture something; I was very interested in parasitology at Dartmouth. I came within inches of being a parasitologist when about the fourth rejection came from medical school, of nine. My parasitology professor said to me, "You know, you're a great student, why don't you go into parasitology?" And I liked it; I was getting an interest in travelling. I hadn't had the chance to do much, but I always wanted to travel. So he put me in line for working with man named [Ernest Carroll] Faust. In the parasitology world, New Orleans and Faust were it. He had written the text book and it was the big thing. He was so well connected that he called up Faust and Faust said, "Yes, we will take him."**

There is another episode I have to tell you about. I go back a little bit, because after I got about sixth rejection to medical school, I began to get pretty depressed because I looked around and I thought, "Gee, they are taking guys that, you know, I know I am better that they are in terms of smarter. What the hell is happening here?" So, I went up to the advisor, Sivertsen was the advisor at Dartmouth; he was the advisor and the dean. And I said, "You know, I have got six or seven rejections and I'm pretty depressed." He said, "I'm startled. I can't imagine why you'd get rejections." He said, "You shouldn't have gotten any," and then he listed off the same people I'd thought of. One was to be thrown out of medical school first year because he was a rapist.

DR. GARTNER: Oh, dear!

DR. LUCEY: **He came here, to Vermont [laughs]. So, anyway, to make a long story short, he said, "Just a second, what school haven't you heard from?" And I said, "I haven't heard from NYU." So he said, "Okay, sit out there." He didn't quite close the door; he left the door open. And the**

conversation was very quick. He said, "I've got a boy here, wants to go to medical school. Good record. Great material. Got room? Okay, fine." (click) And then he said, "You're in at NYU."

DR. GARTNER: [Laughs]

DR. LUCEY: Sivertsen was very powerful in those days, you know. He went to the Deerfield Academy and when he was there, he called up Harvard and said, "We've got 12 kids from Deerfield and these are the ones I would put on my list." Sivertsen must have had that kind of tug with whoever was the admitting officer down at NYU. Years later I was to check, you know, when I was in the sophomore year that I spent at NYU. There was a party or something and the dean of admissions was a man named Hubble or something, and I asked him if he remembered this conversation and he said, "Yes, but you were going to get in anyway." [Laughs] I felt great fondness for Sivertsen, not taking anything from him; but it wasn't full after all.

Let's go back to Mt. Desert Island.

DR. GARTNER: Okay, yes.

DR. LUCEY: Well, Bob [Robert W.] Berliner, who was to become the Dean at NYU [actually Yale], was up there. Everybody was doing renal clearances on something. And I picked out this fish that was easy to catch. It was called the sculpin and if you took off all the slime, the slime protected it from salt water. And it had a very primitive kidney. The first project that I had was, how do you get the blood sample from a fish with all kinds of spikes all over it. And two, how do you collect urine from the fish. I solved both these problems and today I am probably the only person in the whole world that knows what the renal clearance rate of a sculpin *myoxocephalus octodecimspinosus* is.

DR. GARTNER: [Laughs]

DR. LUCEY: A secret I cherish.

DR. GARTNER: Got that.

DR. LUCEY: I tell the story because I got the thrill of having solved something all by myself. And I saw people who were obviously very bright

and very happy at what they are doing. You are up there in the summer, everybody thinks you are swimming. God almighty, renal clearance studies. Once you had an animal, you were up 24 to 48 hours, every four hours doing something with it.

And that experience fostered the interest in pediatrics, such as the people that were doing the renal clearance studies were using baby seals. I had gone up earlier for a new seal catch on an island off the coast of Maine and brought them in, separated them from their mothers and brought them in and put them in the big pens, about the size of this room. Harbor seals are very cute. The baby seals have big beautiful eyes, they look great. But they were dying. They seemed to be dying of two things. One is they got these sores all over and infection. It probably was that the pen wasn't clean. But the other is that they obviously were being weighed a lot. You're touching them everyday to weigh them, and they weren't gaining any weight, they were losing weight.

It turned out they weren't eating. They have been separated from breastfeeding. [Laughs] They had to learn to swallow fish, wouldn't eat dead fish, and couldn't catch live fish. So the internists saw it was going to destroy their summer because if the last eight or so died, they were finished. There was nothing they could do, they couldn't go out and catch bigger ones very easily. So I volunteered to help. But it was obviously impossible to feed a live fish to a live seal. [Laughs] It can't be done. The seal has a very elaborate esophagus and that is what protects it from saltwater. So I came up with the idea that we could gavage feed them. You put the fish in a Waring blender and then pour it down a gavage tube and that was considered pretty good thinking.

I got a lot of friends out of that. They were able to finish the summer. They got whatever they were trying to do. The seal can vary its renal blood flow from 8 to 160 or something. They got whatever they wanted out of that. And I became the world's living expert on sculpins, renal clearance tests in sculpins. Never published anything out of it, but I think it was first time I realized, "My God, you know, newborns are different." They had screwed up because they thought they were just like adults.

So then, believe it or not, NYU, all medical schools at that time, there were no electives. You had a course, you marched all the way through; that was it. And my table, by the way, and you got assigned. I realized years after I got out of the NYU, I only knew people whose names began with L. [Laughs]

DR. GARTNER: Of course.

DR. LUCEY: After the second or third year, they broke that; but, in the first year, they had mixed it up somehow. My dissecting partners were Gene [Eugene] Braunwald, future professor at Harvard, and his wife, Nina Braunwald, Nina Starr at the time, who was to become, I think, the first woman cardiac surgeon. One of the first, and certainly the first to have her own valve named after her. And a man named Michel Gilbert who was to become a very well-known pediatric surgeon in Florida.

I kept wondering why this guy at the other side of the table [laughs] was doing so great all the time, and Nina was also doing very great, and I began to realize, "Jesus, maybe I am in the wrong business. These people know everything." But there was a reason for it. I mean, Gene, I think he's written a thousand papers or something and Nina was equally good. I can remember one time when she beat him. In the good old days there was a list in a big hallway, to the third decimal place.

You've got to realize. I am not a Catholic but there were three "Catholics," two Blacks and everybody else was a Jew with a complex. [Laughs] I mean this was the medical school that they didn't want to go to, or they wanted to go to it, *but* they would have gone to someplace else had they had the opportunity. So it was very, very competitive. And most of my academic friends for many years, were always from the class or something.

DR. GARTNER: How many were in your class?

DR. LUCEY: Oh, God, I think there about a 100, 120. But we busted up after the first two years, and then you never saw anybody being sent to doctors' offices all over the place. At that point, I began to have some second thoughts about the program. We were sent to a lot of, you know, give you an example, we were sent to a private ophthalmologist office for ophthalmology. Then the guys weren't there; they didn't teach anything. So I thought, well, we'll organize the class and we won't go. So we organized the class and everybody agreed to not go, and it took about three weeks before the ophthalmologist called up and said, "Where are all the students?" [Laughs] Well, we confronted the Dean of students with the fact that nobody had been going for three weeks and that it was a lousy course anyway. And they did

something about it, but it was too late. I never was going to go into ophthalmology after that.

And about that time we started agitating for this, Hardy Hendren called me up. Hardy had gone to Harvard and he said, "I've got an idea." He said, "I hate this Goddamn system where, about the second year, everybody starts worrying, "Where am I going to intern?" You know. You'd watch these nights where they brought in telephones to a central place at NYU and you could accept and then, you know, people would trade off Mount Sinai for Peter Bent Brigham and then call up Brigham and, Christ, it would go on for the whole night. Hardy said, "I can't stand that, Boston has got a system that I think we should institute nationally." And I said to him, "Oh, Christ, it's too late. I don't have that kind of time anyway and I don't think it's going to work." Hardy was much smarter than I was at that point, and he said, "We can make it work," and he did it. Hardy Hendren is responsible for the matching plan. He did it between September and December or something, of that year, when he was a medical student.

DR. GARTNER: He was a medical student?

DR. LUCEY: Yes, and it got him into a lot of trouble in Boston. There is a casual mention to it in his biography. But I think it's one of the great things he did. [Laughs]

DR. GARTNER: It's rather important.

DR. LUCEY: It was very important. So anyway, at that time I was agitating a bit for improving things around us. I'd been to a lot of specialty things, but the teachers weren't really interested in teaching and weren't that excited. I went to a lot of things that I didn't care for, you know. I really wasn't attracted to obstetrics. It occurred during the World Series. I can remember sitting there, playing cards with Birt Harvey and somebody else. The OB [obstetrics] resident would say, "I got a delivery, who wants it?" The loser got it. [laughs]. Not the winner. You had to deliver 50 babies in those days.

So the school then announced, because there is this agitation, that we could take electives. And so, I took three electives.

One was, I worked with Henry Barnett. I built on whoever was giving me advice. There was a renal physiologist at NYU and he said, "Oh, there is a

guy uptown." And so I spent a month or so, maybe six weeks with Henry Barnett in the basement of the New York Hospital and he was doing renal clearance studies in preemies at that time. Two things were going on. He was doing renal clearance studies on preemies and they were also trying to work out retrolental fibroplasia. This had to be 1951 and there was lot of interest in New York. The students were vaguely aware of it, I mean, there is some disease, but what is it? We hadn't had pediatrics yet, and in pediatrics you didn't get put in the nursery anyway. So Henry was trying to measure blood pressure in scalp arteries, the theory being that it was hypertension or something and you can measure it. He and Bill [William E.] Laupus, the chief resident. They were measuring blood pressure in scalp arteries. So they had a preemie down there, and put a little tiny needle in and so I watched them do that.

Then Henry needed somebody to volunteer to drink the same amount of milk as the premie. He wanted to do renal clearance study of a preemie versus an adult, and I was the logical adult. I volunteered to do this. The milk was to be fed to you; I had to drink formula, on the same per square meter surface as the preemie. Now, all I can remember is that there were three big gigantic jugs of milk, and I had to do it for three days. "It's a piece of cake," I thought, "I love milk."

DR. GARTNER: [Laughs]

DR. LUCEY: But, God, about the end of first and second day, I was barfing when I drank the stuff. Hold your nose, make it cold and everything else…

DR. GARTNER: And is this formula?

DR. LUCEY: This is formula, and I don't know what formula [laughs]. It was probably, I don't know Similac, because Ross showed up in the picture. Anyway, that's published in the *Journal of Pediatrics.* I don't know why.

DR. GARTNER: [Laughs] You didn't get your name on the paper?

DR. LUCEY: No. And I beat the premie in concentrating by a big margin. I have often thought of going back and looking at the paper to see where I am on that?

The other exciting thing that happened while I there was, Dr.Barnett; we didn't call him Henry.

DR. GARTNER: [Laughs]

DR. LUCEY: And, Dr. [Samuel Z.] Levine, we didn't call him anything but professor. [Laughs] There was to be a meeting and Dr. Barnett said to me, "Well, look, if you want to listen in on this meeting, it's all right with us." I can remember Allan [M.] Butler and, you know, Harry Gordon were there.

It was one of the first meetings of the Ross conference series [Ross Conference on Pediatric Research]. And in those days they used to hold the Ross conference wherever it was organized; they would have it in their hospital.

I didn't see Dewey [Sehring] at that, but I was to meet Dewey again up in Boston when I moved to Boston. And later on, I proposed to Dewey along with Joe [L. Joseph] Butterfield that they have them in some nice places. So I'd like to take credit along with Joe, rest his soul, that these meetings were held in nicer places. It was something to do; I think they are a wonderful set of meetings if you look back on them. I think Dewey really put neonatology together because none of us would have had the money to travel to these places. We wouldn't have met anybody else. And if you go, as you rumble around in the history of neonatology, you realize that meeting people was a key thing, especially if they're doing the same little line or field that you were. And those meetings, there may have been 50 or 60 or something, they're a key part of it. And I'd recommend one day that you should look it over. Is Dewey going to be interviewed?

DR. GARTNER: That's a good question. He isn't on the list.

DR. LUCEY: He should be.

DR. GARTNER: You are right.

DR. LUCEY: He should be because he has a wonderful view. He knew what all of us were doing and there wasn't anybody else that knew what was going on.

DR. GARTNER: That's a wonderful idea.

DR. LUCEY: Later on, he'd have asked you to put together a meeting and then he'd find the people for it and you would be able to see your friends. There was never any pressure by Similac or Isomil or whatever the hell the company sells.

DR. GARTNER: [Laughs] You don't remember?

DR. LUCEY: No, I don't. That sounds strange but you know you've got to realize that people in these meetings didn't actually ever buy milk. They probably never wrote a prescription for it. When I was in residency and everything else, you were making up your own formulas. There wasn't any preformulated in those days, you know. It was evaporated milk.

DR. GARTNER: They had formula kitchens.

DR. LUCEY: Yes. When I went to Boston, Clem [Clement A.] Smith's real problem in Boston was that he had this breast milk bank with thousands of samples of breast milk. People lost interest in breast milk, and what do you do with all that breast milk, you know, dump it in the river? I don't know the answer, what happened to it. It was never used and it had to be trashed someway. Dairy, perhaps. [Laughs]

DR. GARTNER: I actually didn't realize this. I didn't realize that Clem had a collection.

DR. LUCEY: Oh, yes. The BLI [Boston Lying-In Hospital] had a milk bank.

DR. GARTNER: That is interesting.

DR. LUCEY: Dr. [Stewart H.] Clifford would have been the person that was in charge of it. The arrangement at the Boston Lying-In was that Clem was in charge of research and Clifford was in charge of the patients. Clem always liked this distance between somebody wanting to do research and patients.

So, back in medical school, I'm on my first elective. And that was the pretty exciting time, because then I thought what a whole new world these little tiny babies were. Everything is different about them.

Then I did a sub-internship at Columbia, Babies Hospital and that was a big break there because they put me on the ENT [ear, nose, and throat] floor and admitted T & As [tonsillectomy and adenoidectomy]. And the hospital got fantastically full. So, they had to stop doing T & As, and they had regular patients down there. And I think I had Ruth [C.] Harris as my attending for a while. But, anyway I got a chance to present some decent cases there, not just T & As.

I really liked Columbia. And so when it came time to have a choice, my choice was Children's Hospital [Boston], $25.00 a month. I think New York Hospital was paying $50. I think the Bellevue was paying a $100. Columbia paid $200. And I was married and there were a lot of great places and so I went to Columbia. I was married in 1948.

END OF TAPE 1, SIDE 1

TAPE 1, SIDE 2

DR. GARTNER: We were talking about when you got married.

DR. LUCEY: I was married to my high school sweetheart. She was a cheerleader. We were married in the freshman year of medical school. Jane was a nurse, and we had our first daughter, Colleen, who was born in the Regent Hospital in Brooklyn, because there was no place to have your child born at Bellevue Hospital, even though it's a very good obstetrical service. This was while I was at Bellevue.

We had Colleen when we lived up on East 72nd Street, in a one-room apartment where we couldn't tell if it was raining outside or not, because we lived in an air shaft [laughs]. I would come home from work and Jane would rush out to work. She worked the three to 11 or something. When she had to go at three we had a nurse across the hallway that would take care of Colleen.

When I got to Columbia, we had our second baby. Cathy was born at Columbia, and David was born during my fellowship at Boston. So, we had three children by the time I was a fellow. Most of the time Jane worked and supported me through medical school and the first years of the fellowship.

Now let's go back to, let's see, where was I? I was on an elective at Babies Hospital. That was the first time I can remember hearing Bill [William A.]

Silverman talk. Also, Clem came down and talked and these are probably two of the best speakers in neonatology, then and now. Clem's gone, but Bill's still talking.

DR. GARTNER: Bill's still talking [laughs]. He's still talking.

DR. LUCEY: And he had the same style and they both had a delivery that was very, I don't know, it just was exciting. And right after I heard Clem speak I went out and bought his book. It was a thin book at the time. Probably about this big and it was physiology of the newborn. It really more or less stressed what the physiologic differences were and then there was a small paragraph at the end discussing the clinical importance of these things. So, with my little background in physiology and research in renal function stuff, I sort of thought that this was a great way to put together a book. It was very useful for many years.

I'd been accepted into all the places that I'd wanted to go, but I accepted Columbia. Mainly, it sounds ridiculous but I thought it was $200 a month versus $50 or $25. When you have children, that $25 at Children's Hospital [Boston]--I don't know what you're expected to do with the $25, buy a yacht or something. [Laughs]

DR. GARTNER: [Laughs]

DR. LUCEY: And years later I was to take part as a silent partner in a debate at Children's Hospital. They had a lot of money. Well, I don't know how much they had, but they had plenty of money to pay the house staff. And the debate consisted of some very famous pediatricians at the time, and the topic was, "Should we pay the house staff or not?" And it was pretty even. Half of them said, "No, we'd get the wrong kind of people," and the other half said, "Well, some of them are married you know." "They shouldn't be married. They shouldn't be married. What are they doing married if they're going into the field?" [Laughs]

DR. GARTNER: Right. [Laughs]

DR. LUCEY: They didn't pay them after that and there were three or four years before the issue came up again. That time I understand that it was, "Well, we might be losing some people that would come here and so we don't want to do that. We've got plenty of people, so it won't attract the

wrong kind of people, who are in it for the money." [Laughs] So they started paying people.

So I interned at Bellevue and that was a great year, because when you're in the fourth year of medical school, and you've done your stuff at the (inaudible), you know the pediatric service. There's always this time between when everybody gets out in May or something in those days, and they start leaving in April. So the services all had May and June, where the coverage on the service was minimal. If you've been selected for the house staff at Bellevue in pediatrics, you started in May or June. [Laughs] And by the time the real recruits turned up, July the first or something, you were an old timer.

DR. GARTNER: You knew the ropes.

DR. LUCEY: You knew where all the stuff was and everything. I loved Bellevue.

DR. GARTNER: And this was just straight pediatrics?

DR. LUCEY: Straight pediatrics, yes. We didn't get to the nursery in those days in the beginning at all, you know. They saved the nursery up for later on. But, I started on the TB [tuberculosis] ward of Edith [M.] Lincoln who was 'Mrs. Tuberculosis' in those days. It was just the beginning of the time when streptomycin had come in. I'd been up to New York Hospital when I heard the first announcements of the streptomycin curing of TB meningitis. Bellevue had about 20 cases of TB meningitis and you did lumbar punctures every week on them, and we had a bunch of primary TB cases in there and we did lumbar punctures on those too. Edith Lincoln and another woman, I forget the lady's name [Lillian Milgram Shapiro] were a force to be reckoned with.

There were these reading sessions of x-rays. One of the memories that I have of the first time I sort of stepped up against an authority is from this time. They were showing these x-rays saying, "Oh, that's active, that's inactive," and I said, "I don't see any difference between those x-rays." Well, [laughs] I could not get out of that room until I did see a difference between the x-rays. Several years later they had a meeting and they brought a whole bunch of radiologists into a hotel room. The hotel room was in New York City, and they fed them x-rays and they were stuck. There was no agreement between any of the people, and the idea of reading active TB and inactive TB sort of

bit the dust. And I probably had some thoughts about authority before then, but that one clinched it that people don't know as much sometimes as they make it sound, and you shouldn't be too didactic in your teaching.

There were some great missed opportunities at Bellevue Hospital though. I can always remember the scene, Audrey [K.] Brown is my resident or something and I'm admitting a boy named Johnny. This is about the 24th admission of Johnny to Bellevue, all six floors of it. No, I think it was the 14th admission, and he's got this chart, and oh, Christ, it's a crock. It's incredible. You go through it and he's been quite sick several times, and the mother's sitting there smoking away. We're in a john, as it is. We interviewed people in a toilet, without the toilet in it; it was the interview room. The mother is obviously annoyed that Johnny is sick again. And she says to me, "Y'know," I'm asking her what's happening and she says, "It's all in the chart, all in the chart." She said, "Y'know he's got weak blood." He was a gamma globulin anemic. That spring, Audrey, I think, and John [T.] Lanman and somebody else went to the proverbial research meeting and they came back and said, "Let's measure the gamma globulin on Johnny." Sure enough Johnny had agammaglobulinemia.

DR. GARTNER: Mother was right. [Laughs]

DR. LUCEY: Mother was right. The other one that I missed clean was another admission where the mother of the kid with lung disease, chronic lung disease, had some insight. He's got bronchiectasis. He's being admitted again and I looked at him and, he had been admitted to the chest-lung unit last. I'm taking history and the mother says to me, "What does it mean when your child tastes salty?" And, you know, why I should remember that after all these years! I'll tell you in awhile why I remember it, because it wasn't too long after that that the sweat test was born. Anyway, the kid was black and he had these white crystals around his mouth. [Laughs]

DR. GARTNER: That was unusual.

DR. LUCEY: Well it wasn't that unusual, because I was pretty busy, but the unprepared mind at the time was not ready for this, so he just became bronchiectasis, chronic bronchiectasis. For years afterwards there was always this rumor that, you know, well, blacks don't get cystic fibrosis. You only get it if you're rich and you're up at Columbia.

Then there was another one where I was a show-off resident. When I got to the nursery, you were in the nursery all alone. I mean [Joseph] Dancis and Lanman were…

DR. GARTNER: Regular nursery? Not the preemie…

DR. LUCEY: No, the regular nursery and the preemie nursery were assigned together.

DR. GARTNER: Ah.

DR. LUCEY: And they were really very far apart. One was over here and one was way up on eighth floor. And your attendee kind of came around once a week or something, and Eileen Hasselmeyer was the nurse on the floor.

So anyway, at this point I'd taken to working in the blood bank drawing blood to make extra money. And I used to donate a lot of blood too, because we didn't have any money at this point to speak of. So anyway, I considered myself pretty good with a needle. I reached the heights of egoism when I had them shut off the lights and I'd close my eyes and then to a small baby, small being 2000 grams or something at the time, I'd put in an IV with my eyes closed in the dark, on a black baby. Which I think I could still do.

DR. GARTNER: My goodness.

DR. LUCEY: Well it's all feel. But all throughout Columbia and what have you, I worked in the blood bank. They had a system where you could, two hours you'd work, somebody would cover for you. The residents passed it around amongst themselves. You'd draw fifty or sixty blood samples in two hours.

Let's see much more about Bellevue.

DR. GARTNER: Who were the other teachers that came?

DR. LUCEY: Oh man. Dancis was there. Lanman was there and [L.] Emmett Holt [Jr.] was there. Oh, let's see. Mellon was my chief resident. Gil Mellon. And Emmett would always go on a trip or something, and he'd bring back these oddball residents from Germany or India or someplace else.

You know, lot of people went through Bellevue. Nick [Nicholas M.] Nelson, Stan [L. Stanley] James and Bill [William H.] Tooley.

Nobody said anything to me when I announced that I was going to move to Columbia, at all, because they had plenty of people. But the story I like is that, a year or so before me, Stan had moved to Columbia. I wasn't a close friend of Stan's while we were at Bellevue. Emmett had brought Stan from New Zealand I think, so he was a protégé and, they went out sailing on the yacht. He was the chief resident and protégé of Emmett Holt, and Emmett was kind of a little disappointed when, after a couple of years there, he announced that he was moving up to Columbia to work with Virginia Apgar. After that, Emmett said to Stan, "What are you going to do?" Stan announced that he was going to take care of newborns or, really, resuscitation. And Emmett was shocked. He said, "That's not a specialty. You can't make a living doing that. What are you thinking of?"

DR. GARTNER: [Laughs]

DR. LUCEY: I think he did the same to Bill [Tooley] when Bill went to him and said he was going to do newborns. The guy said, "No, no, that's not very sensible."

DR. GARTNER: Why did you change from NYU to Babies, Columbia?

DR. LUCEY: A big factor was the money and the living conditions. I mean, we had to live in a pretty bad place, near Bellevue Hospital. In those days, Babies Hospital was really pristine clean. It was really maintained well. I also had picked up a big admiration for John [P.] Caffey at that point. Who else was there? Oh, Hattie Alexander was there and I was aware of Bill Silverman and Dick [Richard] Day who were also there.

I was tottering on the brink. I figured, you know, I'm not going to go into practice. Kind of want to do research, but not egotistical enough to think I could teach at medical school, but drifting in that direction. So while at Bellevue there was a two week vacation, through Columbia. Columbia had a system. It had a lot of outside jobs. One was the blood bank job. I forget the numbers, but if you worked four to six hours a week, you could work 25 hours or something a month extra. They also had this little scheme where you could work as the doctor on ships, on your vacation. So, wanderlust was taking over at that point, and I volunteered to take a vacation and got paid $300 or $400 to go to Panama, for the USS Panama. The United States

owned the Panama line at the time and they had a ship called the Ancon. It used to go down and back. It took people who worked for the Panama line company down there. It stopped at Haiti on the way down and then Panama. Just a nice kind of trip, you know, about sixteen days. That was four or five days down, a few days down there and seven days back up or something. So you got to be doctor on this ship. You didn't have to buy a uniform. I didn't want to buy a uniform, but I thought, "Ship's doctor, great. Hundreds of dollars like this, I'll be rich."

So when I got on the ship, we had a lovely going away party. We were sailing out of the harbor and two things happened to me after the ship backs out harbor. One is, the captain says to me, "Did you want to pick your table?" I said, "No, why?" He said, "All the other people have picked their tables." I said, "What do you mean?" And he said, "Well, you pick the people you want to have." I said, "How? I don't know anybody." He just rolled his eyes.

DR. GARTNER: [Laughs]

DR. LUCEY: Well, what he was trying to tell me, but hadn't quite told me, was that if you don't pick your table, you get all the hypochondriacs who've been sent away on a cruise by their doctors. First the table was the nightmare of little old ladies. I can still see the first woman who came down, and she pulled out this pocketbook and she must have had about 29 different things and proceeded to quiz me. See the big nightmare was that I'd pretty well narrowed into pediatrics by this point and I didn't want to have to take care of anything very complicated in the adult world. These doctors had sent all these people that were really psychosomatic wrecks for two weeks to get them off themselves. It was just a nightmare, them asking me questions. And meanwhile there's another table full of beautiful ladies and guys having a wonderful time. I'm answering questions. And the deal was that you could charge people $2 a visit to the doctor's office, which is the first time I'd ever heard the word money connected with, "And what do I owe you doc?"

So we start off and there's a mysterious passenger on the ship and it turns out to be Doris Duke and apparently, Porfirio Rubirosa or something, that Dominican guy, she's divorced from him and she is drinking herself to death in the cabin. The other one on the ship was [Carey] Estes Kefauver, who was just doing his thing about the gambling [Special Committee to Investigate Organized Crime in Interstate Commerce] and what have you. So I had two famous people on that one.

But the worst thing that happened is that someone comes rushing up to the doctor. I'm looking around the doctor's office to find things like a band aid, tape and that's about it, and they come running in with a guy. The radio man had broken his arm. I say, "Well, I'm not an orthopedic surgeon. I don't do arms." [Laughs] And the captain says, "We can't turn around."

DR. GARTNER: And there are no helicopters.

DR. LUCEY: Can't turn around and there are no helicopters. No. No. And the Statue of Liberty is way behind. We're on the way, and we can't do it. But then the radio man is strangely eager, "Oh, doc you can do it." I said, "I've never done it. I've never done a fracture before." He had a greenstick fracture; I'd seen them done. He was eager and he said, "Don't worry." He said, "I'll sign anything you want, no responsibility. I'll take all the responsibility on myself." Wonderful guy and so we proceeded. I saw him everyday and I was worried about him, I put a cast on the thing and I set it, what have you. I was worried about him every single day, so I saw him every day.

We became friends and it became obvious that he was desperate to get to Panama. He wanted me to meet his wife in Panama, and he wanted to do something nice for me and [laughs] I then began to remember. I thought, "I saw that guy kissing somebody when he left here." He had two wives. He had a wife in New York City and a wife in Panama and between turnaround ships he could be with her for about a week and her for about a week and two weeks he was alone. So that was his motive and, I never did know what happened to him. The Panama line went bankrupt years later, so I've often wondered what happened to him and his arm.

To reward me, he said, "I want to show you around Panama, interesting place." Somehow then he said to me, "Well, would you like to see the leprosarium?" "Gee. Yes. I'd loved to see the leprosarium." "Oh great. To the leprosarium!" So, he arranges for a jeep to take me out there. He comes along with me. There is a doctor there about to retire after 20 years or something taking care of these lepers and he's feeling pretty mellow. I think he's drunk. He was German. They're going to close the place down in two days or three days. And, it's an emotional time for him and he sees this young student who's eager, and he says, "I'll show you. We have got 300 cases of leprosy here. Stay overnight and I'll give you the 24-hour crash course in leprosy." [Laughs]

DR. GARTNER: [Laughs]

DR. LUCEY: So I stayed, and he showed me. After I got used to the smell and the terrible looks of people, I saw more leprosy then, you've seen 300 leprosy cases.

DR. GARTNER: An amazing thing.

DR. LUCEY: And then he says, "You've got to party tonight with us," and, I began to feel a little suspicious, you know, 'party?' They didn't look like people that would have much fun at a party. Well, if you read about leprosariums and things, I mean, people are desperate at them, all kinds of things happened. They're usually cut off from alcohol. They're isolated and cut off from alcohol, so they usually make up their own kind of alcohol. Well, this party, they had some drink. I don't know what it was. It was made by, you know, cane, sugarcane mash and it looked terrible. So, to be friendly, when this person came to me with the bowl of the stuff I drank some of it; but then the other guy had some. I never drank because my father, in addition to being a gambler, had a lot of problems with alcohol. I didn't drink all through college; didn't start drinking till after I was out of college and out of medical school. So anyway, I'd take a couple of drinks of this stuff and I'm feeling, obviously, no pain. But the scenes around me are unbelievable. I mean, people with no faces and noses and ears and stumps for legs and everything are dancing away and fire and there's a black sand beach. [Laughs]

DR. GARTNER: What a scene!

DR. LUCEY: Oh, yes, it was a great scene. Woke up the next morning not understanding what had happened to me, incredible headache.

Came back and I'm in the emergency room at Bellevue. I loved the emergency room and they were just switching over. I had an adult emergency room experience, then a pediatric one. They had just opened the pediatric emergency room, and I was the first guy to do a pediatric emergency rotation. They got tired of having the young kids mixed in with the drunks and everything. And, the police come roaring into the place [laughs] and they want to use one of our isolation rooms. They've got an adult and there's a lot of activity. They've arrested a guy in a crap game with leprosy. An escapee from Carville [National Hansen's Disease Center]. Now I didn't know it at the time, but you can't really escape, you can't just

walk away from Carville voluntarily, and leprosy is not that contagious but the police wanted to close down blocks of New York City. [Laughs].

The other wonderful experience at Bellevue was that I was in charge of what was affectionately called the goon ward. We had a ward of patients with terrible things wrong with them, and the parents had abandoned and left them. Usually they were hydrocephalics. Oliver Wendell was one of them. He was in a crib and his head was so big, the crib was about this wide, and head was so big that it had bar marks on each side, and, one night Oliver Wendell exploded.

But then I got a call, "Where's the baby?" We had boarders there. If somebody didn't show up to take the kid home they went to this ward. And, the call was from a nurse saying, "There's a woman down here asking for baby Jones." I said, "So, let him go home." She says, "Well, baby Jones already went home." I go down, and what had happened was that the baby had been kidnapped; somebody had walked in there and kidnapped the baby. The *Daily Mirror* rushes in and I'm in the *Daily Mirror* [laughs]. "Eppolito Acavaria had been kidnapped from Bellevue Hospital." It was a slow news day so they got a lot of publicity on that.

See the picture over there?

DR. GARTNER: In the bookcase?

DR. LUCEY: Yes, in the bookcase.

DR. GARTNER: Let me show you the picture in the bookcase.

(The cameraperson [Carol Gartner] can now be heard speaking as she gets a shot of the doctor holding the picture from the bookcase)

DR. LUCEY: Well, in that picture, I'm working in the emergency room and the head of the hospital, Dr. Katolla, comes down. There is a man there, sleazy looking guy, and, at that point drugs in New York were just sort of becoming prominent and people were stealing prescription pads and writing their own prescriptions. So we saw the sleazy guy and asked him, "What you doing here?" I asked the nurse to get rid of him and he said, "No, I can be here."

He turned out to be an artist and he had the permission of the head of the hospital. He was working for the John Hancock Life Insurance Company. He was there to paint a picture of a doctor. He had painted some pictures of doctors, but they looked too good. Well, we threw him out and he came back with this guy (the head of the hospital) and pretty soon the guy says to me, "You know, do you want to make some money? Will you pose for a picture?" Well, he took this little girl who was a patient, Madonna, and her mother and I and we went to this guy's studio and he painted this picture. First of all he took a bunch of photographs, and then he painted the picture.

DR. GARTNER: All right.

DR. LUCEY: And so, this made my mother the happiest of anything.

DR. GARTNER: What was the name of the artist?

DR. LUCEY: Uh, Wong or something. He was a Chinese guy. So the picture is up in the living room…

DR. GARTNER: It's wonderful.

DR. LUCEY: Up in New England, but it got in *Life* magazine. It was an ad, called "The intern," and a very nice effective write up below it. And now it's on a book cover.

DR. GARTNER: It is?

DR. LUCEY: I'll show you the cover.

DR. GARTNER: Is that a good representation of what you looked like?

DR. LUCEY: Yes, definitely. I've got a better one if you want, but it's from a book cover. So the book cover only came out a couple of years ago. I hadn't seen this picture in a while. We have the thing from *Life* magazine. It was an ad in *Life* for a long while. And it was a lot of very sentimental things about what an intern does. That was probably more important to my mother than graduating from medical school or anything else. Her son. See, at this point I was being compared to all my relatives who were "What's Jerold doing? Still in school; didn't he pass? Where is he now?" They were building their houses, they were bricklayers and everything else, building their own houses and very successful. So this made up for all that.

DR. GARTNER: Where is the original now?

DR. LUCEY: The original now is down in the John Hancock Life Insurance Company in Boston.

DR. GARTNER: In the tower?

DR. LUCEY: Yes. In the tower.

So where are we in my life?

DR. GARTNER: Well, let's see, I guess you're somewhere around internship.

DR. LUCEY: Let's close the Bellevue thing off. Bellevue was a great, great experience. If you look back on the fellow people who were there and all, almost everybody went on and became a professor of different kinds. And then I went to Columbia, and there, you know, it was a different kind of clientele. And, I was assigned right off to the private floor. It was a new world. You know, nice doctors. Everybody dressed up. Everybody obviously well-off. The interesting floor, finally, after you were there for a few months, they let you go to the nursery. In the nursery, Bill and Miss [Priscilla] Parke were there a lot. You became aware that there was a study going on. There was something about retrolental fibroplasias, blindness and oxygen, and that Bellevue had broken the code or something. What Bellevue did was they had a study of their own, and there was Bill's national study as well. Bellevue is the one that invented the 40 or 50, whatever, I'm blocking out the percentage.

DR. GARTNER: 40%

DR. LUCEY: 40% oxygen. Bellevue did that and it went in the newspapers, and I was vaguely aware that Bill was very unhappy with Bellevue and being the only guy that had transferred from Bellevue to Babies in a long while, I felt, "Why are they arguing over this?"

But then I got interested in the nursery. Ruth Harris was in charge of laboratory, and Ruth said to me, "Would you be interested in helping out by doing blood samples? We want to know what the normal bilirubin level is for the premature, and there aren't any real normals in that." And so, I said,

"Sure." At this point, it was after my first year there, I was what was called a senior resident and they didn't have as much patient responsibility. You walked around and you saw about 200 patients. You talked to somebody everyday on all of the six floors, then you got to talk to [Rustin] McIntosh about the best cases and all, then you'd get to pick out the cases that we wanted to present at rounds. So, I said, "Sure, we'd be glad to do it."

So I got Bob [Robert] MacLean, who was a resident. He came to Babies from Vancouver. We did blood samples on preemies. We did them at night and then we did our own bilirubins. And as we're doing them, Bob one day said to me, "I've never seen so many (inaudible) [jaundice cases] in the nursery up in Vancouver and I've never seen so many cases of kernicterus in my whole life." There had been no kernicterus that I was aware of at Bellevue, but the experience at Bellevue was really just writing feeding orders and writing antibiotic orders and you were aware that they were studying retrolental and oxygen. We were also aware that the nurses favored oxygen down there. They wanted kids to draw the card that brought oxygen and I'm not sure that they didn't change some of them. Okay, so we're doing this and Bob raises the point with me that, "Gee, I've never seen so much kernicterus." And then, Bill [Silverman] had a study. At that point in time, it was thought that babies who came in from the outside were dying of infection.

Bellevue had a transport service at the time. I should go back to the Bellevue experience for a minute. You're all alone at Bellevue other than the once- a-week attending. So you were the king; you were the intern. And Gil Mellon's girlfriend, or maybe she was his wife or something, ran the infant transport service in New York City. And in New York City at that time, there was a rivalry between New York Hospital, where there was a famous woman doctor, and Bellevue and Columbia. Einstein wasn't even around then. So you could call up and you could say, "What babies have you got that you want to transfer?" "Well, we have two babies at Mother Cabrini's, we have three at St. Joseph's, and so on." "What do they weigh? What condition are they in?" I was fascinated by really small babies, so I said, "Well, look, we'll take the ones under 1000 grams," and she said, "Great." But I said, "I don't want to take them right away. Let's see if they're going to survive," you know, most of them died. "If they're in good shape, 24 or 48 hours old, send them." In those days under 1000 grams, the mortality rate is up here and by the second day of life, you've got nothing but survivors. And so I filled the place up with babies under 1000 grams, and the house staff was eternally grateful, because they didn't have to admit anybody because

everybody was living, you know. We got four-day-old 1000 grammers. Years later, I'll come back to this theme, because I think this is still happening today in this network we have. I may be responsible somewhat. So I filled Bellevue up with babies that were under 1000 grams and the next person on loved me, you know, for not having to admit anybody. It's funny that the morale in those days, if you were on the door, or working in what's called the theater side, and you didn't admit somebody, that's the kind of guy you wanted on at night, that didn't admit them. You could take care of anybody in the emergency room. Send them someplace else; but don't admit them to the hospital.

Okay, so we're back now [at Columbia], and Bob MacLean and I are drawing blood samples for Ruth Harris, and we're aware that Bill is doing a study. I can't remember how blinded it was, but we didn't pay any attention to who was getting what. Bill's study was oxytetracyclene versus gantrisin and penicillin as to which was the best prophylactic agent, and they got it right when they came in. And so we were doing this on what we thought were normal babies, and Bill had given us permission. I can't remember the scene, but we'd gotten permission to do the blood sampling on these babies. And then Bob kept saying, you know, "Look, this one's dying of kernicterus."

We had a number of babies that we watched die with kernicterus. There were 19 babies in the study eventually, and probably on six or seven of them we watched the bilirubin fall, and, you know, it was kind of surprising that they'd do this. You'd get a bilirubin, Christ, it'd be 19 the day before or something; they weren't very high. And then it would be up, but then it would be down like two, with kernicterus. And so, the system then was that if you were doing some sort of a clinical research project, you met on a porch with Dr. McIntosh. And McIntosh would tell you what you're doing and what have you. It was a big moment. You got all dressed up for this, clean shoes, clean, new starched whites and everything.

DR. GARTNER: Was it just with Dr. McIntosh?

DR. LUCEY: Yes. You were just with McIntosh. Bill was not at this particular meeting. And, so, at that point in our study that we published, we had nine babies with kernicterus, and Bob had decided to see whether they were related to the antibiotics or not. And the nine babies with kernicterus were all in penicillin/gantrisin group, and zero were in the oxytetracyclene group. And so we presented it and, I don't know, none of us were thinking. I mean, I'd never been statistically inclined and somewhere the message came

from Bill that nine versus zero, whatever we had, was not significant, and the study should not be stopped. It went up to 19 to zero finally, and then it was stopped.

Now, the part that I will probably cut out of this is, I think Bill, I'm sure Bill's memory of this is probably different than mine. Bill was, really, in those days, very narrowly focused on statistics, and he'd been stung by the cortisone thing, and retrolental fibroplasias. He was dedicated, and this was his trial and we were just samplers on the side. There were no thoughts about stopping trials in those days. You didn't have a safety committee or anything else. But he voted not to stop that trial and we were too stupid to realize nine versus zero, that you're home. You've got a result right there; you could have stopped right there. We didn't, but it nailed down eventually. The dynamics of it after that was that Ruth was interested in one part of it. We were busy, being the residents that carry on and Bill was working on the antibiotic part of it, but we'd come up with the idea that this stuff is dangerous. We figured it's not penicillin. It's got to be gantrisin. Both papers eventually came out. Bill's paper showing 19 versus 0 with the gantrisin group came out, and our paper, we were writing it as I was moving on to Boston and everything else, came out probably later than that. I don't remember the sequence.

DR. GARTNER: On the same population of babies?

DR. LUCEY: Yes, on the same population of babies. What the paper, in essence, showed was that kernicterus occurred in preemies with low levels of bilirubin. And I don't think any of them were much above ten or twelve. We never had a shot at really what the normal was, and we were intrigued by the fact that they dropped when kernicterus occurred. And it wasn't until months afterward that [Gerald B.] Odell entered the picture and put the bilirubin and sulfisoxazole in a dialysis bag and **showed that sulpha displaced bilirubin, and then the whole thing came together. And that was when Odell entered the picture and, at that point, I'd transferred to Boston.**

Now, in Boston, Clem had about six people working for him. Tom [Thomas E.] Oppe from England, Dav [C. Davenport] Cook, Sydney Segal, Jim [James M.] Sutherland, myself and a couple of other people that I forget. And what they were trying to establish was the normal pulmonary values for premature infants. The word RDS [respiratory distress syndrome] wasn't around even, at that point. Peter Gruenwald was talking about it; nobody

would pay attention to Peter. He had some sort of an abrasive personality and nobody wanted to hear it.

DR. GARTNER: He was my teacher.

DR. LUCEY: Oh, really? Well, he had thoughts that were good way before, but he had the wrong personality and got trampled on, especially by Bostonians. And now, having been at Bellevue and Columbia and Boston, I'm realizing these three places all think they're the best in the world, you see. And they're all doing different things, and it still hasn't dawned on me that you can't really compare the three places. It is true later on as I get more gray hair, but they all were very convinced that they were doing it right, and they were all doing very different things. The care of preemies in those three units was very different.

I went there; I'm writing up that paper while I'm starting a fellowship. A fellowship is about an entirely different thing when you've got to work with the big polygraph machine. You have to sit around the delivery room waiting for babies to be born. We're trying to measure the amount of pressure it takes to expand the lung, and it took a lot of waiting there and getting the compliance studies done. Lungs are stiff when you're born and the first breath takes a lot of pressure. It took six of us to run that damn thing. Sydney Segal was trying to do some method for measuring pH, which a young man in Montreal and a woman down in Philadelphia, [Helen S.] Reardon in Philadelphia, and [Robert H.] Usher in Montreal, thought was important. Electrolytes are important. Up to that point nobody paid too much attention to food, feeding, time of first feeding. In Boston at that point, nobody was fed until they were two or three days old, and the idea was that you avoided aspiration pneumonia.

There's another cute scene. I forget the name of the foundation, but there was a man who pretty much funded Clem's laboratory. He came with a little suitcase, and Clem would announce, "I want all you fellows to come in and tell Mr. Whatsisname what you're doing." And we would do that, and after we left he would sit down and right a check and that was it. No application, just talk to the people doing the research, give them the money and leave.

DR. GARTNER: [Laughs]

DR. LUCEY: When you think of it, there was a huge savings there. And if you had the right person, I mean Harvard attracts people just because

of the name and you're not going to get too many really stupid people there. You get a certain number of them but, I mean, if you invested in that it's like a good stock used to be.

END OF TAPE 1, SIDE 2

DR. LUCEY: **Okay. We're still at Boston. I'm working with Clem's Group.**

Mr. [Leonard W.] Mayo worked for Crippled Children's [Association for the Aid of Crippled Children] or something. Barnett got money from him and Clem got money from him. I don't know who else. But it was a wonderful source, I've always thought.

DR. GARTNER: He was the one who wrote the checks?

DR. LUCEY: **He was the one who wrote the checks, right.**

[Laughter]

DR. GARTNER: Okay.

DR. LUCEY: **I was also at the birth of the NIH.**

DR. GARTNER: Tell us about that.

DR. LUCEY: **Okay. Roy Forrester, my professor at Dartmouth, was in charge of the Mt. Desert Island Biological Laboratory [MDIBL]. And so we're back in 1948 now, and this powerful man from Homer Smith's old group, Dan Shannon, was considered a genius and everybody always talks about him like he's a genius. I am working as a student, and he's coming up and he wants to talk to the renal group there and Homer Smith and E. K. Marshall [Jr.], who was the big physiologist, about this new institute that they're going to start. And that was the NIH. I am over there pipetting away, fish piss and everything.**

Shannon was a very sort of blunt, scary kind of guy. I mean, somehow you knew he was very bright, and everybody sort of bowed down to him, and now you knew he had a great deal of money. Roy said to him man, "You know, we need some money to keep this laboratory going." Shannon said, "How much you need?" And Roy said, "$20,000.00." "Oh, Christ," Shannon said, "Don't ask for that; they're after fifty or a hundred thousand.

That's budget dust; it's just change. Don't bother with it." [Laughter] They got the money. I don't know how much they have got, but, it was a lifesaver.

Shannon had a marvelous career during the war. I don't know whether you know that story.

DR. GARTNER: No.

DR. LUCEY: There's got to be a book; there should be a book. When the war stared they realized, "Holy God, we're going to have people dying of hepatitis and we're going to have malaria. It's going to be a big deal, and we have got nothing to do for malaria." So, somebody in the government said, "Okay, there's no research going on malaria. We've got to organize a research project." So for that malaria research project, Shannon was picked out to go around to every medical school and ask the dean of the medical school, "Who is the smartest person in your faculty?" He then would say, "Okay you're going to work on the malaria project. From that list of people, it was like the Manhattan project; none of them ended up working in malaria, later on.

DR. GARTNER: Okay.

DR. LUCEY: None had worked on it before it developed Atabrine. It saved innumerable lives and it's an unbelievable example of how most kinds of organized industrial research doesn't work out. But Shannon's trick with going and asking, "Give me just your brightest kid, numero uno, three decimal places. Here's the man, let's try it." And it worked out pretty good. [Laughs]

DR. GARTNER: I think Dr. Harry Gordon [one of the first modern neonatologists] may have been involved in that? At least some projects, in that area.

DR. LUCEY: There's got to be a book someplace, that lists this thing and all the people. But it was a who's who; everybody was at least a professor, a dean, after the war.

Okay. Let's go back to Boston. So, gradually it is dawning on me in Boston, that I won't have six people working for me in the future. Let's go back a bit. The last year I was at Columbia, before I went to Boston, I went to Rustin McIntosh, and said, "Well, I want to go into teaching, and I'm going

to do some fellowship work and I want to teach in a small medical school." He said, "Oh, I've got just the place for you. One of our ex-residents, Jim [R. James] McKay [Jr.], is up in Vermont. Fishes a lot." He described this idyllic life of Jim fishing; Jim never went fishing in that era.

DR. GARTNER: [Laughs]

DR. LUCEY: Rusty thought he had a wonderful life, fishing. So through that and somebody at the Mt. Desert Island, Tom and Mary Bertucio had both gone to school at Vermont and they told me it was a great place to go. So, I came up and interviewed during my chief residency. I came up here then and Jim said, "Sure, we'd be glad to think about it." And then I said, "Well, I'm going go to work for Clem Smith for a year and then I'd like to come up here." So, he hired me a year before and waited. Then the idea was that I come back here and wait. If I wanted to go back, I'd go back for another year at some point. But there were no organized fellowships in neonatology at that point. I think actually Clem had six or seven people. I'm not too sure of whether there were any other places in the early fifties. Geoffrey Dawes was being visited and had a number of physiologists; California didn't exist then. There were people taking care of babies. Gordon was probably at [Johns] Hopkins [University School of Medicine] at that time. There was a long tradition in Chicago. But I don't think there were any fellowship programs.

DR. GARTNER: Not anything that was called neonatology, certainly.

DR. LUCEY: No.

DR. GARTNER: Now what year was it that you took the fellowship?

DR. LUCEY: The fellowship with Clem would be 1955 to 1956.

DR. GARTNER: Okay.

DR. LUCEY: So during that year, I know where I am going, I know that if I'm going to do research, I am not going to have six people working for me. I was applying for fellowships and again a wonderful (inaudible) thing happened. Homer Smith had suggested that I get a National Science Foundation fellowship or something, which was way over my head. They were being given to people who were doing really pure research and then going out with a clinical idea. So, one of the interviewers for it was André

Cournand, who had not yet won the Nobel Prize. The interview took place in one of the toilets that were being used as offices.

DR. GARTNER: [Laughs]

DR. LUCEY: And he was working in a very scummy place. I can remember going in. Also, I heard the rumors of this guy pedaling on a bicycle. [André Frederic] Cournand had won the Nobel Prize along with [Dickinson W.] Richards, for his work at Bellevue on cardiac catheterization. And this guy was riding a bicycle! But the interview was probably one of the most difficult of my life. I've never run into anybody who was as austere and cold. He asked very penetrating questions of you: "Who are you going to learn from? What are you going to do? What kind of a timeline?" So I realized that I am not good at basic science; I am not going to make it. He said, "If you're going to Vermont, there is nobody up there that can help you." And I was to get this advice from several people by the way. When I was leaving Boston, Dr. [Charles A.] Janeway interviewed me and wanted to know if I would he be interested in taking Sydney Gellis' place. And he said to me, "You know, I love Jim [McKay]. He is a fellow (inaudible) and everything else, but if you go there, you're going to bury yourself and never be heard of ever again." And I was determined to; I didn't want to live in Boston or New York.

So, I'm planning to get up to Vermont and what can I do? I am still interested in research, and on the side I'm finishing up the paper. Bill [Silverman] has come up to visit us and finish up the paper on low bilirubin kernicterus and it's being submitted. So I decided I could do something with bilirubin on the side without needing a whole team of people. So I started writing a research grant for-- I don't know what. Money came through from the Polio Foundation [National Foundation for Infantile Paralysis]. The Polio Foundation paid for a couple of years, whatever I was doing. And then I started looking around and I got this book by a man named Torben With, did you ever see this?

DR. GARTNER: I remember the name and the book.

DR. LUCEY: Win [Arias] will remember this book. Torben With had written a book, the largest book on bilirubin. It's about that thick, loose pages. It was a home made book; it was huge! It had every single reference you could ever imagine in it. And reading through it, I came across the idea, that there was a thing called a Gunn rat. In 1944. So I started tracking [C.

K.] Gunn down. Gunn had moved from up in Montreal and he was raising silver foxes on Prince Edward Island. I got in touch with him and he told me that William Castle, who was emeritus and was out in California, had taken Gunn rats and was using them to teach students out there. So, I wrote to him and he kindly sent me a breeding colony of rats. At about the same time, he sent some to Rudi Schmid. Rudi went after the liver and proved that they didn't have hepatic glucuronyl transferase.

Castle, over the phone, told me, "They're very difficult to take care of; they start wobbling around. They get the wobbles and they die, especially the jaundiced ones." They came and by God, that's what happened! I was up here by this time. I couldn't tell males from females in the rats, by the way. It was very difficult. And I had a technician, and we started breeding Gunn rats and it became obvious to me that, God almighty, they really are dying, the real jaundiced ones. I wasn't much of a geneticist about finding how to go back and they're getting all mixed up. So, I sent a whole bunch of them to a man named [J.] Gerrard. I don't know if you remember the name from the literature; he worked at a mental institution some place and he wrote one of the early papers on kernicterus.

So at this point I'm reading about kernicterus and I am convinced that these rats have kernicterus, but the pathologist up here is not interested. Dick Day calls me up and Dick says, "I've got this young woman named Lois Johnson working with me and I hear you got some Gunn rats," and I send the Gunn rats down to him, he calls me back in a couple of weeks and he says, "Jerry, they've got kernicterus." He and [William A.] Blanc and Lois went on and filled out that story.

Okay, so I'm breeding away the rats. I sent some to Win [Arias]; I sent some to Leonore [Ballowitz]. I was in the rat-selling rat business. It's funny, the ones I sent to Gerrard were all males or something. He called me back. But he couldn't tell males from females either, because he called me back and said, "I am not having any success breeding."

[Laughter]

About that time, a man from Chile contacted me. I gave a talk on the low bilirubin kernicterus in Portugal, at the World Congress. And my plan was to give the talk on that and then go work with Geoffrey Dawes for a year, with his group. They were doing sheep physiology, lung, placenta, that kind of thing. And at the meeting, I met two people. One was Timos Valaes, from

Greece. We became friends and later I spent six weeks or so at the children's hospital there. They had a lot of kernicterus and we were trying to do bilirubin binding tests on it or something.

Also, Mario Ferraro from Chile. Professor Matagalo was building up a department in Chile. He would send people to United States, but he would guarantee them jobs when they got back. You'd go to the States, he'd guarantee you had work when you came back. A lot of fellows that were being sent out, it was like, "Well, we'll see when you come back, maybe if you fit in," and this kind of thing. So this is a pretty far sighted. Matagalo's department flourished for a while and the people would come back. Mario writes to me and says he wants to come and I write him a letter back saying, "Do you know it snows here and it's very cold and it's very small?" And he says, "Yes, I know about those and I still want to come." And he came. And just before that, the Cremer/ Perryman article was published, in 1958 [Cremer RJ, Perryman PW, Richards DH. Influence of light on hyperbilirubinaemia of infants. *Lancet* 1958; 1(7030):1094-7]

DR. GARTNER: I think so.

DR. LUCEY: Okay. Let's say Cremer/Perryman wrote an article in the *Lancet* or the *British Medical Journal*, on phototherapy, and I read it. There are only a few cases and I am trying to be Bill Silverman and this is a completely uncontrolled study, blah- - blah- - blah, you know that kind of thing. I can remember giving a couple of lectures saying, "This man thinks that light affects bilirubin on the skin, but he only has two or three cases," and what have you. Then I dropped that slide after a while and I'm talking mainly on kernicterus and Gantrisin and the company is sending somebody around afterwards saying that Gantrisin is perfectly safe, there's something wrong with this group of people.

DR. GARTNER: What company was that? Was that Roche [F. Hoffmann-La Roche & Co.]?

DR. LUCEY: Yes, it was Roche, and they would send a detail man around after I gave a talk. I got a lot of New England talks out of that and people began to name (inaudible). We all kept waiting for the second paper to come along and there never was a second paper. So, if Bill hadn't done that randomized trial, he hadn't snuck into his randomized trial, Gantrisin might still be being used for days or years. But it's amazing, it was one of the

most popular drugs to be used. And they came out with one after, long acting one, Madribon.

DR. GARTNER: Oh yes.

DR. LUCEY: Which is even worse as far as binding was concerned. So it always puzzled me that nobody ever confirmed that study. I mean, statistically it didn't need any confirmation, but there must have been a lot of cases out there where kids have died in the nursery with Gantrisin and nobody had recognized it. It just shows you the power of a randomized trial.

So anyway Mario arrived. We used to pick out a project and we'd talk and we'd say, "It needs to be something you are able to do when you go back to Chile. It can't be too fancy; none of this chromatography or anything like that." And so he said, "Well, why aren't you using phototherapy?" I said, "Why would anybody use that?" He said, "It works." I said, "No, no, Mario. It's never been proven." He said, "Oh, no, there are lots of papers. We use it all the time." Of course, there were lots of papers, but they were in Spanish and French and Italian, and everything else. So I sent Mario to the library and he looked up all the French and Spanish and other articles. There must have been 20 or 30; they are all in the bibliography of that first article. And we wrote to Professor [J.] Obes-Poleri. There was something strange about Obes-Poleri. Uruguay had always been a leader in the field of newborn care, and Obes-Poleri worked in the only research institute in Uruguay, and probably all of South America. He was interested in bilirubin and he had latched on phototherapy in 1958 or something. We're now up to 1966 or 1967; it's been a long period. There has been one paper from England on it. I don't remember, it wasn't very important, but everything else is in some other language.

So, we write. Because I've got Mario who can speak Spanish and he can read the Spanish, I got introduced to the Spanish literature on it. We put together a trial, and I do my version of the randomized control trial. It doesn't take long, you can't blind a study like this, the bilirubins are coming in everyday. My idea was to use light prophylactically to prevent neonatal jaundice. We didn't use very small babies, I'd have to look at the paper to see, but they were babies that you would expect to have jaundice. We did get permission, but there wasn't any committee or anything like that. I think that the money was probably from the Polio Foundation at that time. That paid for the laboratory. I had one technician and Mario did all the blood sampling. And,

lo and behold, it worked. There was no question about those statistics; it was very different.

DR. GARTNER: What kind of phototherapy unit? Did you build it yourself?

DR. LUCEY: Yes. Obes-Poleri and another man from Brazil who was working as a fellow with them [A. Berezin], very kindly sent us the plans. We had one made. It was homemade, we moved it around, we had two or three of them made. There were two hospitals in town at the time, so we'd lug it from one hospital to another. It was wood and it was very heavy. That's now in the Smithsonian [Institution].

DR. GARTNER: Is it?

DR. LUCEY: Yes, we were very pleased with that. Sent it to them several years ago. They collected a bunch of old equipment; they're going to do an exhibition. They've got an attic like you can't imagine. A few years later, I wrote to them, and asked whether they knew where it was? They knew exactly where it was.

[Laughs]

DR. GARTNER: What kind of bulb did you use in the lamps?

DR. LUCEY: Fluorescent bulbs. Whatever wattage we had. We just put them together, the idea was fluorescent lamps. We knew we didn't need ultraviolet. That was about the level of sophistication. I knew it worked. We tried it out, it was presented at the APS/SPR [American Pediatric Society/Society for Pediatric Research]. I can't remember any penetrating questions about it at all. It got into some little newspaper thing, and then I got lot of requests for speaking and then up pops [Gerard B.] Odell.

[Laughs]

Odell is determined that this does not work, can not work; there is no theoretical basis for it at all. So he was an impetus for many years after that. He would do a study and he always scared me, because he knew so much about physical chemistry and everything else. He was so positive.

At one point I can remember, a really scary moment, he came up to me at the meeting, probably a year after we presented and he said, "No, it can't

possibly work, because light doesn't penetrate skin. I have just proven this." And, he described this very elaborate experiment, he got some black skin, you know. There were no blacks here at the time; [laughs] our study was all on lily whites, colorless people. He had a set up with the spectrometer and everything else, some study with a piece of black skin that came from postmortem. And the light didn't penetrate. I can still get that feeling, "What could have happened? What could we have done?"

He walked away and, again, Bellevue pops up in my mind. I'm back in emergency room at Bellevue and this cab driver comes in and he is carrying this baby, and he said, "I just want to ask a question. I don't want to come in here; my baby is not sick." A combination of cab driver and a baby and it just didn't ring true. And he said, "If you put a flashlight to a baby's head, should it shine out the other side?" And I said, "Why did you do that?" [Laughs] I can't remember the answer I got from him. So we go into this closet, a linen closet. And, we put the light on. He puts it on and the whole kid's head all lights up. He was a hydroencephalic. He had a normal head circumference, but, he had no brain above the brain stem. And, he was about six months old. We admitted him and showed that he had no brain.

Well, first of all there is this depression because I am being presented by a very highly respected physical chemist from Johns Hopkins, with a machine that measured and showed it can't possibly be true. Then I realize, "Hell, we put the flashlight up to his head and I saw it go through the other side." So, that didn't last very long. Jerry never published that study. But he went on to do a number of other studies and they were always negative and we had to respond in some way. He said the heads don't grow afterwards, so we called all the babies back.

That went on for two years; there were some national meetings. Dick [Richard] Behrman put on one out in Chicago, or something. At that one, Odell looked like he was on top. He was always asking where the yellow went, and, you know, nobody had ever paid any attention to that. There was nothing between photochemists and clinicians and pediatricians; nobody cared where the yellow went. [Laughs] Then Rudi Schmid comes back into the picture again, and [Antony F.] McDonagh, and a guy named [Richard] Wurtman at MIT [Massachusetts Institute of Technology] also. Wurtman talked at MIT about it and they gave me some reassurance and Wurtman particularly gave me reassurance. Then Rudi and his laboratory started coming out with stuff. And people started to try and find out, you know, what does it turn into and the photoisomer story developed, and then there

was an interest on the part of a small number of people who have helped quite a bit, in terms of saying, "Look, it comes out right away. You put a catheter in the bile duct, you turn on the lights, there is bilirubin coming out." The photo products didn't last very long, so it is hard to study. The question then became, "You don't know where it went so how can it be safe?" I can't remember the number of debates, but there were a lot of debates. Somebody wrote a lovely poem, Marcello Orzalesi wrote a lovely poem about the prince of darkness, and then I don't know, prince of light. And there were conflicting stories. To this day, I think, if you run into somebody some from Hopkins who trained under Odell, they still don't believe in phototherapy. Really, [Ronald] Poland I think is one of the non-believers.

[Laughs]

It is, "The alleged this, the alleged that." For years afterwards when everybody else was using phototherapy, they still didn't allow it at Hopkins. It was a scary time because, you know, you're in public. People are doubting you and you have lot of doubts about your own ability. You know you don't understand the chemistry of where it is going and everything else. And, you can't predict whether 25 years from now, something might go wrong.

There were a lot of years spent defending the idea that it is not outrageously dangerous. I had a couple of lectures, that you could assemble from information. People would make time-lapse movies; I forget the name of the guy. There is a whole literature about light and its affect on eggs and chickens and birth rates and all this kind of stuff. I had a nice after-dinner speech that I could give on that. So, I think that got me a lot of talks all over the place because that was a nice contribution.

It got me a lot of offers to move. I could have moved about twenty times from here. I went through a phase of looking at these various places, and I asked myself, "Where do I want to go, if I go? Where would I want my kids to go to school?" The answer was, the East. That pretty much moved the West and South out, and the Midwest is all flat. So, I'm a real New-Englander, I began to realize this. You go away and you try to picture yourself living in certain places, and you realize that you are from New England, you are always going to be from New England. [Laughs] You won't be comfortable in Mississippi or lower California or anything.

Then I began to think about the fact that, "Well, you know, what can I do from here?" There was a big trial organized to determine whether phototherapy was safe and effective [National Institutes of Child Health and Human Development], and both Odell and I were in the early planning phases of that, as consultants. Probably the only thing we have agreed on. Both of us walked away from the thing, saying, "They won't answer the question we really want, because the level is too low, or something. It was good that neither one of us was involved in it anyway. We would have tried to pull it one way or the other. But we both thought it wouldn't answer the important question, about whether it prevented kernicterus or not. So the study was finished, I forget how many. By this time, I am the editor of *Pediatrics*, catching it on the other end. There was a pivotal motion thing in there too. There was a baby. Do you remember the case? Well, there are three cases of kernicterus.

DR. GARTNER: Oh, yes, yes. Are we in the study?

DR. LUCEY: Yes, the study showed that you could avoid exchange transfusions. But the people were raising the question, "Why do you need light? What does it really prevent?" Well, it stops you from doing exchange transfusions; that's what it does. Which is pretty good, because exchange transfusions turned out to have AIDS in them later on. You don't want to have blood, so it probably saved some lives there. But, the idea that it could prevent kernicterus, you couldn't nail that down. You couldn't do a study where lighting levels go high.

Now, there is one baby, in that study. There are three cases of kernicterus in the exchange transfusion group. There was one putative case. The putative case was somebody who was in light for 50 minutes. If that patient had gone into the exchanged transfusion group, it would have clinched it. But, because he received 50 minutes of phototherapy they flipped him into the control group and now the study is not significant. You have got hundreds of patients and we have one chance. Statistically you played it right. Intellectually, probably not right. [Laughs]

I saw no future for phototherapy research. I couldn't see how you could design a study that would answer any important questions on it. Also, by that point I had written some papers about how bilirubin varies from one hospital to another and the standard is still is not too great. So I was despairing and I thought, "I've got to get out of this field and get into something else." [Laughs]

DR. GARTNER: You didn't get bit by bilirubin bug they way some of us did?

DR. LUCEY: No, I saw the end of the trail.

So, it was the perfect timing, because I was going through a divorce at this time. I was really seriously looking at moving and I decided, "Hell, I'm not going to move. I am going to stay right here because I love this medical school and town. I'm not going to move. And I'm going to change fields."

So, what did I do? Well, about that time, I am the editor of *Pediatrics*, and so I've got to read a lot. As a result of the phototherapy thing, I realized that Americans read only their own literature. Not just their own literature, but only stuff in English. We've got to start finding out what was going on in other countries. I was running away during the divorce; I traveled all over the damn world. I took speaking engagement in Peru and Africa and, God knows, you name it, I was there. [Laughs] Some of them were lovely trips.

Finally, I decided the biggest cause of death was respiratory distress. May be you can do something without having a team. There is no point messing around. I think it's Churchill who said, "Never go for the capillaries of a problem. Aim for the jugular." [Laughs] Thank God, I read *Lancet*, and along comes this paper, from a man named [T.] Fujiwara and he has poured some surface active material gathered from cow lungs, cleaned up, into a baby. He's got the before and after picture. He's got only ten cases, and it showed that oxygen goes up. About that time Mary Ellen Avery, I know, has gone to Japan.

I should go back to the Boston again. Mary Ellen's story; while I was there, we all thought that she was really wasting her time. She was working across the street in some pulmonary place, with some guy named Jere Mead, and they were measuring sweat, spit. Christ, what a waste of time, you know. [Laughs] Well, they showed what was missing. And, then a group in Buffalo had tried to replace it with some cooked up material. Then, Bill [William] Tooley had gone to Singapore. He and Mary Ellen were never quite as close after that, because he came back and he said the cause of respiratory distress basically is pulmonary hypoperfusion . There had been an attempt to replace surface active material and it failed in Buffalo. I can remember being in a car with Bill and Mary Ellen. Bill and I were a little drunk, Mary Ellen wasn't, and she said to Bill, "Did you ever stop to think

that your research probably set respiratory surfactant therapy back at least ten years." [Laughs] Bill didn't appreciate that at all, but it was basically true. They were elaborate, wonderful studies and it looked like, you know, there was hypoperfusion in the lungs.

So, anyway, she had been out there and I called her up and she was just packing. She said, "You know this is no humbug, this stuff really works. I saw a blue baby. They poured this material down the lung, and he turned pink." Then I talked to John Kattwinkel. Kattwinkel said, "It will never work, can't possibly work." And so, I say, "What the hell, you know, let's see." I got invited to present at the American Academy [of Pediatrics] meeting out in California. And, his [Fujiwara] English is not very good and his slides were not very good and it wasn't exactly the presentation to sell the stuff, you know. There were very few questions afterwards. He had this wonderful picture, I mean, lungs before and lungs after. People said, "Oh, I can make a picture like that. You can always rig it up." And I said, "Why would he rig it up?"

So, I met Fujiwara. I think he felt I was related to Mary Ellen Avery, because he invited me and then he said, to Mary Ellen somewhere along the line, "Well, a man is working with you," meaning me. We weren't exactly working together. So, somewhere there is a lot of foggy correspondence and I just thought, "I'm going to spend some money and send somebody over there." He had offered to give us the surfactant and we would try it here. So, Roger [F. Soll] can't go, Jeffrey [Horbar] can't go. Bill [William] Taeusch can go. So I said to Bill, "I'll give you the money; I'll pay your way over. You go get the surfactant. We'll do the trial together." By this time, I have Jeffrey and Roger working with me, and we're into the randomized trial mode. Roger wants to stay with this; Jeffrey wants to stay. So, this is how we're going to do it. We got the surfactant and we brought it down to Boston. Then we set up a trial between us and we got 20 cases in about six or seven months showing that it worked.

Then Dewey [Sehring; Ross Nutritionals of Abbott Laboratories] came around and asked what was new. I said, "This stuff, this is no humbug. This really works. [Laughs] You want to do something, get in." So they send a man to Japan. The next time I see Dewey, which is months later, it didn't work out. "What's wrong?" He said, "They're not interested." I said, "No, I've been talking to [T.] Fujiwara." Then I went to Japan and there is a regular correspondence going on between Fujiwara and myself about how we are going to test this in the United States. I become aware that there are

other people like [Karliss] Adams and the people in Sweden and the other people that are working on the field, but they hold them together as one group, you know. They had tried for seven years to get a grant from the National Institutes of Health. They hadn't gotten one, and they'd all busted up. They had gone back to Sweden and Japan. So they devoted their whole lives to this, and I am coming in as an outsider, more or less seeing that it works. My function from here on is going to be a cheerleader and organizing these trials.

Anyway, he [Dewey Sehring] comes back and says, "They don't want to sell." I said, "Fuji told me they wanted to sell." And they send a guy back a second time and they sold the rights. Okay now at this point I had been in Germany for six months, working with the Huchs [?], which we'll go into in a minute, and Ingela [Lucey] speaks German. I was able to communicate with a lot people I couldn't before and I traveled around a lot. In Germany, I realized the system over there works differently. Their very senior people would be assistant and associate professors, working in their nurseries, who are still pushing catheters. The fellows have a rather peripheral job. So, the idea is, we're doing the trial and we know it works. I mean, this is one of those wonderful therapies where you have a blue baby you pour a liquid into the lungs and he turns pink. Now, unless that's gasoline or some horrible toxin, you have got it made. You don't have to worry, it's got an endpoint that you can measure, and [Donald L.] Shapiro is starting and people are moving into it from all different directions. So, Ross [Nutritionals] goes and they buy the rights to develop in the United States and I say to them, "Look, this stuff is so good we want to really do a quick trial and we want to get it by the FDA [Food and Drug Administration] as quickly as possible." So I said, "I have all these places I visited in Europe and their senior people will probably cooperate in this." And we organize this European network of hospitals for the study. It turned out that they were pretty slow. Roger felt there was a little anti-Semitic feeling in this group we were putting together and he wasn't comfortable working over there. Never bothered me too much. And Jeffrey looks like a Rabbinical scholar, you know Jeff, and he is not comfortable over there either. Anyway, we organize the trial. It was mostly German hospitals and one Italian hospital.

We had the X-rays. We had our own studies that we could show them, so it was an easy sell. We got the national FDA to agree to visit these hospitals and to approve of them for an FDA trial. Which they don't like to do, but they did and it worked out pretty well.

Before this, Tooley and a brilliant guy from the lab out there, the heart institute, [John A.] Clements, have also entered the field. They've got this chemically made Exosurf. And Ron [Ronald] Phibbs, too. So there's a nice friendly rivalry there. Bill and I didn't care who the hell won. Both products looked like they worked. But we looked at the data they had on animals. I wouldn't have gone to anybody with that and thought you'd have a chance. The changes in the animals were really minimal and so we always figured they had an inferior product. It wasn't as inferior as we thought it was later on.

Anyway so they, Exosurf company, organized a massive trial. I mean, they had the best organized trial you can possibly imagine. Connected by computers and they started out almost a year or two behind us and in no time they had caught up. So we were both approaching the FDA with the trial and then somebody, and I don't who it is, but it is certainly wasn't one of the European Exosurf group, said, "You know, I think this stuff might cause intracranial hemorrhage." So the FDA called to look at the data before the trial was done. And what had happened was we had some hospitals in Europe that had had NO intracranial hemorrhage for six months. And there were two or three of them with no intracranial hemorrhage whatsoever. When you put that all together and matched statistically, it did look like there was a blip. It took months you know to do this. "Stop the trial. It might cause intracranial hemorrhage."

We were all scared, but we realized that the change was from no intracranial hemorrhage to the normal incidence of intracranial hemorrhage. And all of these were setting me up for something that we'll go into later on: Why the Vermont-Oxford Network was developed. Also, the New York experience at three different hospitals that claimed they were the best in the world. The idea that we could switch babies around so that you could arrange to be the best in the world.

DR. GARTNER: Okay.

DR. LUCEY: And the idea that there were these places in Europe with no intracranial hemorrhage and then you start surfactant and have the normal rate of intracranial hemorrhage The thing that saved us was that we had some baselines to show we went from no intracranial hemorrhage to just this little blip. So finally the trial was started again, but that gave Exosurf a chance to catch up.

The next thing was, you know, what do you do. Well, this stuff really works. We had two trials, ours and a bigger trial. Fuji, in the meanwhile, has got a trial going on in Japan and there's a meeting where we all put it together and statistically it is home free. This is the best thing that hit neonatology in 20 years. So what do we do? I said to them, "Look, have a big trial. A really big trial. No side effects have shown up so far with this stuff." That's when Ross went into giving it away to everybody for a year. And both Ross and Exosurf gave it away for a year. That cleans it all up, you get the changes in the mortality rate. The final analysis was that it changed mortality from RDS by about 30 or 40 percent.

DR. GARTNER: That period of trial was done in this country.

DR. LUCEY: That was done in this country and overseas too. The overseas trials were submitted to the FDA and accepted. The Exosurf had trials that were accepted. With the other Japanese trials and the American trials, it was home free. The only question was long term effects. No adult medicine has ever been asked to submit long term effects. Long term was six weeks to six months. I began to feel, "Oh, Jesus, I mean the thing that could happen here is you get some sort of weird cow allergy. So we better have some long term organized follow-up." Follow-up ended up being about two years. And in all this I realized: we could never have done a trial with surfactant up here [Vermont], not enough patients. , Even throwing Harvard in; they had a harder time at Harvard because nobody would help them. "What's in it for me?" is the attitude

END OF TAPE 2, SIDE 1

DR. LUCEY: So I realized that whereas [Wellcome] has put together a network of people and we got huge number of patients, and we were able to assemble one in Europe with huge numbers of patients, in no time at all; we were facing a future of no research here because we didn't have enough patients. I began to appreciate numbers and I realized when you look at neonatology, you're not going to be able to answer many questions with 20 patients. From here on in it is going to be trench warfare. It is going to be very slow progress, one versus another treatment plan.

I had lunch everyday with a man named Joe [Joseph D.] Dickerman who belongs to the POG [Pediatric Oncology Group] network, the cancer pediatricians. They'd been doing this for a long while. So we looked into that and, holy God, they have books like this. They have tons of money,

seven millions dollars a year from the government to do the studies, and organized writing committees that do minutes of their meetings. Oh my God, you know, we probably can't sell this to the government about starting a network for newborns.

So I thought, looking back at Bellevue, everybody was very proud of their nursery and they thought they could compare to each other; there wasn't much of that going on back then. But I'd really like to know. I thought we had a very good nursery. Talking to Stan [James] and Bill [Silverman] and Jim Sutherland and various other people, I always thought, "We're doing better than that." We don't have any minority groups to speak of and we realized that white people were doing so bad on the survival curve that you're better off with Black-Mexican infants that are small. [Laughs] But I knew that we'd never be able to prove this. So then I thought, "Well, why don't we try to organize a network, in which everybody keeps their data the same way? Keep it simple, 80 items, one or two pages." And I tried to sell this to Ross Laboratories or something and I got no interest at all. Then I thought, "Christ we'll do it ourselves."

So we put an ad in *Pediatrics*: "Are you proud of your intensive care nursery?" That was in about 1987 and I bet Roger [Soll] that we'd get fifty or something places. We got forty five, and now we have 408. So it started slow. The general idea that we had was to ask whether you were proud of your intensive care nursery and would like to be able to compare your results with somebody else. If you want to do this you're going to have to work together, you're going to have to use the same definitions, you're going to have to use the same set of forms and you're going to have to pay us some money, because we can't do this for nothing. So we charged $500 and forty places joined us. And then Jeffrey looked me in the eye one day and he said, "You know, 40 places times 80 items times this times this. How are we going to store all this stuff?" [Laughs]

We formed the network to do trials, and I thought that the future of the network would be to say to somebody like (inaudible) Company or something, "Look, we've got 500 premature infants in our network and we've got baselines for infection and everything else. We're interested in doing trials. You give us --cillin and we'll do a randomized trial for you." But then I began to realize, oh my God, doing randomized trials for FDA is a whole different world. We would have to hire a lot of people. When we first started there were something like 16 clinical research organizations going; this is by 1987. Now there are 360 of them and they just do these trials and

they hire all these bureaucrats and they recruit patients. That was a business that I didn't want to get into; that wasn't what I wanted to do.

So what we did was, we decided to set up this thing, had our little meetings. It would be like a club. Gradually, the membership kept going up and up and up. So then we had to hire more and more people; we now have 25 people. It's a full time job for Jeffrey Horbar, who has done magnificently, and it's a half time job for Roger Soll who runs the nursery and does the clinical trials. The clinical trials are really a small part of the network at the moment. We do one or two big clinical trials, but we can do two thousand babies in a year and a half. Something like that. We've got a small nucleus of places that are interested in the trials, and a bigger group of hospitals who just want to see where they stand.

We've got probably the best equation for risk adjustment if there is one that everybody will agree on. So it's risk adjusted for everything. We can tell you that where you stand in relation to other hospitals and we can tell you where you stand in relation to how many infections and what have you, every year. So every place now has a baseline that they can look back on. We have certain hospitals that, you won't believe it, but they have had no pneumothorax for four or five years, and decent numbers. It's pretty easy to figure that out when you understand what's happening in many places. If you have a team that runs the respirator and they are a solid team that is always there, you can have no pneumothorax. If you have a group that runs it and everyday somebody changes: a new nurse, and a new this and a new that and a guy out for the weekend, somebody's hired--you're going to end up like that. So we've gone heavily into teamwork.

DR. GARTNER: Have you published that observation?

DR. LUCEY: No, it's coming out. Those things are very important. It's taken on a whole new purpose. Initially it was to see how you stood in terms of mortality rate, to give you baselines. The idea for that came not only from my past experience, but I went to Oxford for a sabbatical for about five months and I thought the British were better organized than we were on rounds and certain things. It turned out not to be true for the intensive care nurseries, but it did turn out to be true for Ian Chalmers and the National Perinatal Epidemiology Unit in Oxford. I fell under the spell of Ian Chalmers. He was intrigued by the idea of the network and wanted to foster the growth of trials, but he hated the idea of a database. When we invited him here to talk, he got up and he gave ten or twenty minutes about

why the stupidest thing you can do is have a database. [Laughs] And Ian's very convincing, you know. It stretched our friendship a little bit.

DR. GARTNER: [Laughs]

DR. LUCEY: We were committed to the idea of a database because we thought that's what would get people to join.

DR. GARTNER: Sure.

DR. LUCEY: I noticed that in England I could get people to cooperate in trials and not pay them anything. People were just lonely in practice. They wanted to do a trial, but they didn't have the time; but if they had a protocol they'd file a protocol. They liked the idea of working together.

I thought if the British could do this, we could do it a hell of a lot better. Our networks started about the same year, they all started about the same time. The surfactant networks came and everybody thought, "That looks like a good idea." The NIH, with Stan James, decided they should support networks and they started the NICHD [National Institute of Child Health and Human Development] network. Then the obstetricians started a network and other networks got on; companies started going in and starting networks in pediatrics and that kind of thing. We used to have a number of members in New Zealand and Australia and they now have their own network. We currently have 50 hospitals overseas from 20 different countries. All of Ireland is going to be a network. All of Finland will be a network. So I think one day we'll turn them into something like an international soccer game, if we can maintain the idea that they all use the same definitions. Meanwhile, we're on to another thing, which is that comparing results is nice but it's not going to get you any place very long. What you have got to find out is how you can improve. That's a team approach.

That's a great place to stop.

DR. GARTNER: Okay. Now you can go have lunch.

END OF TAPE 2, SIDE 2

TAPE 3, SIDE 1

DR. LUCEY: Well, going back a little bit, on that theme of reading other countries literature. That's been a very productive lesson for me, because I was reading the *South African Medical Journal* and [A. and R.] Huchs from Germany had published their first paper on transcutaneous oxygen measurement in South Africa.

[Brief interruption]

DR. GARTNER: South Africa, or Germany?

DR. LUCEY: So, again, I'm reading the foreign literature, which is the moral of this story, and I see this thing that sounds great to me. You can measure oxygen through the skin continuously. The Huchs are named on the paper and Gösta Rooth is named on the paper; but the man who did it was the one in South Africa. I arranged to meet them. That had to be 1972, the year I got to be editor of *Pediatrics*. I used to go to a meeting regularly in Europe. It wasn't perinatal, but it was obstetricians; mainly because in Europe many of nurseries are run by obstetricians. So I used to go to that religiously. It was always full of weird ideas, like feeding fetuses in utero with feeding tubes.

DR. GARTNER: That's a new one.

DR. LUCEY: That's what I loved about this meeting, because there would be a number of things that were kind of promising, current stuff. So anyway, I arranged to meet the Huchs there, and Gösta Rooth introduces us. The Huchs couldn't speak any English, and so Ingela was my real translator for them. They got me a Humboldt Fellowship to go to Marburg and learn more about transcutaneous oxygen monitoring. We went there and lived in a little, very romantic attic.

DR. GARTNER: [Laughs]

DR. LUCEY: Marburg is a storybook town. It is a really pretty little town. We became lifetime friends with the Huchs as a result of this.

During that period of time, people were just getting interested in transcutaneous monitoring and again the competitive scene was being set up. Companies were developing products. You should have seen the inside of this oxygen electrode, it was like a Van Slyke machine inside a dime. It was platinum and gold and there was a backup system. I mean, unbelievable

electronically, people looked at it and couldn't imagine it. Albert Huch is a genius and he had done a lot of work making this thing. He could make things and he could put together television sets. So it was a very intriguing place to visit, and we met the technicians who made it.

I went off on another enthusiastic tear about how this is the way to go because it would at last give you continuous monitoring. One of the first times we started using it, we realized, "My God, there wasn't a single oxygen [inaudible]. You could fine tune it so you could get what was in the artery when you got your adjustments and everything. There were a series of German companies coming through with instruments and they were always trying to make it more accurate. To make it more accurate, it had about 10 dials on the front of the machine. You didn't need it to be accurate to that degree. [Laughs] I kept saying to them, "Make it simpler. Two dials, on and off, that works, doesn't it?" But it was falling on deaf ears. One time I brought the house down by saying, "Now I know why we won the war, you guys have taken so long and you can't change. Come on."

Well, Litton [Company] and [Hoffman-] LaRoche [Ltd.] came through and a whole bunch of others and they proceeded to steal ideas from the Huchs all over the place. There was a big race with all of them making basically cheaper electrodes. Some of them were making it easier, but some of them were just making them cheaper and less accurate. The Huchs never got any patent on this thing. It was terrible.

DR. GARTNER: Really?

DR. LUCEY: Yes. Hoffman-LaRoche were bad people in my life, now that I am thinking about it. Hoffman-LaRoche again is there, doing something. So, it came to the States and it had a blip like this, you know, and everybody started adopting it. Again, I went on a big lecture tour. I'm turning into almost a salesman for this thing, because I think that this continuous oxygen monitoring is something that is really useful. It could open up all kinds of doors.

What we didn't see coming was that you could settle for less with a pulse oximeter. The study had been written up by somebody from Cornell, from a business standpoint. Our collective advice, the Huchs and myself, was that you shouldn't sell this instrument to anybody unless they have a course. You needed to have continued courses on how to run it. Well, nobody wants to stop for a course. You buy it, the guys try to run it, and it doesn't work in

the United States. In all the German hospitals they have a service that we should have here. We've never had it in Vermont. It is the technical service; for anything electronic that you buy, they come, they maintain it, they check it and everyday they adjust it. It is wonderful service; you need it.

DR. GARTNER: That's how it should work.

DR. LUCEY: **You need it, and most of the hospitals that bought this didn't have it. So anyway, transcutaneous had a brief flurry of about three or four years, sold a lot of machines, and I think changed the thinking about oxygen quite a bit. People realized there isn't a blood oxygen anymore.**

Then pulse oximeters came along and made it look simpler. The thing about the pulse oximeters is that people like to see them run at 95 to 100%. The Huchs and I have been like voices crying in the wilderness about this. They're measuring 95% to 100%, but PO2 can be a 140, 200, really. It can be way higher; and no matter what you tell nurses, you're talking grades and the grade you get is 95% to 100%, not 88% or something like that. There have been some recent papers presented in Italy, at a meeting in Venice, which show that when you get up there and you are running at 95%, watch out. We could get along a lot less and there will probably be less RLF [retrolental fibropolasia] retinopathy at the lower levels. But retinopathy is going down, and now it is mostly only the really tiny, tiny babies.

So that was a brief episode and that came before the surfactant. When the surfactant came in we really needed it.

Somewhere around 1972, I went to Dewey and I said to him, "Look, there aren't any meetings any more. You are not doing your research meetings anymore. I'd like to set up a different kind of meeting, hold it in Washington in December, and charge people to come to it." Dewey said, "It wouldn't work. I'll back you up for the first meeting, but Ross is not interested in that kind of thing." That was Hot Topics [in Neonatology]. Hot Topics is now in about its 23rd or 24th year. When we started out, I think there were 300 people at the first one and now there were 1600 at the last one.

DR. GARTNER: It is very successful.

DR. LUCEY: It's a good mixture. We try to present randomized controlled trials; we try to have a lot of time for discussion after; and I try to pick out things that I think are going to happen in the future.

Looking back at my career, I'm your classical early adapter of things. I don't mind speaking, and if I see a good idea, I will push it. I've done that for phototherapy, surfactant, transcutaneous oxygen. Now, the most important thing, I think, when I look back on it will be the Vermont-Oxford Network. It is in such good hands. This is kind of complicated to explain but it's got a much better future that will save more lives than anything we've done so far. It's basically team learning and quality improvement, which is a big bore. I hate the words that go with it. [Laughs] But, if you have a baseline and you want to change something, and you can educate the people to work together as a team, you can change things.

We have hospitals that have no infections. Now, ordinarily, the way you handle that is you say, "You guys are cheating," and dismiss it. Nothing happened. You've got to have infections! If you have four or five of these hospitals, and you know they are still doing blood cultures and everything, then there is something to be learned from them. So that benchmarking by learning from a group of hospitals that have very low complications can be very productive. If you can organize that in such a way that the other people go to them, find out what it is, and then you do a test and you see what your own baseline is, that's the way progress is going to be made in the future.

We've got several really promising studies forming on that, but the best routine is, that basically you have a (inaudible). Respirators, I've always been bored by respirators. I mean, there are so many different kinds of respirators. You can change the valves on them. You do a trial and then they say, "Oh, we don't use that respirator anymore. You changed the valve. You didn't do this; you didn't do that." You're never going to settle that question. There could be 10,000 trials on respirators. But what has never been tested is, no respirator ever saves anybody, the team that takes care of the respirator saves people. [Laughs] If you don't have a team, I don't care what the hell kind of respirator you're using, you're not going to do any good for the baby. You're probably going to do more harm. That's so complicated to do. You can't do a randomized trial of people and how they work together.

But we have got some things coming up. The Harvard Business School has been studying us and they know in business that this is the way to go. You don't have to explain this team concept of learning and adaptation to a company. They know, and so they are intrigued that it hasn't been used in medicine before. They are in the process of studying us. I think in a few

years it will all be teams; teams for this and teams for that, and everybody will have a better idea about how to improve.

DR. GARTNER: Elaborate a little bit more on the team approach in neonatology.

DR. LUCEY: Let me give you an example. I'll give you the example that was written up already.

DR. GARTNER: Okay.

DR. LUCEY: Keyhole surgery is just coming over the horizon, very popular. A million dollars to do a new thing. The problems with it are that it usually takes a team to do it and it takes a long time in the operating room. With an appendectomy, a "roto router" surgeon can do an appendectomy in 15 minutes or so. With keyhole surgery, it takes him probably an hour and a half.

Why should you want keyhole surgery? Well, you want keyhole surgery because there are now really good numbers coming up. The size of the thing is related to the complications. Who wants to spend two weeks in the hospital for a gallbladder operation where you get slit open when you can go in there with keyholes? So anyway, the systems cost a million dollars, and they take a team to run. When they sell you, daVinci [Surgery] or something, sells you a system, they make you come to their place to learn how to use it.

Every major surgical hospital, especially in New York, is vying to get the best keyhole surgeon, so that they can do this. Let's pretend the hospital A has a world famous surgeon, and he is being presented with keyhole surgery. First of all, he's got to learn to do everything backwards with these things. He's got to learn to use an ultrasonographer; he's got to learn to use television; he's got to learn to do things backwards. He's got to have a team of people really help him. Let's suppose he's your prototype terrible surgeon. A king, he's wonderful, magic hands, everything else. He's not used to a team. He doesn't look for somebody to tell him what to do. So, when he buys the million dollar machine and goes back, he doesn't pay any attention to the team and keyhole surgery doesn't take off.

When a nice humble guy, who is used to working with a team says, "I really need you. You're very important in my life. I can't get along without you.

We have got to work together. We have all got to practice together." When they buy it, the time goes down in the operating room, and the use goes up like this and they get much better results. So team leadership is critical.

It sounds so simple. Some people can do it and other people can't do it. If they don't spend some time organizing, it is not going to happen. If the administration doesn't realize that you have got to do certain things and they have got to support those, then it doesn't happen either. So you need administration and people who are going to help you to organize this team, and then you can make progress.

Now, how can you tell that you're making progress? Well, most hospitals can't. They can't tell you the average time that it takes. They know the operating room time and the cost. They don't have any follow-up study on the quality of their work. Neonatology has that now. We don't have quality of work; we have survival and complications. But soon, hospitals will be judged on quality of outcome. That's when the keyhole surgeons that are organized will become the admired ones, and the teams will be admired and the single guy who can do magic with his hands will be just a camp character. Robotic surgery is right behind that. Everybody thinks that is a big joke. What would you need robotic surgery for? My friends who are in the surgical business say it is going to rule. When somebody is looking at this in 2030, they'll wonder why the hell those guys could not understand that robotic surgery was the way to go. [Laughs]

DR. GARTNER: Now, how do you see this in the neonatal intensive care unit?

DR. LUCEY: I see respirators are a big thing. I think teams for respirators are important, really organized teams that pay a lot of attention to baselines and collect data. So that if you change something, you know the effect.

Infection rates. Paint the nursery over. It didn't do any good. I mean, nobody's bothered to show it is no good, but people know it's no good now. If you have baselines telling you how many infections you have and you have standardized ways of collecting the baselines, you can tell whether something you change has any effect. So there will be a gradual improvement in a number of hospitals.

What we have done with Vermont-Oxford is we have brought in very good people. As I travelled around I realized, "There are hospitals that are better than mine; they're cleaner; they've got more nurses; they're lovely." And they never wrote an article, they wouldn't have thought to write an article. But they've got some really good ideas. So you put those people into someplace where they can follow a protocol, get their good ideas, and people believe them. You've tapped into 4000 people, some of them are lot smarter than you are, especially the nurses. This is going to empower nurses like mad. It's going to remove the delusion that there is single guy who takes care of everything. Many studies show that this one guy in a nursery doesn't change mortality rate. Two guys don't change it. Five nurses might change it. All those things might be able to improve care. You'll be able to measure them if you keep track of them. The way to keep track of them is to belong to our network or somebody else's network and compete on results.

DR. GARTNER: Do you see the role of the neonatologist being very different than it is now, or just refined in terms of quality?

DR. LUCEY: No, I think the good neonatologists, many of the older ones were raised on the idea that the nurses knew as much as you did and you had better depend on their sense of things. There are a lot in the middle now, younger ones who have gone through the training programs and all they wanted to do is learn <u>how</u> to do something. I got very depressed in the last year or so that I was rounding when people would say, "How do I do that?" I'd say, "Why don't you ask me, 'Why am I doing that?'" And they'd give me this funny look, "Why am I doing that? You have got to do that, and everybody has to do that. How do I do the intubation? I don't have to understand what I do." "I don't have to do intubations anymore. I can tell you why. You want to talk about why you need to intubate somebody right away? That's the deal, Let's talk about that one point." There are too many people in there now that, they just want to know how to do it quickly and get it over with. They are just robotically going on.

At the moment, I've gotten very interested in low birthweight babies. It is like I have come full circle, because in 1951 I was interested in 1000 gram babies, because almost none of them lived. In 2002 and 2003, I'm interested in 400 gram babies and 500 gram babies because only 17% of those live. This is the power of the network. There is no paper on 400 to 500 gram babies, but we've got 4000 400 to 500 gram infants in the network, 4000! You can look at them all kinds of different ways. Some of them were never intubated; that's fatal. Okay so if you want to be "right to life," you are going

to have to intubate them. If you don't want it, just don't intubate them. Problem solved. I've been analyzing the data for a couple of years now, and I'm going to give the first talk in Italy, coming in October. They aren't any worse off. I've always thought they'd be the worst of the worst, but what happens is the worst die right away and then you're left with this group, and 17% of them live.

DR. GARTNER: Okay.

DR. LUCEY: And that 17%, if you look at them compared to 600 and 800 gram babies there is practically no difference. There is still the issue of the long term outcome, but there is another thing that networks are going to do for you. One, we wouldn't have known that without a big set of numbers. No hospital gets more than 2 or 3 babies, 400 to 500 grams. They come along and we never treat them the same way. We'll never know what to do with them at the rate we're going. So we've got to put together a group, find out what they're doing and you've got to change resuscitation. Resuscitation teams are going to be big, just like respirator teams are going to be good. Those are two team sports that you have to have organized and now.

Unfortunately, ourselves included, you send some of the youngest people to learn how to intubate, at the critical moments of life. Having seen Neil [N.] Finer's movie on this, I realize, "My God, we're not doing as good a job here as we could or should be doing and we have to organize a better team." So anyway, my team is going to be all right; I know about right to life and death, too small to live and everything else. But we've crossed another border, at 500 grams. They are probably just as good if you let a certain number die right away. It's going to be hard to clean up and get acceptable.

But then, what you are going to do about follow-ups? Neonatologists are terrible at whining, "Oh, we don't have any time. Nobody gives any money for follow-ups." Plus they move every four to five years; nobody is ever there long enough; it's really boring work. And usually it is assigned to somebody who doesn't have a better idea about what to do with their life. They go on and do it for a long time and then they move. So the follow-up by neonatologists is abysmal beyond two years. It is very rare that he's got a decent paper. By the time you get the paper, everybody says, "Oh, well that's what we did ten years ago, but not now."

Well, I want to set up something with this network whereby, we will have follow-up of babies that are treated and you'll have it every year. You will

use the internet form, and you'll have big numbers that can settle something. We've got these 4000 babies; we could add another 3000 in no time. If I look to see how many are being followed-up, I think very few. You could distribute it, if I came to you and said, "Look, Larry, you got five babies last year less than 500 grams, I want you to put a special effort into following those. I want you to make the parents help us." Too often, parents are quick to criticize, but they haven't assumed the role they should, which is, "I'm responsible. I've had a premie and you can't tell me what's going to happen in ten years. I'm going to help you tell me what's going to happen in ten years. I'm not going to run away and forget to give you my address and say, 'Come and find me wherever you are.' I'm going to keep in touch with you." So during my "declining years," I'm going to challenge the parents with this idea that they should put some effort into it. I'm pretty sure it won't be hard to convince everybody that is in a randomized trial that they have to shape up and make follow-up a key part of it. That's going to be uninteresting work. Hard, but I think we'll get some progress.

DR. GARTNER: No question.

DR. LUCEY: Everybody agrees, but nobody wants to do it. Myself included. We never did much follow-up.

DR. GARTNER: Do you see neonatology developing a new group of people who are follow-up or outcome experts?

DR. LUCEY: You know, they are there already. Neonatologists are like surgeons. You don't attract the thinkers anymore to neonatology. It may sound hurtful, but you attract people who want to do things with their hands. They are almost surgical types. When I look back on the early days of neonatology, one, I never heard the word money until I was up here for four or five years. Money for research, but I never heard anything about money from taking care of premies. [Laughs] Never a consideration. You have got guys now who are making enormous amounts of money, because they work very hard, and they take care of a lot of patients. Follow-up does not appeal to those people.

DR. GARTNER: No. That is probably true.

DR. LUCEY: There are developmental people who want to do it. You can't keep palming it off on the general practitioner, but you can simplify it. I don't think it's worth a damn to do knee jerks and all these developmental

tests at two years of age. Whoever got into Harvard because their knee jerk was okay at two years of age. So I think that you should try for less follow-up in the beginning. Stop wasting all this money on early developmental tests; anybody can recognize a serious baby. It's all these fine-tunes. Mostly now, it's these kids with psychiatric problems, behavioral or learning problems, very subtle things that don't show up until school. Those are real, just as incapacitating as having a limp. So what you have got to do is you have got to sit back and figure out some way of following those people for a long enough period of time, and doing something about it.

DR. GARTNER: Truly a noble effort, we need that. In the networks so far, what have been the major changes that have actually occurred as a result of the sharing of all that data from the 400 places?

DR. LUCEY: We just did a study of ten years, involving 30,000 patients a year of all the morbidities. Morbidities went down, up until about 1995. The network started in 1989 with 40 and now we are up to 400 participants. But Jeffrey has got a statistical way of comparing the original 40 with the ones that are joining us. We could have been joined by better places and had better results. But in general, things like IVH [intraventricular hemorrhage] and pneumothorax have gone down across the board. Some of that is surfactant. Nobody understands why IVH is going down so well.

But then about 1995 everything leveled off, nothing since 1995. They are all the same. The National Institutes of Health network has been pretty much the same. They're a smaller network than we are, but they've got better follow-up. They pay a lot of money for follow-up. So it has happened to everybody. Now the question is, can you change that kind of thing? I'm an eternal optimist, I think we will be able to change. We've got a better survival rate, but we're always driving with our headlights off here. Better survival rate but then, my God, what's going to happen? I'm particularly worried. I think a number of neonatologists, my old friends, gave up doing neonatology, because really they were too worried about the kind of babies they were saving. When you see the disasters you can create! It's not just racing on to get the next baby to survive. Unless you are religious, it doesn't race your motor. So I think we have just got to shape up the follow-up and we have to do some more basic research. I once had an opportunity to look over the research fellow projects. I've forgotten how many research projects there were, but let's say 300 or 400. I'd say that 90% of the projects were counting.

DR. GARTNER: They were counting.

DR. LUCEY: Ninety percent were counting the number of this, the number of that, the number of patent ductus arteriosus, how many times you used ibuprofen, the number of pneumothorax. They really were very superficial studies, all clinical studies. You look back on the old days and most of the early neonatologists started out as physiologists. They were more interested in fetal physiology. Then it became a business and they sort of filtered out. Most of us were not very good (at business?).

We had the lowest costs of any nursery in the country, because we didn't bill anybody. That was pretty easy to do. Once an administrator caught on to what was happening, now we are probably 100% efficient in billing. If somebody died, we never charged them. I never would think of that. But we need some real physiologists. We're chasing this mirage of, "If you can take pictures of the brain that must be wonderful." Millions of dollars are being put into this stuff, hoping that they'll find something. But it's like numerology or something, you can feel the bumps in the head and you can see this pink color and it's red over here and pink over there. They tell you, "This might be something or other." A lot of time has been expended on that and we're publishing a lot of those papers, but I'm very skeptical that they will turn into anything. They haven't really changed the care. Nice to know what's going on.

DR. GARTNER: You mentioned in the network that there were a group of hospitals, small number, that had no infections. Have you found out any reason for that?

DR. LUCEY: Yes. [Laughs] I can tell you in essence. This won't be a scientific presentation. We wrote to the hospitals that had no infection and they were delighted. We said, "We'd like to have people come and visit and we want you to answer these questions." The places that had high infection rates were the ones who signed up for this benchmarking project, and they went to these hospitals. You had to have a list of all the questions you're going to ask submitted before. That's benchmarking, which is basically the thing I'm pushing for.

First of all, there was doubt. We thought maybe somebody is fibbing, maybe they're not doing this right. That turned out not to be true. We knew it wouldn't be true when we heard that they were eager to have somebody visit

and they were so happy that somebody was believing them. They had never written a paper or anything.

The teams met and it turned out that it's not one thing. It is having constant reminders about washing your hands. Most of the infections now are catheter-related. In our place beforehand, a surgical resident or a resident or a fellow or somebody puts in a line; somebody else comes along maybe squirts something in it; somebody takes the bandage off; somebody takes it out; and the result is a 25% infection rate from catheters. These places all had the team approach. They had one person in charge of that thing. You couldn't violate it unless you had their permission or they did it for you. So they all had realized that the catheters were a real problem and had to be treated carefully. They stopped people from other services handling them.

The people we had the most trouble with was neurosurgeons. I don't know if they think they're holier than God or something, but we had a set of neurosurgeons here several years ago that never washed their hands when they came in. I had to go to the head of neurosurgery and alienated him forever. The neurosurgeons just figured, "Well, I'm out of the operating room now. I don't need to do anything."

So vigilance signs and "rah rah" songs, that kind of thing was what it turned out to be. Disappointingly, it wasn't the silver bullet. And that's something we have got to sell. There aren't any silver bullets here for infection, you just have to be clean. But the day will come when people will not accept infection rates. What is the low, acceptable rate? Probably five percent. Who has that? Nobody. Except these places that aren't in the business of writing papers.

DR. GARTNER: You don't write papers when you don't have any disease to describe.

DR. LUCEY: They don't need to write papers because their salaries don't depend on papers. Their salaries depend on running a good hospital. I've always envied Texas because they have so many infections. Think about it, you can't write papers about infections unless you've got infections. So what, you have infections in hospital? You're creating your own goddamn disease.

DR. GARTNER: I think we've covered a lot of the questions that I had here, but there were a couple of areas that you didn't mention, two in the bilirubin area.

If we can just go back to that for a moment briefly. One was, I think you were involved in some of the monkey work, out in Puerto Rico, the monkey colony there. You didn't tell us anything about that.

DR. LUCEY: I forgot about that. After I got out of Clem's lab and I came up to Burlington, I needed other places for research; I didn't have anything up here. I was interested in kernicterus at that point and I wrote to Dr. [William F.] Windle who ran the monkey colony in Puerto Rico. I told him my idea and he invited me down. Meanwhile Geoffrey Dawes had started going there too.

Windle was a neuropathologist and Windle's idea was to assemble teams who would come in and work at the place. Windle hired Dick [Richard] Behrman. We tried to hire Dick Behrman at one time, but Dick was down there. I came down with a medical student. We set up some studies injecting bilirubin into a young rhesus monkey. We did a few monkeys and, Christ, we got the levels up to 60 and 80 or something, practically crystallizing out and then they would die. They had no brain hemorrhage. So then we thought, "Well, Dawes had been there and he and Stan and a big group were asphyxiating newborn monkeys for five, ten, fifteen minutes. They had a neuropathologist whose name I'm really blocking out, but Windle had brought him in and he was taking over. So we said, "Look we'd like to use that model and asphyxiate and see if we can damage. So we used a five or ten minutes (inaudible). It is buried in some experimental neurology article, but when you asphyxiated you could get brain damage. And we got beautiful kernicterus. That article, which is somewhere in the experimental neuropathology literature; it is a nice thing. You did monkeys after that. But it was too expensive a model.

I had some ties too with Rudi Schmid and Roger Lester came along. Rudi had created radioactive bilirubin. Rudi said he wanted to see whether it crossed the placenta and couldn't do it, wasn't that interested, and he put aside the problem. I said, "I know how we can do that. We'll take a foot out and stick it in." So he said, "You can do it. You can inject it. That stuff is $2000." So Roger came down with his radioactive bilirubin and we pulled the fetal foot out and injected some bilirubin in and then naturally it crossed the placenta and that kind of thing. But then radiolabelled bilirubin was too expensive and I don't know what they went on to. Roger was an internist and Rudi was moving up to California at the time, so that's that. Then the monkey colony sort of politically went bad.

There was a little diversion at one point; thalidomide came along. Again, reading the British literature, there was little paper that said thalidomide could cause defects. I said, "We can go down and put into the monkey's food." First of all, you have got to know a little about the sex life of monkeys. If you take a male monkey and put him into the female's cage, nothing happens. But if you take a female monkey and put her into the male's cage, then they get pregnant. We knew that at this time. The school teachers that are running the monkey colony had taught us this. So we arranged to get a whole bunch of monkeys pregnant at a certain time and we were going to give them thalidomide at various times. It turned out they wouldn't eat the thalidomide so we put it in the food and when we made these matings, nobody got pregnant. I mean, not Windle, but I wish I could remember the guy's name. The guy was really angry with us because these monkeys didn't produce the thalidomide defect. Somebody else was lining up in England to come and study twenty newborn monkeys later on down there and so it really screwed up the colony for a while. There were no births. And we buried that paper in *Science.*

I thought maybe the stuff is a contraceptive; it is fetotoxic or something. I still think it is probably fetotoxic . When the shit hit the fan and everybody started looking around for thalidomide, they wanted to collect all the thalidomide that had been given out. I was on the list for having about ten pounds of it up here. The [Richardson-]Merrell [Inc.] company had given me a whole barrelful of the stuff. They came up very efficiently and picked it up.

DR. GARTNER: It's back into use now.

DR. LUCEY: It's back in use now for multiple myeloma and leprosy.

DR. GARTNER: There's one other thing you didn't mention, and every so often somebody brings it up. That's the Lucey-Driscoll syndrome, so you have to relate that story.

DR. LUCEY: Well, I've got to tell you about the admission of [Timothy J.] Driscoll [Jr.]. I was on the admissions committee. We used to admit students in a strange way. There were five doctors in a room and the associate dean of admissions or something would bring in two medical students at once. We would have studied their things beforehand and the whole idea was just to have us talk with them. It wasn't an important interview at all. I mean not really. Very rarely was anything ever said except that he was a nice guy, great, speaks well, that kind of thing. I didn't know

Driscoll at this time at all. In walks somebody who was to become known to me as Driscoll and we start the interview. His life was different; he'd worked. So the standard question was, "Why do you want to be a doctor?" He had worked for a couple of years in Maine putting his brother through school and so we asked what attracted him back to school. Tim said, "Because it is a highly respected job and you can make a lot of money out of it." And there is a silence. Nobody has ever said this in his admission interview for medical school. So there is an appalling silence and then Driscoll and the other guy get up and leave. Then the debate starts. So I kick off with, "I think that's the first honest kid we've ever interviewed. those are two great reasons for going into medicine." I was academic, there was a middle guy, and there were three people in practice. The guys in practice said, "No, no, we should never let anybody like that into medical school; it's absolutely appalling!"

Well, he did get into medical school and he did very well. I never told him the story actually, by the way. He was the one that did the study with me. We had these families that had children with incredibly high bilirubins, 30 or 40. Mrs. C had had more than one. She had two or three kids like this and one had died. I think we had three families. So you were doing your work with the breastmilk, and [John] Lind was doing his work on inhibitors. We took some serum from the mothers and Lind wrote a paper for us that was in, I think, a chemical journal. In those days there were about 20 tests that we have to do. Now I think we'd probably need a hundred or something. But we did what we could and couldn't find a reason and we wrote them up as familial hyperbilirubinemia.

I still get occasional calls; I got one a couple of years ago. I have a thirty year follow-up on the survivors. One of them went to [United States Military Academy at] West Point. He had a 30 bilirubin. Another one had a pretty good life, too. He was killed in Vietnam, he was an Army person, too. Another one became a minister. They had very high bilirubin but never showed any signs of trouble.

DR. GARTNER: They did not have hyperbilirubinemia later in their adult life?

DR. LUCEY: No. They had bilirubins when they were about six or eight months of age that were normal. The people in the Army would have been tested, I think. But I do get occasional calls.

DR. GARTNER: So do you still see these?

DR. LUCEY: These patients? No.

DR. GARTNER: Do you still see patients with what you call (inaudible)?

DR. LUCEY: No. Probably the last phone call was a couple of years ago. The first thing we always suggest is that it is Crigler-Najjar syndrome or something. And then you never hear from them again.

DR. GARTNER: That's an interesting syndrome; we used to test for it. I never was quite sure what the whole story was.

DR. LUCEY: Now we know there are so many different causes. They could have hemorrhages. The fact that they're in the same family, I think, was significant.

DR. GARTNER: Inherited variations in the conjugating enzyme. I just wanted to hear about this part of it.

We talked a lot about neonatology and we talked about your contributions. Before we get into the more general topic of pediatrics, tell us a little bit about some of the honors that you have received, awards, honors, things of that sort. We haven't talked about any of that.

DR. LUCEY: The first prize I ever got was when I was about eight years old and I won a milk drinking contest at the Elks Lodge. [Laughs] That was the beginning of my career.

The Markle scholarship [Markle Scholars-in-Medicine] was important. The Markle scholarship was perfect for me, because in those days $30,000 a year was a good deal. You got it for six years and each medical school used to put one person up for it. We went to this three-day meeting and they interviewed you morning, noon and night; with alcohol, without alcohol. The first one I went to, Jim had nominated me. It was up in Canada.
END OF TAPE

DR. LUCEY: The Markle scholarship is very prestigious and lasted six years. Part of the Markle mystique was that you were supposed to drink and then they'd interview when you're a little woozy and you're supposed to entertain them and this kind of thing. It was pretty tough. It was patterned

after an OSS [Office of Strategic Services] kind of an interview; the way they picked out OSS people during the war. The reason I remember Ike [Isaac M.] Taylor is that Ike and I had felt that we hadn't done very well, and he was commiserating. He was also commiserating about his family and about how his children were behaving badly and whatever. He is James Taylor's father. James Taylor became a lot more famous than Ike Taylor ever did.

Ike got the scholarship and I didn't, so I was pretty crushed. It was one of these things where you could get nominated again if the medical school wanted to nominate you. There weren't that many people that were as academically ambitious as I was here, so I went after it again in two years. That time I made it. Looking back on why I screwed up the first year, I remember they had this scene where they would say to you, "Now would like to stand up and entertain us?" And I had a really negative reaction to that; really negative. "No, I don't do anything that's very entertaining." Another guy got up and danced, another guy played the piano. The guy that danced and the piano player, they got it. Well, luckily, the next time they dropped that; so I didn't have to go over that hurdle. There was nothing I could think of that was very amusing to do for them. [Laughs]

DR. GARTNER: I didn't realize that.

DR. LUCEY: Oh yes. If you look at who got money from them, they all turned out to be deans. There was a marker for people who were personable and could talk and be deans, that kind of thing.

DR. GARTNER: What other honors did you receive?

DR. LUCEY: Probably the next one was the Humboldt scholarship that the Huchs got for me. That allowed you to go to Europe once or twice and work in Europe. I never would have been able to go there and study transcutaneous monitoring with them without that.

Then a biggy in terms of money that I should credit is the McDonald award [Ronald McDonald House Charities Award of Excellence], because the McDonald award gives you $100,000.00 to use as you choose. That first randomized trial we did in Vermont-Oxford was done with the McDonald money.

DR. GARTNER: Is this McDonald of hamburger fame?

DR. LUCEY: **Yes. Through that I met the woman who owns 22 McDonald stands in the state of Vermont. Later on, when it was time for me to retire and people said, "Oh, you know, you shouldn't retire," and this kind of thing, she gave an endowed chair. I have a two million dollar endowed chair that she donated, and that's the reason I didn't have to leave the University at 65. Although, laws require that you didn't have to retire. I don't really intend to retire until I can't count. I love what I do. I've got the best job in whole damn world, paid to read articles every day and what have you. It's wonderful. Between that and the network and the Crigler-Najjar thing that I'm doing now, I like my work very much.**

The other ones after that sort of blur. I'd have to look at a list.

DR. GARTNER: What about the [Virginia] Apgar [Award]?

DR. LUCEY: **The Apgar, yes. That was emotionally good because that's given by your peers. When I was a sub-intern, I'd met Ginny Apgar. Of course, I met her later on, but I always remember that meeting. She gave me a big hug. Here I am a student from NYU at Columbia and I mentioned that floor that they were sending really sick kids to, that used to be just for T & A. There was a kid that was sent in that had a pneumothorax; so I was drawing pictures about the pneumothorax everyday. I don't know what we were doing for him. My handwriting used to be legible, which is one thing. It stayed legible for a long period of time. She was so impressed with these pictures that she gave me a hug. Nobody had ever hugged me before as an attending. It was great.**

The other big idol I had was John Caffey. Caffey was just marvelous. Handwriting was very important to him because he read x-rays at the same time every day and I would run in and watch him read the x-rays. The guy was a real scholar and he hated people who wouldn't write notes. He would just take an x-ray and send it back, "No data. No x-ray."

It was a world of difference from Bellevue x-rays, where you practically took them yourself and ran upstairs with them, and nobody could figure out what they were. Having the world's best radiologist read the x-rays for you and talk on and on was an amazing experience. Over the years I realized that he had wanted me to go into pediatric radiology, but I didn't. But he kept recommending me for various positions. People must have asked him, so I'm sure a lot of the chances I had to be chairman at different places were because of Caffey.

DR. GARTNER: Well, let's turn now to the journal and, in conjunction with that, the broader field of pediatrics. First, start with a little background. How did you get involved with the journal?

DR. LUCEY: Okay. Well, Jim McKay was always interested in the [American] Academy [of Pediatrics]. He was an Academy person from the beginning. Jim was a wonderful person who didn't mind committees. He thought that part of the duty of a chairman was to help people belong and contribute to committee meetings. So it was perfect. If you had him on a committee and something happened; you could rely on him to do something. And he must have been on an Academy committee and there were appointments for the Editorial Board coming up. So he appointed me to the Editorial Board.

Before this, the Academy was under threat. Some California people wanted to split and start a new Academy [Federation of Pediatric Societies]. Jim, as a committee member, was sent out to negotiate with them because he was always a practitioner. We did a consultation practice for 17 years. I didn't do neonatology for the first 17 years, you know. I took his patients when he was away and consulted when he wasn't here. So anyway, he sounded like a practitioner and he was liked. They sent him out to negotiate and instead of the Academy splitting in two, the Academy people out in California said, "Well, look, if you have that kind of guy, that's what we want. We want somebody who knows something about practice." There was a lot of hostility in those eras. I'd have to look at my CV to find the year, but mid-1960s probably. The Academy almost split in half, and at that time Jim was riding high. He wasn't the president yet, but he recommended me for the Editorial Board. And I was chairman of the Fetus and Newborn Committee [American Academy of Pediatrics Committee on Fetus and Newborn] from 1966 to 1971.

For six years, beginning in 1966, I was on the Editorial Board. In those days the Editorial Board was very powerful. After each meeting you voted on whether the editor was going to be reappointed. Jim must have been the president at this time. I had recommended Clem Smith to be the editor. And Clem Smith was the editor. I think he took it over when he was about 65 or 66. I said, "He'd be perfect for the job," so they hired him. Clem was a very formal kind of person. If he were here, I think he'd say he considered me a friend. I always considered him sort of a father figure, but he was a very distant kind of father figure for everybody who worked for him. So he was

very pleased with being editor; it was perfect timing for him. He loved editing things and he used to do a lot of writing. He was a good writer, a good speaker.

So I'm on the Editorial Board and there's a movement after about the fourth or fifth year that they want to get rid of Clem. I had been appointed chief of the Editorial Board. My job was to communicate with Clem. Clem had sort of intimidated the people who ran the Academy. [Laughs] They were a little bit afraid of him. He wanted very high standards and there were a lot of rat liver/sheep lung articles in the journal. There was a group of people on the committee, who shall remain nameless, who wanted the Clem's job. I was not one of them. There would be a vote and it would be kind of close. There were very anxious academic people there who wanted to get Clem out.

Anyway, I was a carrier of the news and I would go the next meeting of the executive committee of the Academy and tell them, "This is what happened in the journal last year." In those days we didn't know anything about the finances. Clem didn't know anything about the finances at all. He didn't care. And the Academy was keeping two sets of books about the journal. There was one for the IRS [Internal Revenue Service]. It wasn't a secret; they didn't tell me in the dark and tell me not to tell. One was for the IRS and one was for the Board report.

DR. GARTNER: How did they differ?

DR. LUCEY: You would have to be an accountant to know how they differ. Obviously, one set was designed to pay less taxes than the other set. How they did this I have no idea.

DR. GARTNER: There are taxes that the journal pays?

DR. LUCEY: Yes, because the journal makes money.

DR. GARTNER: It's not a not-for-profit?

DR. LUCEY: Well, it is a not-for-profit. But anyway, I have no idea; I don't want to bother with it.

DR. GARTNER: Okay.

DR. LUCEY: George Nowman and Bob [Robert] Frazier were the ones who hired this guy and he kept two sets of books. So I go down there to say, "Dr. Smith has been elected again as chairman." And they say to me, "Why is that happening? We don't want Dr. Smith; we want a change. There are too many rat liver/sheep lung articles and the journal is losing money." That was it. I said, "I don't know anything about that." They said, "We're losing money." And I said, "I don't think so." Then I see Bob Frazier out of the corner of my eye, and that's where Bob said, "Well, there are two sets of books, for tax purposes."

I'm hit for the first time with this idea that there are two sets of books. Bob Frazier comes up and says, "Oh yes, there are two sets of books. There is some advantage to having the journal lose money, but it doesn't really lose money." A man named [John C.] MacQueen was in charge and MacQueen was a real tough practitioner. He said, "Why are we allowing you people to lose so much money, paying for your fame and fortune by writing articles. The journal is losing all this money." So that was the beginning of a bit of a schism. So I'm supposed to report back to Clem on the meeting, filtering out the really hurtful stuff because I'm his friend. So I go back and I say to Clem, "Well, the journal is losing money." It doesn't bother Clem at all. He doesn't care whether it's losing money or not; it is a thing of no importance.

DR. GARTNER: Right.

DR. LUCEY: Clem's first reaction was, "They should stop having those cocktail parties at the top of buildings and stop doing this and stop doing that." [Laughs] So I'm caught in the middle.

Then, they hire a man named Wally [Walter] Suberg. Frazier brings this man in to be our new publisher. Well, you've seen Wally Suberg people in movies and television. Loud suits, loud voice, polished hair, diamond rings, the whole thing. He is the most aggressive, obnoxious salesman you can possibly imagine. And he's full of ideas. Suberg Publishing. "I can turn this whole thing around. We're going to make a fortune. We're going to make money with this journal." I'm still peripheral to it. So then they hire Wally Suberg.

I have to go down to Boston to introduce the Wally Suberg to Clem Smith. Nobody at the Academy really wanted to do this. It didn't seem too bad to me, so I bring him down and I said, "This is the new publisher." Everything is very formal. During the next few months, it was like two trains hitting

each other head on. Whatever ideas Wally had, Clem didn't want anything to do with him. Whatever ideas Wally had were usually bad. Clem finally said, "I won't be in the same room with that guy. I can't stand him." So that gave them an opening. Clem resigned, but if Clem hadn't resigned it would been bad news.

Then there was the hunt for a replacement. At this point I had six years on the thing and I thought, "Well, maybe it is time for a career change again." So everybody put in their name if they wanted to be considered and I said, "Okay, I'm going to run." Bob [Robert J.] Haggerty and Ralph [J.] Wedgwood were both candidates. I forget the other people.

So they first offered it to Ralph Wedgwood, and Wedgwood knew that I was interested in it. He called me up and said, "I'm sorry you didn't get the position, but I'd like you to help me anyway later on when they redo the journal." He said, "I'm going to go at them real strong. Do you realize the paper they had to use to print the journal is going to be ash in about 10 or 15 years?" "No, I didn't realize that." I don't know much about publishing. Ralph was really interested in a lot of the minor details and he proceeded to hit them. After they'd offered him the job, he never really accepted it. He just kept saying, "If you do this, if you do that, if you do this." He finally layered on so many things, and then his son fell off a mountain and died. He called up and said he was pulling out.

Then they offered it to Bob Haggerty and Bob was busy with other things. Then they came to me. I was out at the camp, and I thought, "Well, you know, we'll see." I thought it was a pretty good idea. For a few months I went down to Boston. To hand over the journal takes about six months. It's like steering a ship. You decide you're going steer it and then it's going to turn several miles down the road. I learned how Clem ran it and I brought my secretaries down, and I moved the office up here.

I think Mary Ellen [Avery] never really understood that I had nothing to do with it. I'd been trying to save him for all these years. I think she got very angry with me. I think from a distance, now, she is better friends with me. But I believe she thought I took the job away or I was part of the group that forced him out. We have never had a heart-to-heart talk about it, but I think that's the way she felt. She was very fond of Clem. This will let it out, but they almost got married. Yes. There is a hidden jewel. If you promise not to put this out for ten years, or something.

DR. GARTNER: We can put restrictions on it.

DR. LUCEY: Well, his daughters all knew it and Nick Nelson knew it. Did you interview Nick at all?

DR. GARTNER: Oh, yes. He is on the list.

DR. LUCEY: Nick knew it, but it may be one of those things you just don't remember.

DR. GARTNER: I haven't read Nick's yet. Maybe he talks about it.

DR. LUCEY: I doubt it. I don't know.

DR. GARTNER: Maybe not. He might.

DR. LUCEY: So I started. Right away, the first problem was interspersed advertising. The Board was heavily against interspersed advertising. They put it up to a vote and they polled the Academy. Of course, the members didn't care about advertising or not. We could have gotten out of any advertising. The poll results were divided up so we knew what the academicians voted and we knew what the practitioners voted. So here you have the academicians saying, "We must have no advertising." The second question was, "Will you pay $40.00 for your journal?" The answer is no. Then we have the practitioners, who technically own the journal saying, "We don't care; and we'll pay money anyway." I presented it to the Editorial Board. I said, "I can't get excited about this. If you'd said you were going to pay if we stopped the advertising it would be different. So we'll do limited advertising." That ceased to be a question after awhile. We stopped the business of having a vote every single year because Academy recognized that that would go up and down. That was probably thirty years ago, about 1974.

DR. GARTNER: So tell me what your role is now as editor. What do you do? You read the articles, but…

DR. LUCEY: When I started out, we had 600 articles a year submitted to *Pediatrics*. If you look back on the research subjects, neonatology was still pretty high up there. Consistently, over the last thirty years, if you look at who writes abstracts and who has papers, neonatology is right up there. There may be more coming out of the 800 cardiologists who

are printing someplace else, but the Academy's journal has always had a strong neonatal bent. So it started at 600. The whole idea was that somehow we had to increase the circulation. The circulation in those days was something like 20,000. Now it's 66,000 and now we get 1,700 articles a year.

We have three secretaries. When an article comes in, I look at it and we classify it into one of 25 specialties. I then have lists of people in the specialties. We pick out the [Editorial] Board on the basis of what they're interested in. We have about 20 people on the Board. And we send it off for review to two, and likely three reviewers. I always read the abstracts in the beginning to send it off. When the reviews come back, I'll look at the reviews and the comments that they have and then I make the call. It is amazing how many times that you send an article to somebody and he rates it the highest and somebody else rates it the very lowest. In that situation, I'm usually third reviewer. But I rarely go against it. If you've got two people saying it's a great article, I never go against them.

DR. GARTNER: Do you read all the articles?

DR. LUCEY: No. I read the newborn articles, but, when you get up to 1,700 it is just too much. Seven years ago we started having a sub-editor. Ralph [D.] Feigin gets 400 and some odd articles a year. So we have 1,300 in our office and 400 in his office.

The dance of that manuscript is incredible. They send it to us, we send them letters back. It goes out to three reviewers; they come back. We send them back to the authors; they revise it and it comes back here. That's a very complicated dance of a manuscript and you have got to have a bit of a memory and you have got to have a good set of ladies that are helping you because you have to find where the thing is. I'll always remember the subject, but I won't remember the authors' names on any of them. I'm very proud that we've never lost a manuscript in, what is it, almost thirty years.

DR. GARTNER: My goodness.

DR. LUCEY: Never lost a manuscript. We have had reviewers that have lost manuscripts. Their car burned up with the thing in the trunk. We had somebody who died while reading a manuscript.

DR. GARTNER: It was that bad?

DR. LUCEY: The best one was somebody who rejected his own manuscript.

DR. GARTNER: [Laughs]

DR. LUCEY: How could that happen? When I got it, I couldn't believe it. It was a very boring article and I'm reading it. It comes back and it's been accepted by one reviewer. Then there are pages of rejection articles. You admire people who spend that much time and almost always read everything. I'm so impressed that they spend so much time and you learn something. Anyway, there was a minute dissection of everything in this boring article. I look at the reviewer and I think it's his brother or something.

DR. GARTNER: [Laughs] He knew that he was reviewing his own article.

DR. LUCEY: He knew he was reviewing it. He didn't say, "This is my article." Once in a while we screw up, where A gets B or something like this. We have sent manuscripts for review back to the author of the article, in which case he usually writes, "Best article I've ever seen," and some joke on it and sends it back to us. This one was unique.

It turned out that he was just a disgruntled PhD who had been fired. They were afraid to publish this article without putting his name on it. He wasn't the lead author on it. They had written this article and put his name on it even though he'd been fired, because they were afraid he would sue them.

DR. GARTNER: So you did not publish that?

DR. LUCEY: No. The thing you're most susceptible to is fraud, total fraud where somebody dreams up a whole article. We've had a couple of those.

DR. GARTNER: That actually got published?

DR. LUCEY: Well, yes. One of them got published and one got stopped before publication. One was the famous Steinschneider article [Steinschneider A. Prolonged apnea and the sudden infant death syndrome: Clinical and laboratory observations. *Pediatrics*. 1972;50:646-654.]. That one was discovered to be a fraud twenty years later. I'm very proud of that because we published the retraction and said it was a mistake. The *Herald*

Tribune **picked it up, and said, "Editor admits mistake after twenty years." But when you think about the damage that article caused, it is unbelievable.**

DR. GARTNER: And the cost.

DR. LUCEY: But, it could happen again tomorrow.

DR. GARTNER: You couldn't tell it was fictitious.

DR. LUCEY: No, he fabricated all the stuff. I mean it was a complete fiction. It took getting dragged into court where they interviewed the nurses. He ended up in court in New York and they interviewed every single one of the nurses, went over the nurses' notes, and it was all fiction. But what an industry it created. It still isn't dead; they are still selling monitors to prevent SIDS [sudden infant death syndrome].

DR. GARTNER: The book [Firstman R, Talan J. *Death of Innocents: A True Story of Murder, Medicine, and High-Stake Science*. New York: Bantam, 1997.] about that is quite fascinating.

DR. LUCEY: Yes. Did you read the book?

DR. GARTNER: Yes, I did. The woman interviewed me.

DR. LUCEY: Oh really? They did a very good job on that.

DR. GARTNER: Yes, they did. They had good scholars on it. What has changed in the journal since you took it over?

DR. LUCEY: If you ever have a chance, look at the panorama. The kinds of articles come in waves and we're in a wave now that I'm afraid of. We're getting a lot of really boring articles, in which people count things: the number of people on Medicare, the number of this, the number of that. You can almost see somebody saying, "Well, I'd better keep track of how many of this I have and send an article into ***Pediatrics*** **about it." If you look at a single issue of the journal, there are only one or two articles in the journal that I'm really proud of. The rest I just figure we are doing a service. Somebody is interested in this thing.**

Several years ago, I said, "Look, you have got x-thousand pediatricians. You're not going to be able to sell this journal to general practitioners. If

you want to grow, you have to go overseas." That's been my theme for 12, 15 years. I started the foreign language editions of *Pediatrics*.

DR. GARTNER: The Spanish one?

DR. LUCEY: The Spanish one was the first one. Then I think the next one might have been the Italian edition and then we have Portuguese. We had an Arabic edition.

DR. GARTNER: Do you still have an Arabic edition?

DR. LUCEY: No.

DR. GARTNER: What happened?

DR. LUCEY: Well, the guy who was publishing it ran out of money and I think he had people from Iraq and Iran and everything on the board. It had a circulation of about 2000. He was a Palestinian and he was a homeless person at this place in Jordan that published it. Life went bad for him; something went wrong. We haven't published there in two years. There is no Arab language *Pediatrics*. We had them agree that they would have somebody from Israel on the board and they were willing to do that. The ones they didn't want were Egyptians. They didn't want any Egyptians.

DR. GARTNER: Really?

DR. LUCEY: Well, Egyptians are not well thought of over there. The view seems to be that if you let them in they'll steal the store or something, or take over.

I'm very proud of the foreign language format because we picked out a person and we said, "We want you to arrange to just have the journal published here in your language." First of all we're aware of two things. We're aware that if you talk to Italian doctors who speak English, they say, "Every doctor speaks English. We don't need that journal." If you then go to a country and you talk around, you realize nobody reads at ease in English. They'd rather read in Italian. We said, "Wouldn't it be better if you get the 15,000 Italian pediatricians reading in their own language and being able to submit articles, commentaries on anything in *Pediatrics*?" So in Italy, you send over an article, let's say about nurse practitioners. Several years ago, the Italians would write saying, "We don't use nurse practitioners;

never be any place for them." So it gives the Italian professors a chance to react to what's coming from America. "We don't do that here. We do it better here." So that's very satisfying and it doesn't annoy the people who have their own little journals.

DR. GARTNER: So what's published in other countries is not an exact replica of what's published in English?

DR. LUCEY: It is not. It goes to an advisory board and they look at it and they say, "We don't want any more articles on Medicare in the United States." Snip, snip. So it comes out smaller. All the infectious disease, all the neonatal articles, they go through. But things related to political issues don't.

A lot of the Academy statements are acceptable and they keep them in there. They love them! You don't realize how unique the Academy is. The Academy has committees and spends a great deal of money on studying things. Then the committees make statements. No other pediatric group can do that. They may have an impromptu group that studies one thing for a week or something, but that is it. They don't invest any money on the bureaucracy that the Academy has built up.

DR. GARTNER: How many different foreign languages are there?

DR. LUCEY: There are five. There is an Indian one, and an illegal one in Korea that's in Korean.

DR. GARTNER: Is still there?

DR. LUCEY: Yes, I think its still there.

DR. GARTNER: That's in English; that's a photocopy, not an edition.

DR. LUCEY: No, they translate into the Korean. Much better paper than ours, much better paper.

DR. GARTNER: And they do that without permission.

DR. LUCEY: Yes. The same thing that happened to us in China.

DR. GARTNER: When I went to Korea, I went to the library in the department of pediatrics at the medical school and I looked on the shelf and there

was *Pediatrics*. The color and the cover were a little different and it was a little bit shorter. I took one out and it was in English. It looked exactly the same. This was in about 1986. It turned out that it was a photocopy that one of the milk companies was doing illegally and, for whatever reason, it came out about a half inch or inch shorter. So it was a little bit smaller, but it was an exact replica without the ads.

DR. LUCEY: Same thing happened in China. They don't need any permission. But the Portuguese and the Spanish editions are going very well. And the Italian one is a big success.

DR. GARTNER: There's no Japanese?

DR. LUCEY: The Japanese get the special deal. They get 2000 or 3000 copies airmailed over to them, so they get it. They all read English, supposedly. They like it in English.

DR. GARTNER: What do you think is the impact of *Pediatrics*, the journal, on the field of pediatrics?

DR. LUCEY: Well, there is the thing called the impact factor, which is very complicated. We have the highest impact factor in pediatrics. That's like being the biggest midget, because some of the big journals have much greater impact factors. *New England* [*Journal of Medicine*] has 12 or something. We have 3 or 4 or 5. But we have the biggest impact factor of all the 50 pediatric journals in the world. And we publish the largest number of articles and we have the biggest circulation. It is very hard, but there's something in there for everybody. In any one month there may not be something in there for you, but overall there will be.

We have big problems coming up in terms of our 50 specialty groups. They polled those 50 specialty groups and they don't read *Pediatrics*. They look for genetics or something like that. We've done surveys and the average pediatrician doesn't read articles on genetics and cardiology. Neonatology is right on the brink. Most practicing pediatricians do not take care of kids in the nursery anymore. Surgery cut out a long time ago. So, it's very hard to tell whether you'll be able to keep a general journal line like this.

I started an electronic edition, with the idea that we'd be able to publish shorter articles more rapidly. We got an enormous amount of information

on hits and things on that. It would appear that there are a lot people in other countries reading the electronic journal.

DR. GARTNER: Who are not subscribers?

DR. LUCEY: Yes, who are not subscribers. But *Pediatrics* is available on the Internet to every poor country in the world. We don't know how many people are really using it. We made that decision last year.

DR. GARTNER: So basically, it's available to everybody.

DR. LUCEY: If you're in a poor country. If you're in Germany, you can't get it free.

DR. GARTNER: How does that work?

DR. LUCEY: I don't know how it's done. You can screen out a whole country.

DR. GARTNER: Oh really? Isn't that interesting?

DR. LUCEY: So, the God forsaken places like Burkina Faso or Bali or something that have no hospital, they can get it. It certainly doesn't cut into our subscriber list or anything. I'd been after the Academy for maybe a dozen years to look for international markets. We've peaked out nationally, globally is where we have got to go. The world is going to be global. It's kind of fallen on deaf ears. Everybody agrees it's a wonderful idea and then nothing happens because there's nobody at the Academy who tries to do something with another country. All those overseas things were started by friends of mine. They're all run by neonatologists in the beginning. We took the attitude that it's better to get a thing going than to not get into the country at all.

I have to tell you the Chinese story.

DR. GARTNER: Okay.

DR. LUCEY: Always lusting for China, everybody would like to get into China with a publication. Their rules are supposed to be changing and they're going to do it. My idea was we'd have somebody in Hong Kong, and we'd have somebody in Shanghai, and we would get money to start a

pediatric journal in China. I went to both those places and was very impressed with Shanghai. We could have the journal and it was to be translated into Chinese, which turns out to be a bigger threat to the Chinese than having it in English. The Chinese government doesn't care as much about a publication in English because they know most people won't read it. But if they can get it into Chinese that's a bigger deal. We were aiming at the whole country, to get it translated for very little area, with a very enthusiastic Shanghai/Hong Kong combination.

[Phone rings]

DR. LUCEY: I'm in China. I got $30,000.00 from a drug company to get the whole thing started. Everybody is very interested in that kind of money. The Chinese people are going to do translating for us; it's perfect. We're sitting around the table at the end and most of the talk was in English. Suddenly some man down at this end of the table says, "What about the number?" Suddenly the conversation all changed to Chinese, and my translator is looking at me. It's the publication number. This man up here says, "Oh, no problem," and the man down there says, "I think it may be a problem." My translator says, "It will be a problem." I said, "Why? Why haven't they told me about this before?" He said, "You never asked." I said, "Well, how would I know?" So I leave the $30,000.00 there. It's not my money, but the months go by and nothing happens. Finally a very nice person writes me back and says, "Thank you so much and everything, but we're not going to be able to get a number. I paid the money to the wrong person."

DR. GARTNER: [Laughs] Who is the wrong person?

DR. LUCEY: The government. He must have tried to bribe somebody to get a number and they couldn't get him the number and they got the money anyway.

DR. GARTNER: The number of…?

DR. LUCEY: The publication number. You have to have a permissional license. If we weren't going for the Chinese version we might have got a number.

DR. GARTNER: Why was this a problem?

DR. LUCEY: I could never figure out the Chinese. They were just against it because it is American. Things over there can vary from plans shot down, no business at all. Plans that have been big business, big friends. It's hard to predict.

DR. GARTNER: I thought maybe they were afraid you would introduce medical demands on their system that they don't want to meet.

DR. LUCEY: If I saw me coming, I'd realize this guy is nothing but trouble because they're going to want to improve medical care and we don't have the money. If you start saving lots of preemies in China, you wouldn't be doing the country a good turn.

DR. GARTNER: Right.

DR. LUCEY: It's funny, because there are people you meet that we can talk to. For example, this professor there called Bo Sun, who is doing a big study now on brain hypothermia. He wants to join our network. I went through a kick of trying to get a lot of countries to join us. It's amazing; it costs $2,500 a year to belong to the network and these people either can't or don't want to pay that much.

We are in the process of hiring a person I really admire, who has been in the computer Internet business and everything. He knows the overseas market for medical products and services. He will probably take us to the next level; we're aiming for the European market.

DR. GARTNER: Where do you see the journal evolving? You talked about the need for change in the way in which people read or don't read the journal. How do you see that changing? Or are you going to change it?

DR. LUCEY: I don't know if I'm going to last long enough to change it. I had proposed a couple of times before, and I think people didn't take me seriously, that we should put a limit of 2000 words on a manuscript. After every manuscript there should be critical comments by the reviewers. If the manuscript is longer than 2000 words, it should be put on an electronic storage place where you can download it.

Let's stop kidding ourselves. If you're a neonatologist reading a neonatal article, you look at the original table and everything. The 9000 other people who are not neonatologists will not. So, you give everybody access to the

material, but you make it more readable. We could publish twice as many articles that way, with a 2000 word limit. I have put that forward a couple of times and people just weren't ready for it. I've also noticed that if you're try to sell a green apple it sometimes doesn't go too well. Another saying that I love is, "The early Christians always got the best lions." So I'm going to try it again.

There is a movement now in the Academy to make the journal more newsworthy and that is going to stump me. You can't complete with *Contemporary Pediatrics* unless you have a lot of editors and writers. If you want to run an article on fetal photographs, here's a nice example. Nobody's going to write an article if there are whole places all over the country now where you can go in and have an ultrasound of your baby. A 4-D ultrasound, better than the hospital here could do, and you can have all kinds of pictures of that if you want. Is that good or bad? Well, to research that article and write it up and everything, you've got a newspaper.

The biggest thing is that the Academy depends on the journal for a lot of money, several million dollars a year. They spend that money, not on the journal in particular, but they spend it on other things. Then they say, "Well, the journal should make more money." We don't need to make more money to run the journal. We need to make more money only to run the Academy.

DR. GARTNER: That's why the journal was started in the first place.

DR. LUCEY: Yes. That's right; that's true. Advertisers are not interested in journals anymore. They are on the television. They are in *Atlantic Monthly* magazine. They are in the *Smithsonian Magazine*. They're all over the place. Person-to-person advertising is the way they're going to go. The last thing in the world they want is an ad in a journal that has a lot of articles in it. And I'm out there hoping we'll get more articles. My mark is seeing 1,700 articles. To me that's the growth curve I look at. I see 600 at the start, then I see 1,700 up here. I see 20,000 here, I see 66,000 up here. That's the curve I want to be on. But the advertisers are young people. They don't give a crap about the reputation of the journal. It has nothing to do with why they put ads in it. They want to pay for the number of eyes they get. They get more ads and more eyes if they just put an ad in a medical newspaper or medical throwaway journal or a toilet journal.

They're also very well aware that the Academy has a reputation for being very anti-business. We have got a lot of vocal people who don't want industrial support. If you say to those people, "Well, if you want a journal then you have got to pay $50.00 or $100.00," they also don't want to pay. That's the same old group and I'm little cynical about them.

DR. GARTNER: Right.

DR. LUCEY: The Academy keeps growing. They seem to have no thought about putting a cap on growth. Every year they grow, they expect to flog the journal harder and get more. That's not going to happen. So every year it's been kind of a joke…

TAPE ENDS

DR. LUCEY: Advertising today, in a general journal like that, we're lucky if we get enough money over the next few years. After 9/11 [September 11, 2001 terrorist attacks], advertising in all journals, not just medical journals but everything, went down anywhere from 25-50%. The first thing companies stop is advertising. They can do it because it is a quick budget adjustment. With the stock market the way it is going, it doesn't look promising to me that people are going to suddenly spend a lot more money on advertising next year. I think the journal has to respond.

We've had surveys done that the average medical student considers 300 words a long article. That's scary. There are psychologists who are going around talking, saying, "That's it. That's the attention span, the Nintendo attention span." They don't see any difference between journals in terms of whether it is an academy journal or a handout journal; if it is in print it is all the same to them.

Also, there is nobody sitting around giving them any kind of pecking order at all. I noticed this the other day; I was sitting at the table for basic scientists. Suddenly, you know, this thing came up about where have all the old greats gone. Nobody could tell you who the professor at Mass General Hospital was, or Peter Bent Brigham, or any of the prestigious chairs. Nobody. The students don't give a shit. They really don't anymore. It's really bizarre. So I think the journals will change and they'll be these short 2000 word articles, if that long and they'll be backed up by electronic storage.

DR. GARTNER: Well, it probably does make good sense. How much advertising loss has there been in past year in the journal?

DR. LUCEY: This for publication?

DR. GARTNER: You don't want to say?

DR. LUCEY: No, basically I think it's a million to two million dollars.

DR. GARTNER: Decrease?

DR. LUCEY: Decrease.

DR. GARTNER: Sizable.

DR. LUCEY: That's the minimal estimate. If it keeps on that way it is, it will be three or four million dollars.

DR. GARTNER: So it could actually throw the journal into the red?

DR. LUCEY: Well, see, that's where we need two books. The journal is in the black, black, black, black, black; and has been for years. But if you then assign all the expenses of the Academy onto it, you can make it look like it's losing.

DR. GARTNER: Sure.

DR. LUCEY: For example, *Journal of Pediatrics* can make money on three ads. I mean, they don't have to support the Academy.

DR. GARTNER: Right.

DR. LUCEY: So all the other journals, British journals have four or five ads in them. We have hundreds and that's because we are supporting basically a sizeable portion of the Academy budget. Next to the membership fee, then there's the journal. Then if you put all the publications together, they are the single biggest source of support for the Academy.

DR. GARTNER: Well, according to Joe [M.] Sanders [Jr.], the biggest single source of support for the Academy is the *Red Book*. The sale of the *Red Book*

alone is more than the dues. And every Academy member gets it free, so it's outside the Academy.

DR. LUCEY: I'd be surprised if that's the single most successful publication, but I don't know that if you stacked it up against the others…

DR. GARTNER: No, he says dollar-wise that is the biggest source of net income for the Academy, bigger than anything else. Which surprised me.

DR. LUCEY: I remain doubtful about that. It's certainly a big and very successful one. There's no question about that. I just wonder if it could really match the dues, which at one point were 40% of the Academy revenue. If you put all the publications together, it must've been in there.

DR. GARTNER: I mean, he said it specifically to me. We have an ongoing debate.

DR. LUCEY: It's pretty high up.

DR. GARTNER: He said it is number one. Bigger than the dues. He said it is the largest single income item.

DR. LUCEY: I'll check these figures.

DR. GARTNER: Ask him. I mean if he gives you a different answer I'd like to know that. But that's what I've been told.

What are your future plans with the journal? Are you going to stay on as editor?

DR. LUCEY: Yes. I love it, and as long as my memory is okay, it's a perfect job. It's one of these jobs that you don't necessarily lose it. I'm pretty fortunate in that I've had a lot of things go on, but I haven't had anything upstairs go on yet. I've got new knees, new hips, no prostate; but other things are going okay.

DR. GARTNER: Good. From your perspective as editor over the 25 years, where do you see the major changes in pediatrics, not neonatology, but pediatrics in general? What have really been the big steps in the field?

DR. LUCEY: Well, the focus on money, and the fact that we've fallen off our pedestals. And the rising costs that are making everybody belong to

HMOs [health maintenance organizations]. When I first took over as editor, I can't remember ever having anybody send me back an article saying, "I can't review this because my organization doesn't allow me to do free work." That happens now. [Laughs]

DR. GARTNER: That is a shock.

DR. LUCEY: Prestige is out the window and they're buying these guys, I had a letter from somebody that wanted to know if this man were appointed to the editorial board, precisely how many hours of work it would involve so he could deduct this from something or other. Those were unknown, those things never happened before.

The idea that all the medical schools are highly dependent on practice. They are more dependent on practice than they ever were. Everybody's salary comes from practice. I always felt deprived up here because three-quarters of my salary <u>always</u> came from practice, even 20 or 50 years ago. But now, it's routine. For instance, take Johns Hopkins [Medical Institutions]. I got a call from a guy at Johns Hopkins who is head of the clinical research unit. He wants to use our network hospitals for a new staph vaccine. So I said, "Tell me a little bit about your organization." He said, "Well, we have 806 employees. We have 100 Johns Hopkins physicians, and we pay from 10-80% of their salaries." Can you imagine 800 employees? [Laughs]

DR. GARTNER: This is for what?

DR. LUCEY: Johns Hopkins clinical research unit.

DR. GARTNER: Clinical research unit itself is 800 people?

DR. LUCEY: Yes, in infectious disease.

DR. GARTNER: I can't even conceive of what they all do.

DR. LUCEY: They've created what you call a clinical research organization and they get contracts from the drug companies. But there hasn't been any activity. Years ago, I thought there was going to be a bunch of new drugs coming out for babies, and there aren't. Staph vaccine looks hot and there is going to be some big research. At least three are being tested and we're hoping to get one of these, but what we'd like to do is test both of them so they could be evaluated. But nobody is going to touch that, I can tell.

The 806 staggered me, but then the 100 doctors getting 10-80% of their salaries! I don't know how many doctors are at Hopkins, but we have 400 here, so it's probably a couple a thousand. That is still a lot of doctors working for them and 800 employees. They have something like 50 statisticians and 29 trialists, and everything else.

When we started, there were no groups like this. There still aren't any groups like this that can handle pediatrics. I saw a big opening for us there, but I never wanted to move into that "businessy" an approach, because when you become a real CRO [clinical research organization] you have to hire a lot of people and you have got to have a whole lot of money. You have to chase a lot of drugs and you have to test nonsense drugs, and I don't think I would be up to that one.

DR. GARTNER: If you look, with your perspective as well as with your crystal ball, 25 years from now, what do you see pediatrics as a field, as a specialty, looking like? What do you think we'll be doing? What do you think the research will be?

DR. LUCEY: Well, I think the practitioners will be under great pressure to be replaced by nurse practitioners. I think there'll be a lot of home devices that will replace them. The value of pediatric care will not go up, I know that. So, if I was a generalist I'd be a little worried about being in general pediatrics. Neonatology, I don't know. I think if the society decides there are going to be less births, then they'll probably put more emphasis on improving the quality of births. I see infection rates as an area of focus, which is something we're interested in in places like nurseries. I see you getting sued if you have a 20% infection rate. I think the normal acceptable infection rate might be down to five or ten percent in a few years.

I see people comparison shopping for health care. It is already happening here. For example, someone may be looking at going to the Mary Fletcher [Hospital] and sees that the doctor does 58 hip transplants or something like that. You go to Boston and the guy does 300. And then you ask for results and one place has fractures and infections at 6 or 8%, the other place has 2%. Of course, we've got to assume they are honest. People will be shopping around and centers like ours, very good rural centers, will be under great pressure from real megacenters, because people will be willing to travel a distance to go and have their hip replaced at some place that does a lot of them.

DR. GARTNER: You think that will happen in pediatrics as well?

DR. LUCEY: I'm not too sure it can happen much in pediatrics. Congenital heart disease, obviously, specialty care. But certainly it will happen in the older specialties where you're going to get something repaired and replaced, which is going to be what the big thing is. There will be these focused factories. When I had my hip surgery done at New England Baptist [Hospital], 29 people saw me in the first two days. Everybody handed me a sheet of paper telling me to do something. I was in and out of that place in seven days with both knees, and I saw a doctor for maybe ten minutes. Everybody else talked to me, you know, the pain team or this team or that team. We tolerated it. I mean I would have liked to talk to the doctor; he seemed like a nice guy.

DR. GARTNER: He didn't have time for it.

DR. LUCEY: Yes, well he's doing 300 operations a year and he's supposed to be great. I would rather see him in the operating room. [Laughs] The pain team were the most interesting and I think you'll see more of those. They come around and talk to you about what you're really concerned about. And they can really fine tune things. I mean, the knees and hips, I have got say, were certainly not painless, but certainly the pain was not a big part of anything. They fix it up for you like that. So that will be happening in children.

My current thing is brain hypothermia for newborns. I think that's going to be big. They do selective cooling of the brain. The big trials are coming in probably in next year. I helped to organize the one, but there is trial involving New Zealand and England and the United States. It is going to have 800 patients in it or something like that. I think it will do something good.

DR. GARTNER: What technique are they using to cool?

DR. LUCEY: You put a cap around the baby's head

DR. GARTNER: So it's external?

DR. LUCEY: Yes.

DR. GARTNER: Not vascular cooling.

DR. LUCEY: No, this is why it's so simple. All you need is couple of degrees up here. You don't need all the cardiac, renal problems. Cooling caps.

As I said, I think staph will come along. We'll get rid of staph in the next bunch of vaccines.

And then there is international competition on outcomes. For instance, on those 400 to 500 gram babies, their survival rate in Japan is like 45%. Mashida can surround himself with great-looking Japanese kids who were supposedly the 400 to 500 gram babies. Now, Japan has a different system. They have lots of small hospitals for obstetrical services and many fewer central children's hospitals with NICUs. So what happens, I believe, is that babies are born in the smaller hospital and the OB man makes a call. It would be like Jerry Lucey making the call and picking out those babies that are in good shape. [Laughs] He sends the baby that is in good shape two days later and he lets the other one die.

DR. GARTNER: I've heard that this is the practice in Japan, and even their statistical methods are a little bit different.

DR. LUCEY: We've been trying to do a, a study with them and work with them for ten years. We can't penetrate the mask. But at Hot Topics we'll take off the gloves and stop them from claiming that they're doing this unless they give us the total number of births.

DR. GARTNER: Do you think there is a lower limit, or do you think we've reached the lower limit of birthweight?

DR. LUCEY: You've got to realize, I've been around since 1200 was the lower limit. You can use 1200, 1000, 800, 600. I have seen all the debates. I think the limit is somewhere between 400 and 500 grams. As I said, even now I shiver thinking about it. The thought now is that those may not be any worse than the 600 or 800 or 900 gram babies; but that doesn't mean that the 600 or 800 or 900 are all that great. It means that there are 30% or so with pretty bad results in there.

My way of avoiding that dilemma is to just say, "We have got to do better research." I think it's basically that we don't know what to feed a brain

during that period of time. It's not being assaulted or anoxic or anything else. It just goes from this size to about this size in that period of time and you're feeding it weird mixtures of God knows what. Not balanced amino acids. So how are you going tell what to feed it? You'll see in the imaging literature, there isn't anything strange in the brain, not areas of scars and blackouts. It's just that things aren't normal, not developing normally. I say that is nutrition and I intend to invent a product called Growbrain. By the time it's proven not to work, I'll be in South America leading my other life in cryotherapy or I'll be hanging upside down in Arizona next to Ted Williams in cryotherapy and my family will be rich.

DR. GARTNER: [Laughs]

DR. LUCEY: We'll put a Harvard label on it, that kind of thing.

DR. GARTNER: What about artificial placenta? Do you there is a future for that?

DR. LUCEY: You know, Kermit Krantz, one of the first people that ever talked about an artificial placenta, was here for a long while. He was a real eccentric character. But, you know, I suppose so. Basically, the problem is that you want a brain that grows. We have no clue what it takes to grow a brain. That is so complicated, I don't see how we can do it. Maybe you can measure everything that a mother puts in, every amino acid and every hormone and everything else and then you could recreate it with a computer, and then you could do it. I suppose it is not without hope. But does society really want this; really are there too many of us anyway? Does society really want to kill itself economically by trying to do this? Or would they prefer to invent bombs and blow everybody up? [Laughs]

DR. GARTNER: People would say we've gone too far already, now.

DR. LUCEY: Yes. When I travelled internationally, I got a little depressed and not very enthusiastic about speaking in some very poor countries. These guys are sitting there and wanting to do what you're doing in the other country while somebody is starving because they don't have enough bread or vitamins. I think every neonatologist should go to some God-forsaken place and work for a few months and see how many people die of other things that are more important than saving the very smallest baby.

DR. GARTNER: Do you think the economics of neonatology is actually broadening it? In main hospitals, the hospital income from neonatal intensive care is a major contributor to the bottom line. Is that what is going on?

DR. LUCEY: No question. Pediatric departments are now heavily supported by neonatology. Also, there must be a total of 500 intensive care nurses in the United States. They're being brought on by obstetricians not wanting to send babies away. The hospitals don't want to lose mothers, so they have a NICU and somebody needs to work in it. I admired Tim Driscoll when he said, "You'll make money and it's high prestige." Now, a lot of people are saying, "You'll make money and I don't give a shit about the prestige. That's why I am going into it; it is a good way to make money." Look at our workforce. It is hard work, too, but the workforce in hospital is mostly women now and it is foreign. Of 1500 people coming to Hot Topics every year, about three-quarters of them have names of about this long. Mostly expatriates. We used to think they would go back to the home country and improve it, but once you see America, you don't want to go back. We live at the top of the heap.

DR. GARTNER: No, they certainly are not going to go back.

DR. LUCEY: Well, I tried a little. I'm discouraged about that. I feel that you should be paid a very good wage, but when I hear some of the wages that people are being paid--$500,000 to $1 million for running a nursery? No way. For very ordinary people, for very ordinary nurseries.

DR. GARTNER: I hadn't realized it had gotten quite that high. But that's because it's a big money maker in almost every hospital.

DR. LUCEY: One of the things I am proud of is that Vermont-Oxford has worked with the Rand Corporation. We have got a lot of studies that we've done with the Rand Corporation about the costs of neonatal care. They are very professional about it. In the course of some of this, we have learned what it costs to take care of babies, and what places charge. We are aware of hospitals which compared themselves financially to another hospital and realized they are charging two or three times as much. Let's take something like blood gases or x-rays. They were taking as many as 10 to 20 times as many x-rays or blood gases as in the other place. Let's assume that mortality rates are the same. God knows what the morbidity rates are. You have these huge differences, 10 times as many x-rays, and 10 times as many blood gases, and no difference in results. You go to an ordinary company

and say to them, "Look Jack, you're spending all this money and it is not doing any good," and they would stop. It is more complicated with a hospital, because how can a guy stop when he has been king, feeding the radiology department, and the pathology department, and this hospital wants the money? So you say, "I'm going to improve care by cutting off your money." [Laughs] We're trying.

DR. GARTNER: That's right, disincentives.

DR. LUCEY: A very big disincentive. One hospital we had left us for that. No matter what, they always wanted the numbers recalculated. We had a wonderful person who was very patient with them, recalculated them. No matter what they did, they were way off the chart as far as doing things and they left a long time ago.

DR. GARTNER: That's too bad.

DR. LUCEY: Not for them. They don't see it that way.

DR. GARTNER: When do you think of newborn medicine in neonatology beginning? Where do put the beginning of this field, historically?

DR. LUCEY: I'd start it somewhere after World War II, somewhere in the 1950s. I know, historically, you can go back to Chicago and those kind of places. I think after World War II, premie [premature infant] transport units and premie units came out. It started attracting people.

DR. GARTNER: Regionalization?

DR. LUCEY: Yes, regionalization.

DR. GARTNER: And the switch from the premie unit to the NICU? When do you think that happened? Maybe in the 1950s?

DR. LUCEY: Oh, yes. Premie units were still called premie units in the 1950s. It wasn't until somewhere in the 1960s or 1970s when Lou [Louis Gluck] started talking about building new nurseries with things hanging down from the ceiling and everything, and premie intensive care units came up.

DR. GARTNER: That's the first time Lou's name has come up in our discussion today.

DR. LUCEY: Oh, really?

DR. GARTNER: Certainly Lou's contribution to intensive care was an important one. I don't know whether you agree with this, but people have said that Lou was responsible not just for the creation of neonatal intensive care, but, in fact, for the development of the whole concept of intensive care for patients, including older children and adults. The unit at Yale was a major breakthrough in that.

DR. LUCEY: No. Sorry, I can't agree to that. Philadelphia was doing it first. Bob Usher was doing it. A lot of people were doing that thing. Lou always had the ability. Lou was a builder; he was like a beaver. It was like letting the beaver into your backyard. Pretty soon he has knocked down all the trees and he has built something new. That was Lou's thing.

DR. GARTNER: All right.

DR. LUCEY: I think his best contribution was the L/S [lecithin/sphingomyelin] ratio. I was on a number of committees reviewing this thing, that would send in these chemists to talk about the L/S ratio and they would turn the guy down. It was terrible, because he couldn't identify what was in it. What difference does it make? I mean, this is what it does for you clinically. "Oh, but we don't know what it is measuring." It was crazy. So he lost a number of grants because they in let in too many chemists to look at what he was measuring. I mean, we still don't know what insulin does for diabetes, but it works.

DR. GARTNER: What about the naming of newborn medicine as neonatology? Where did that come from? Who named it?

DR. LUCEY: Who was the man at Johns Hopkins, who wrote the book with Mary Ellen?

DR. GARTNER: [Alexander] Schaffer.

DR. LUCEY: Right. I think he was the one. He started calling it neonatology. But, Bob Usher started a movement which I wasn't ready for. First of all, he had trouble getting into the APS/SPR [American Pediatric

Society/Society for Pediatric Research] and I really helped him there. Secondly, he wanted to have a group cut off from the SPR become neonatologists. That I argued against. There was some sort of a debate at one time about it. I thought we should stay within the Society and not bug out. There have been some thoughts ever since then. One time at Hot Topics we had another debate, 'Should neonatology lead pediatrics?'

DR. GARTNER: I had another thought and seriously talked with an obstetrician about the idea of creating a field of perinatal medicine. A residency, that would be neonatology and obstetrics, and leave out the gynecology and leave out the rest of pediatrics.

DR. LUCEY: Did Bill [Silverman] talk about his year in California? Why he went to California the second time?

DR. GARTNER: Yes.

DR. LUCEY: He went out there to start that kind of thing. My version of what happened to him, it may be different from his version, is the obstetricians never came through with what they promised. He went out there and found himself cut off from what he wanted to do.

DR. GARTNER: Somebody also pointed out to me that obstetricians, when they got too old to deliver babies, because that is hard work, would not have the backup of becoming gynecologists. And that was a problem in this concept of having essentially intensivists.

I think I know the answer to this question. Was the development of neonatology as a distinct subspecialty a good idea? Do you think that was good for the field?

DR. LUCEY: Yes, I think so. Because it takes a dedicated group of people who work in it. We tried for years to develop a pyramid taking babies away from very good, practicing pediatrician. And we were always very worried, especially when we had entered the transport business, about taking them away. But point of fact, it got so damn complicated fairly quickly that most of the people who turned over these babies didn't want to take care of them. They knew it was over their head. But, they just wanted to be communicated with. I think we have a reasonable nursery and we call up people quite a bit. I am surprised by some of them coming back. A good doctor can still keep in touch with his parents, and make it look as if he is in charge of the whole thing anyway. Some of the best practitioners we have in

town, come in, everyday, to the nursery. The mother asks him most of the questions [laughs], and it looks like the whole place is working for him.

That is the key to success. If you stop the people from even coming, I mean we stopped admissions, this man still has the aura, "I am in-charge. I'll tell you what's happening."

DR. GARTNER: As long as he knows what's going on. That is wonderful. In most cities and states that is not the case because it is too big and too spread out. Certainly in Chicago that was not the case. We'd eventually send them back, but they didn't come in.

DR. LUCEY: Even here our obstetricians don't come by. There is only one out of about ten who will come by and see what's happening.

DR. GARTNER: We didn't talk about the role of pediatric surgery in neonatology. What do you see as their contribution and importance?

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DR. LUCEY: Well, one the things we know from the network, they are not totally accurate figures, but an awful lot of surgery in neonates is not done by pediatric surgeons still today. We wanted very much to have a surgical champion emerge to put together the fact that we have all these pediatric surgical cases. You have to figure out some way when they go out and come back, discharge them. It's always been a thorn for us. In some places they only go within the university and back, but in other places they go to all kinds of private hospitals and everything. And it's pretty obvious with certain procedures that some of them don't do anywhere near as well as other places. Pediatric surgeons are missing the boat by not having come to us. You could easily show at this point, believe me, that pediatric surgery in the hands pediatric surgeons is safer than pediatric surgery in the hands of general surgeons. That's been done for older kids, but it just hasn't been focused for premies.

DR. GARTNER: Do you think we don't have enough pediatric surgeons? Have they cut the training programs down?

DR. LUCEY: It is hard to answer that. You know, there are so many different ways people refer: on loyalty, they went to school with them, he's over there, he's at the Catholic hospital, the Jewish hospital, Episcopal. The referral lines are all tangled with so many factors that can mess them up.

DR. GARTNER: They have a unique system at [Albert] Einstein [College of Medicine] that I've never seen anywhere else. Neonatal intensive care patients were always the patient of the pediatrician. It was actually true even on the general pediatric service. The surgeons were consultants. They were not in a position of recognizing all the patients. I don't know whether other places have adopted that. I couldn't get it in Chicago.

DR. LUCEY: Well, it's funny because we've usually only had one pediatric surgeon. He's been so busy, and he's got to have some time off, so he has always let the referring doctor be the doctor in the nursery. Now, we've got two and I think they are trying to get more autonomy because they've got residents.

DR. GARTNER: I always thought the care would be better from an overall perspective if we didn't switch people. Switching didn't make a great deal of sense.

DR. LUCEY: Oh, yes. No question.

DR. GARTNER: The development of neonatal intensive care and modern neonatology really came out of the premie units. What's your recall of how that evolution occurred? I have my own experience in it, but you must have a similar experience of how that switch occurred from premie unit to sick newborns?

DR. LUCEY: It was probably very subtle, because you had premies and then there were other things you could do for them. And then they started getting more complicated so then they became intensive. I don't think that the quality of people caring for patients was any different in premie units. It was just that when that name was used, there weren't any therapies.

DR. GARTNER: By and large.

DR. LUCEY: Really. Things didn't start getting intensive until later. Probably the first intensive thing was exchange transfusions , simple as that. Probably the next thing was when respirators started showing up. Once respirators started showing up, that was the mark that we made a difference. People could have figured out the fluids and everything, but once respirators appeared on the scene you needed people to take care of respirator. In the early days respirators probably didn't benefit everybody that was put on them. There are learning curves.

Is Millie [Mildred T. Stahlman] on the list?

DR. GARTNER: Oh, yes. Millie has been done. We have Millie.

DR. LUCEY: Well, Millie and somebody like Nick [Nicholas M. Nelson] were very influential. When I was training with Clem in Boston there were no respirators. That would have been 1956 or so. Respirators had to come, people were fooling around with them in the early 1960s

DR. GARTNER: People have told me that the first respirator use on newborn or premie was at Columbia.

DR. LUCEY: Who?

DR. GARTNER: This is Mike Cohen, who is not a neonatologist, and I think Sinclair tried using a ventilator. I don't recall if they were successful or not, but they did have an adult respirator.

DR. LUCEY: In Boston there was a Mister somebody or other [Philip] Drinker. In the polio epidemic, respirators were around. In Boston, somebody had made a baby respirator for polio patients, and then that guy kept coming and telling people about it. I would trace that to Boston. Nick Nelson and Millie, I would trust their version of that.

DR. GARTNER: I think Millie thought she was. I think the experience at Columbia never was written up.

DR. LUCEY: I can tell you a little story. First of all, Stan [James] was my friend from residency and when I moved to New York, Clem would always refer the Stan as that young man with the two first names. [Laughs] He never could remember his name. I'm sympathetic to that now. But he would say, "What is that young man with the two first names doing, Jerry?" I'd say, "I haven't talked to him in a while." He'd say, "I hear he's putting umbilical catheters in." And so, I called up and we went down and looked and, sure enough, he was putting umbilical catheters in. I'd say that was where the umbilical catheter was born. And then there was another thing. Henry Barnett, when I was a student back in 1950-52, was doing very tiny artery punctures. But when retrolental started coming along, everybody started talking about doing arterial sticks. [Poul B.] Astrup had a woman working in his laboratory. He came over to Columbia. And then she gave

lessons to a whole bunch of people about how to get arterial blood samples. Known as the Danish cupcake.

DR. GARTNER: How about training programs? They have really advanced a great deal. I guess you and I got into neonatology without the formality, although you trained with Clement Smith.

DR. LUCEY: Well, that was it. That wasn't neonatal training. All the people that were trained in my era went to places that were doing some study. Taking care of the babies was Stewart [H.] Clifford's thing. There was always a senior clinician there who took care of the infants. We never did anything in terms of writing formulas or taking care of babies or seeing people. You just crept in there with your machine and did your measurement. So those people are all physiologists. Not any business men in there; they were interested in research. That is why I am sort of staggered by what's happened in the field now, where it became a business. I started losing interest when we started having more committees, talking about what you are doing about the billing, what are you doing here and there? Running a nursery did not seem to me to be that exciting; I was always interested in bringing in new things to try. [Laughs]

DR. GARTNER: What about training programs? You know, as they've evolved and as they are now. What do you feel about the quality of them, the content, and who we're training, issues of research?

DR. LUCEY: Well, I have spent some time on the Boards, and I was always a big outlier on the Boards. Mike [Michael A.] Simmons was at Johns Hopkins. He and I always came out with totally different ideas about what should be done. Let me give an example. First of all, we all agreed about taking the exam. I was on the committee to make up the exam and the questions became more and more theoretical. Then came the moment when they said, "Look, we are turning out too many neonatologists. We have got to do something about improving quality. We won't let anybody come out of this program until they write a paper. So I said, "That's not going to work. First of all, how many of you wrote papers before you got out of your fellowship?" There were no hands. The second issue was, there are 300 people in neonatology. It's going to be 300 papers that somebody has tried to write in two years or something. That's when I took a look at what people are doing and I said, "Most of them are not going to be very interested in papers." "No, no, we've got to require this." My time on the committee

expired and they went on and did that. I think it has not turned out very well.

DR. GARTNER: And now they are talking about changing it back.

DR. LUCEY: Oh, yes. One of the things about getting old that is interesting is that you see these things come around in cycles. They are going to discover that nobody wrote a decent paper. Forcing people to write papers like that to get out, and getting them published, just cluttered up the literature anyway. They have got two kinds of people in there. They have a very small number of people, and a very small number of places, that can train people academically. And they've got a large number of places that have what I call, "Tell me how to do it, Doc." Don't ask me why you are doing it; just tell me how to do it. And they do it for three years and they do something on the side that is called a paper.

I don't know. I challenged them. I said, "I think the publication rate will be 10%, 5%. You can't stop people from taking the exam." So, yes, I heard they are going back to not having it.

DR. GARTNER: How do you feel about training a cadre of people as clinical neonatologists, without the research training?

DR. LUCEY: I am not afraid of that. That's called two class. There is a big debate about that, how you can't have two classes of neonatologists. Come on, let's get real! There are places that can train people and there are places that can't. We should just face up to that. I'd say on the one hand you could probably name the number of places.

Now you are supposed to have a certain number of babies you cared for, you had to have an office near the place, which never came about. The other one was, you've got to have 50 lectures during your fellowship, on genetics and other topics. Now, take a place that has two fellows, like we do. And they are here for three years, and they are supposed to do one year of research. How do you get some 50 lectures?

Let's take genetics. We have a nice genetics series, open to the public. One of them gets called out to suck meconium someplace else, the other one is stuck in the back room and nobody is there then. Very few places can do those lectures series. I had a proposal, and I went to the people who run the nursery several years ago. I suggested that we all pool our best lectures and

put them on tape. We picked out the best genetic lecture, the best physiology of the newborn lecture, and each place throws them in and we have a series that they could sit down and watch in front of the video player. "Neat idea, Jerry. Great."

Jerry does a poll. "How much are you willing to pay for this?" "Nothing." [Laughs] Jerry loses interest because you can't do this. I haven't lost all interest. I then thought we would do it on the internet, and we're going to do something. That call that I just had was about something we are going to do called Neonatal University. Oxford, Harvard, us and the other places that really want to do it can do a CD/ROM. We're going to do what's called a webcast, where you can sit in front of your TV set and your pictures are up there, and your Powerpoint slides are showing up and your voice comes out. And that is not too expensive and I think it will be good for the attendings too. There will be nobody there to answer questions, but the attendings should be there to listen to this talk and then the fellows can ask him questions. But the idea that he can get 50 talks on different subjects is ridiculous

UNKNOWN VOICE: Maybe the webcasts are set up so that you can have a phone line open.

DR. LUCEY: I know, but that adds a big dimension to what you've got to do there. Suppose we have somebody like Alan [H.] Jobe, who would be the obvious one to do something on lung function. Alan Jobe is bopping around the world; he is very busy. To get him to sit down and answer questions from Kokomo or Abu Dhabi or something, is not likely to happen. But, it would be a way of raising the educational level in all places. If the guy in Abu Dhabi, who was trained in England, is still teaching what he learned in England 15 years ago, as I know the case to be, if he listens to Alan Jobe in Abu Dhabi, along with

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DR. LUCEY: One of the reasons that really small preemies die is the tape that you use really excoriates the hell out of them. If you go to Japan you don't see any tape burns because they do two things there. One, they have a different kind of tape. Two, they rub some variant of tea or something on the skin. The third time I came, I asked, "What is that stuff?" "Oh, it's blah, blah, blah." I still haven't been able to find out, but the skin looks great.

DR. GARTNER: They ought to be able to bring it here.

DR. LUCEY: Yes, and the tape, too, because the tape is pretty good. Those little things can make a big difference.

Now we are going to have a special session on how to take care of 400 to 500 gram babies. Don't start to mess around with them much; don't put too much tape on them; and don't violate the skin. No more fourteen blood samples in the first two days of life. Blood volume is only 30 cc; why are you doing it? We could teach that over the Internet very quickly. That's one of the things we're probably going to do.

DR. GARTNER: You could deal with the question issue by having a panel of students you would ask for questions and then you have a section on frequently asked questions. Many of the questions would then be answered. You'd only have a few remaining ones.

DR. LUCEY: Yes. We can give CME [continuing medical education] points away too with this thing.

DR. GARTNER: Which I guess is important these days.

DR. LUCEY: It's important these days.

DR. GARTNER: What do you see as the major research needs in neonatology in the future? We have covered a few of them, but are there more other things that occur to you?

DR. LUCEY: Well I think it's happening by nature, but there should be a cadre of people who are doing more fetal kind of research. When you are down to a 400 gram baby, you're dealing with a fetal infant. The obstetricians are moving up and they are calling everybody a fetal patient. I think that whole chemistry and physiology of a 400 to 500 gram baby is different from the 1000 gram baby. What we are doing is applying things that we used in 1000 gram baby successfully and it's not going to work. Everything is different, renal function is different. I am assembling a talk I may give. The chemistries of the 400 to 500 gram babies; there is nothing, nothing there. We cut them out from research. For instance, in designing the surfactant trials, I said, "What weight shall we give up at?" Christ they don't have any alveoli below 600 grams. No alveoli, no surfactant. Well, now

we know that 50% of those babies are getting surfactant and they are also getting HIFI [high frequency] ventilation. HIFI ventilation has never been shown to be any better than regular ventilation. Surfactant has never been to shown to be successful. It sounds logical, but it's a very expensive medicine you are pouring down and you may be better off not using it.

DR. GARTNER: Any other areas of research?

DR. LUCEY: I think brain growth. Most of neonatology has been pretty much infection and respiratory care. Infection is going to be solved. There are going to be immunizations and nurses will get better. Lung care is pretty good now. There may be some advances that could be made there. But in brain growth it's an open book. If you think you are smart enough to find out what every mother puts into her placenta, every hormone and every amino acid, and you can design a computer that would do that, you can surely have somebody get you a pump that will do it for you. Instead of focusing on brain damage, the field might be brain growth and improvement of the mentality. There is a small amount of animal research showing that you can make brains grow faster. For example, if a rat has a brain that grows faster and bigger, he does better in the maze. I think you probably can create a better brain.

DR. GARTNER: Would you do it all again?

DR. LUCEY: [Laughs] Oh, you bet I would!

DR. GARTNER: Would you do the neonatology again?

DR. LUCEY: I can't imagine not doing it; I never did anything different. I probably would have been more successful with business. If I look back on my career, I'm able to organize people. I'm a pretty organized guy myself and I see things a little bit ahead of everybody else. Advertising sounds bad, but I think I could handle the advertising end of it.

DR. GARTNER: Yes, I think you could.

DR. LUCEY: I could have done a lot better in business I'm sure, but then, what the hell you are going to do with your money? I always give the students the same advice when they ask, "What am I going to do?" I say, "First of all, find out what you love to do. Second, find some wonderful place

that you want to live. Third, find somebody to pay you for it." You've got it made; that's all you need.

DR. GARTNER: That's good advice.

DR. LUCEY: [Laughs] So simple. I didn't mention it before but, three or four times in my career I asked people about, "What do you think about doing this?" And almost always I go the answer, "No." Don't go to Vermont, don't do this, don't do that. I did it anyway; so it was valuable advice, in a way, that I didn't take. But very often advice like this turns out to be all wrong.

I'm trying to do that with a teenage son now, of course. I know the way for him to go. Did you say, "Go west to the movies," to your son.

DR. GARTNER: No, no. His invention. I had no idea he had any interest in that direction.

Tell me about your wife and children.

DR. LUCEY: I married my high school sweetheart and we had a very happy marriage for about 17 years and then things just didn't work out. As they say in the movies, "We grew apart." We had three children. Colleen, my oldest daughter, was born in Brooklyn. She went to Swarthmore and runs her own accounting firm. She took religion at Swarthmore, and anthropology. When she got back I said to her, "What are you going to do now?" She started to cry. She took religion and then came back and knew she didn't want to become a priest or a nun or anything. She went on then to the Baptist School and became an accountant. She runs her own firm now; she is very successful at that.

My second daughter is Kathy. She married a musician. She is a nurse and has two children, one of them going to Bowdoin [College] at the moment.

DR. GARTNER: Where does she work?

DR. LUCEY: She works down in Massachusetts at the hospital out in Fitchburg. Married to a musician who teaches at a prep school.

DR. GARTNER: Does she do pediatric nursing?

DR. LUCEY: **No. Nobody in my family ever went into medicine after that.**

Then the other one who looks like my daughter is my wife. That's Ingela. There is a better picture of her. She takes really good pictures.

After I got divorced, that was just about the time that all the controversy was going on with phototherapy, I went off to Hawaii and worked in Hawaii for about three months. I decided I wasn't going to get married again. I'd learned how to vacuum and I hadn't learned how to cook, but I was okay. I'd done a lot of silly things, going out with different kinds of ladies. So I decided I was not going to get married.

Then, one day I'm at the swimming pool in Hawaii. I'd taken a resident there with me. The scene out there was that you worked in the morning at the hospital. I brought the resident out with me and he was going through a divorce, too. He was looking for somebody to go out with that night and I saw Ingela across the swimming pool. She was with a group of people. I'm so glad I had this student with me because without him I never would have swum across the swimming pool.

He went over to the swimming pool and he said, "Well, she speaks English but there are lot of them. There is a mother a father and a friend. There are about five of them. She doesn't want to go out with me." I said, "Look, I've got a house, I have got a car, invite them all out." So, Ingela was with her mother. She had worked for British Airways. She was born in Berlin, after the war. Her mother worked as a maid during that terrible year when everybody was being starved and things. She worked for the American Army as a cook and she brought home lot of food so Ingela grew.

Ingela was going to be a school teacher. She went through the first year of the school and then she decided she would be an airline stewardess. She worked for British Airways and she was a model for British Airways. She was out there sitting on the wing someplace. Then she went to work for Pan American Airways. With Pan American you could take your mother around the world once or twice a year if you wanted to, so she did. Ingela was tired of traveling, so they wanted to stay in Hawaii for a while and that was the big break for me.

The student went out to some parties. Then the student left and I started to find out a little about Ingela and I was shocked that she was so young. She is

20 years younger than me. I said, "Oh God, this looks terrible." But we met each other a lot at different places. During the next year or so I did a lot of international traveling and so we met in different countries. We were engaged in Peru. When I showed her Vermont I realized that Vermont, where we are now, is a lot like the place she lived in Berlin. So I realized there wasn't going to be that much culture shock.

She came over. Her English improved very quickly; my German never did improve. She came over and we've been very happily married ever since, and that is 30 years ago. We have one child; it took several years. He is at Colgate [University] now. He went to Eton [College]. The picture over there is him sitting on the wall with Prince William, not William the other one [Harry]. He was the only American student at Eton that year; this is about two years ago.

It was a big challenge for him. I wanted to see him challenged, because he was hanging around with a group of kids who didn't seem to be headed for college. When he was over there, we did a lot of visiting. He needed a little bit of moral support. First of all it's a tough academic school. He did alright. He won't admit it now, but it really changed his life quite a bit. He was in the last year there. Eton has a very unusual last year and he had to take courses wherever he fitted in. He had enough points to get out of high school already. He took a course in art history and they put him in the Arabic class. German was easy for him because he speaks fluent German. So, he became interested in Arabic and he became interested in art and now those are the kinds of things he's doing at Colgate.

We had been on a big trip once, and I knew he might have some talent for languages. We were selling surfactant in the Middle East. After the company saturates America and Europe, they turn to the Middle East. So they arranged this wonderful tour for us in which I gave my surfactant talk and they tried to sell surfactant in just about every Arabic country. We took Patrick along, and halfway through the trip, he started to talk to waiters. Saying words to waiters that they understood. I never could hear a word in Arabic, it just doesn't register. I'm not sure what's going to happen with that. He is going to Germany next year again for his junior year. He may do Arabic; he may just go into fine art.

DR. GARTNER: Where in German is he going?

DR. LUCEY: He is going to Fribourg. They put them in the regular German dorms. If they are fluent enough, which he will be, they put him in German classes. Other than that, they run American classes in the German university.

DR. GARTNER: That should be a good experience.

DR. LUCEY: He is a lot easier than most kids. His car broke down. Why he wants to come home this weekend, I'm not sure, but we'll see.

DR. GARTNER: Well, is there anything we left out, anything that we should have covered, anything if you want to add to this.

DR. LUCEY: I think you were awful thorough. I mean, we've been talking a long time.

DR. GARTNER: Okay, thank you very much. I really appreciate this Jerry. It was wonderful. I mean you really got a perspective for me on pediatrics and neonatology. Thank you very much.

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CURRICULUM VITAE

JEROLD F. LUCEY, M.D.
Medical Center Hospital of Vermont
Burlington, Vermont 05401

Telephone: 802-656-2867 - Office
802-862-7272 - Home

Born: March 26, 1926
Holyoke, Mass.
Married: Ingela
Children: Patrick - 10/82

Currently:

Professor of Pediatrics and University Scholar, University of Vermont College of Medicine, Burlington, Vermont
Chief of Newborn Services, Medical Center Hospital of Vermont, Burlington, Vermont
Editor-in-Chief, Pediatrics, 1974 - present

Education:

Northampton High School, Class President 1940-1944
U.S. Navy - Dartmouth College V-12 Training Program 1944-46
Seaman First Class - USS Valencia (AKA)
R. I. Paine (D.E.)
Dartmouth College - Zoology Major, A.B. 1948
Second Honors Group
New York University College of Medicine, N.Y.C., M.D. 1952
Bellevue Hospital, N.Y.C. Children's Medical Service
Intern under Dr. L.E. Holt, Jr., 1952-53
Columbia-Presbyterian Medical Center, N.Y.C., 1953-55
Babies Hospital, Assistant Resident and Senior Resident under Dr. R. McIntosh
Harvard Medical School, Boston, Mass., Children's Medical Center, Research Fellow in Pediatrics under Dr. C.A. Smith, 1955-56.
Harvard Medical School, Research Fellow in Biological Chemistry under Dr. C. Villee, 1960-61.

Teaching Experience:

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, BURLINGTON, VT.
Instructor in Pediatrics, 1956-57
Assistant Professor in Pediatrics, 1957-60
Associate Professor of Pediatrics, 1961-66
Professor of Pediatrics, 1967 - present

Scholarships and Honors:

C. V. Mosby Book Prize, N.Y.U. College of Medicine 1952
Bowen-Brooks Scholarship, N.Y. Academy of Medicine 1953
Mead Johnson Residency Fellowship by American Academy of Pediatrics 1954
John and Mary R. Markle Scholar in Medical Science 1959-64
Nu Sigma Nu Teacher of the Year Award for Excellence in Teaching 1960

Scholarships and Honors: (cont.)

Peruvian Pediatric Society (Honorary Member, 1967)
Chilean Pediatric Society (Honorary Member, 1969)
Alpha Omega Alpha, 1969
Duro Test - Great American of Year Award, 1974
Humboldt Senior American Scientist Prize, Bonn, Germany, 1977
Litchfield Lecturer - University of Oxford, England, 1978
South African Pediatric Association Visiting Professor, 1980
Best Doctors in USA- J. Pekkanen, Seaview Books- Harper & Row, 1980
Best Medical Specialists for Children, Harpers Bazaar, Magazine Poll, October, 1980
New York University Bellevue Pediatric Alumnus of the Year, 1981, E. Holt Lecture
Royal Society of Medicine Visiting Professorship, England, (one month), 1981
American Academy of Pediatrics Grulee Award, 1981
United Cerebral Palsy Research Award, 1984
Phototherapy Unit - Requested for History of Medicine Display in Smithsonian National Museum of American History, Washington, D.C., 1985
Humboldt Travel Award, 1985
Merrin Visiting Professor of Pediatrics - University of Capetown, South Africa - (two weeks) September, 1987
Thompson Lecturer - University of Rochester, April, 1989.
University Scholar - Graduate College, University of Vermont, 1989-90
Visiting Professor Neonatology Lecturer - Harvard, 1987
DeRay Distinguished Visiting Professor - Wayne State University, 1990
Ronald McDonald Charities Research Award, 1990 - $100,000
Governor of Vermont Award of Excellence, 1991
American Lung Association Gold Medallion for Humanitarianism, 1991
Best Doctors in America - Woodard/White, Inc., 1991

Overseas Teaching Experience:

Visiting Associate Professor of Pediatrics, University of Puerto Rico Medical School, San Juan, Puerto Rico (one month, January 1963.
Visiting Professor of Pediatrics, University of Athens Medical School, Aghia Sophia Children's Hospital, Athens, Greece (one month), April 1964.
Visiting Professor of Pediatrics, Lima, Peru, April 1967 Unitarian Service Committee Teaching Team
Visiting Professor, Japanese Medical Society (one month), 1968
Visiting Professor, Pan American World Health Organization, Santiago, Chile (three weeks), July 1969
Visiting Professor, Kauikeolani Children's Hospital, Honolulu, Hawaii (five weeks), 1971
Visiting Professor, South Africa (three weeks), 1980
Visiting Research Professor, University of Marburg, Germany (six months), 1977-78

Overseas Teaching Experience: (cont.)
Postgraduate Education Courses:
San Salvador, 1975, 1977
World Congress of Pediatrics, Spain, 1980
Guest Lecturer - Neonatal Pediatrics, University of Milan, Milan, Italy, 1978 - present (every two years)
Saudi Arabia (two weeks), 1982
Brazil (1 week), 1988
Visiting Professor - Japanese Neonatal Society Lecturer, 1985
Visiting Professor - Department of Pediatrics and National Perinatal Epidemiology Unit, Oxford University, 3 months, 1987
Lecturer - Postgraduate Medical School - Moscow, USSR, Nov 1989 (1 wk)
Lecturer - King Faisel Hospital - Saudi Arabia, November 1989 (1 wk)
Lecturer - Dominican Republic Pediatric Society, Santo Domingo, 1990
Lecturer - Rhodes-Greek Italian Pediatric Society, 1990

University, Hospital and National Committee Experience:
Member, Admissions Committee, University of Vermont College of Medicine, 1960-61.
Vice President, Chittenden County Medical Society, 1961-63
Chairman, Curriculum Committee, University of Vermont College of Medicine, 1962-65
Member, Committee on Fetus and Newborn, American Academy of Pediatrics, 1963-66
Chairman, Committee on Fetus and Newborn, American Academy of Pediatrics, 1966-72
Member, Scientific Program Committee, American Academy of Pediatrics, 1965-71. Consultant, 1974-92.
Member, Rockefeller University Advisory Committee on Tin Protoporphyrin - 1984-92

Administrative Experience:
Chief of Pediatric Service, DeGoesbriand Memorial Hospital 1958-65
Acting Chairman, Department of Pediatrics, University of Vermont College of Medicine, six months (1960), three months (1966)
Principle Investigator, Research Grants from N.I.H., 1956-78, 1986-90
Editor-in-Chief, PEDIATRICS, 1974-present
Organizer, Vermont Summer Pediatric Seminar programs, 1975-1990
Organizer, Peoples Republic of China, Perinatal Team Visit, 1981
Chairman, Ross Conferences on Hot Topics - 1980-92
Organizer for Eurosurf Study Group - Abbott International 1984-88
President - Neonatal Research & Technology Assessment, Inc., 1988-present
Vermont-Oxford Trial Facilitation Service

Society Memberships:
A.M.A. Chittenden County Medical Society, 1956-
Vermont State Medical Society, 1956
New England Pediatric Society - Council Member, 1968-70
Fellow, American Board of Pediatrics, 1958
Examiner, 1970-73
Subspecialty Board of Perinatal Medicine, 1975
Re-certified, 1986-1993
Perinatology Sub-Board Credentials Committee 1985-86
Exam Committee 1980-86

Society Memberships: (cont.)
Society for Pediatric Research*, 1958-
American Pediatric Society*, 1964-
American Association for the Study of Liver Diseases*, 1961-Present
Royal Society of Medicine (London), Affiliated Member*, 1964-Present
Society of Sigma Xi*, 1966
Council of Biology Editors, 1982
Cosmos Club*, Washington, DC, 1989

*Elected Membership

Consultant Appointments
Vermont State Health Department, 1959-82
Visiting Scientist, National Institute of Health, Laboratory of Perinatal Physiology, San Juan, Puerto Rico, 1961-63, 1965-66, 1969
Visiting Scientist, Oregon Regional Primate Center, Beaverton, Oregon, 1965-66
Consultant, National Institute of Child Health and Human Development on Developmental Pharmacology, 1965
Federal Drug Administration, Bureau of Medicine - Consultant on Drugs During Pregnancy, 1966-70
National Board of Medical Examiners, Pediatric Section, 1966-69
Chairman, Pediatric Section, 1969-72
National Institutes of Health, Mental Retardation Research and Training Committee, 1971-73
Assistant Editor, Pediatrics in Review, 1980-85
Illuminating Engineer Research Society, 1970-75
Editorial Board, Journal of Perinatal Medicine, 1971-present
Expert Advisory Panel on Pediatric Periodicals, International Pediatric Association, 1980-88.
Editorial Board, Oxford Data Base of Perinatal Trials (Electronic Journal) Oxford University Press, 1988-present
Consultant, Rockefeller University Hospital, 1988-present

PUBLICATIONS:

1. Cook C, Lucey J, Drorbaugh J, Segal S, Sutherland J, and Smith CA: Apnea and Respiratory Distress in the Newborn Infant. N Engl J Med 254:568, 1956; 254:604; 254:651, 1956.

2. Scaglione P, and Lucey JF: Further Observations on Hypophosphatasia Am J Dis Child 92:494, 1956 (Abstract).

3. Johnson L, Blanc W, Lucey JF, and Day R: Kernicterus in Rats with Familial Jaundice. Am J Dis Child 94:548, 1957 (Abstract).

4. Segal S, Sutherland JM, Lucey JF, Drorbaugh JE, Cherry R, and Hsia D: Determination of Ph, CO_2 Content, O_2 Saturation and Lactate in the Blood of the Newborn Infants of Diabetic Mothers. Am J Dis Child 94:562, 1957 (Abstract).

5. Drorbaugh JD, Cherry R, Lucey, JF, Segal S, Sutherland J and Smith CA: "Vital Capacity" and Lung Compliance in Normal Newborn Infants with "Hyaline Membrane Syndrome". Am J Dis Child 94:434, 1957 (Abstract).

6. Lucey JF: Recent Advances in the Care of the Newborn Patient. J Maine Med Assoc 48:111, 1957.

7. Harris RC, Lucey JF, MacLean JR: Kernicterus in Premature Infants Associated with Low Concentrations of Bilirubin in the Plasma. Pediatrics 21:875, 1958.

8. Lucey JF and Dolan R: Hyperbilirubinemia of Newborn Infants Associated with the Parental Administration of a Vitamin K Analogue to the Mother. Pediatrics 23:553, 1959.

9. Lucey JF and Driscoll TJ: An Attempt to Prevent Hyperbilirubinemia of Prematurity Using N-Acetyl P-Aminophenol. Proc Soc Pediatr Res, May 8, 9, 1959, Buck Hill Falls, Penn (Abstract).

10. Lucey JF and Driscoll TJ: Hazard to Newborn Infants of Administration of Long-acting Sulfonamides to Pregnant Women. Pediatrics 24:498, 1959.

11. Sutherland JM, Oppe TE, Lucey JF and Smith CA: Leg Volume Changes Observed in Hyaline Membrane Disease. Am J Dis Child 98:24, 1959.

12. Lucey JF: Hyperbilirubinemia of Prematurity. Pediatrics 25:690, 1960.

13. Lucey JF and Driscoll TJ: Physiologic Jaundice Re-Examined (Chapter) Kernicterus, A Sass-Kortsak, Toronto University Press, 1961.

14. Lucey JF: Hazards to the Newborn Infant from Drugs Administered to the Mother. Pediatr Clin North Am 8:413, 1961.

15. Lucey JF, Phillips CF and McKay RJ: A Difference in the Incidence of Hyperbilirubinemia Among Premature Infants in Two Hospitals. Pediatrics 30:3, 1962.

16. Lucey JF and Warshaw A: The Effect of 3-4 Benzpyrene Upon Bilirubin Clearance Tests in Adult and Neonatal Guinea Pigs. Gastroenterology 42:472, 1962 (Abstract).

17. Lucey JF, Behrman RE and Warshaw AL: "Physiologic" Jaundice in Newborn Rhesus Monkey. Am J Dis Child 106:350, 1963.

18. Belmont AP, Cherry JD and Lucey JF: A Lack of Relationship Between Phenothiazine Administration to Mothers in Labor and Hyperbilirubinemia. Am J Obstet Gynecol 87:538, 1963.

19. Lester R, Behrman RE and Lucey JF: Transfer of Bilirubin C-14 Across Monkey Placenta. Pediatrics 32:416, 1963.

20. Lucey JF and Behrman RE: Thalidomide: Effect Upon Pregnancy in Rhesus Monkey. Science 139:1295, 1963.

21. Lucey JF: Programmed Instruction, Time and Teacher, Faculty Bulletin, Birmingham University, England (Editorial) June, 1963

22. Lucey JF: Impromptu Experiments with the Intrauterine Patient. Bol Asoc Med PR 55:229, 1963.

23. Lucey JF: Primates, Drugs and Fetal Safety. Pediatrics 32:953, 1963 (Editorial).

24. Lucey JF, Hibbard E, Behrman RE, Esquivel de Gallardo F and Windle WF: Kernicterus in Asphyxiated Newborn Rhesus Monkeys. Exp Neurol 9:43, 1964.

25. Lucey JF, Mann R, Simmons GM and Friedman EE: An Increased Incidence of Spina Bifida in Vermont. Pediatrics 33:981, 1964.

26. McKay RJ and Lucey JF: Neonatology. N Engl J Med 270:1231; 1292, 1964.

27. Arias IM, Wolfson S, Lucey JF and McKay RJ: Transient Familial Neonatal Hyperbilirubinemia. Am J Dis Child 100:787, 1060 and J Clin Invest 44:1442, 1965.

28. Lucey JF: Drugs and the Intrauterine Patient. Symposia on the Placenta, Birth Defects Original Article Series, II 46, 1965.

29. Lucey JF: Diagnosis and Treatment of the Fetus with Erythroblastosis. Pediatr Clin North Am 14:1117, 1966.

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31. Lucey JF, Ferreiro M and Hewitt J: Resultadoes de un Estudio Cooperative Sobre la Experiencia en Transfusions Fetales Intrauterinas. Pediatria, 9/66 (Chile).

32. Lucey JF and Ferreiro M: Experimental Kernicterus in Hypoalbuminemic Piglets, N Engl Pediatr Soc, Boston, September 1966.

33. Lucey JF, Vales T and Doxiadis SA: Serum Albumin Reserve PSP Dye Binding Capacity in Infants with Kernicterus. Pediatrics 39:6, 1967.

34. Lucey JF, Randall JL and Murray JJ: Is Hypoglycemia an Important Complication in Erythroblastosis Fetalis? Am J Dis Child 114:88, 1967.

35. Lucey JF: The Bilirubin Controversy. Hosp Pract 2, 1967.

36. Lucey JF: Current Thinking on Fetal Transfusions Med Tribune 8, 7/27/67.

37. Lucey JF, Hewitt J and Ferreiro M: "Small for Dates" Infants Have Lower Average Serum Bilirubin Concentrations than Normal Low Birth Weight Infants. Pediatrics 40:1062, 1967.

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40. Diamond I, Lucey JF and Schmid R: Prevention of Hyperbilirubinemia and Kernicterus by Exposure to Light: Studies in Newborn Guinea Pigs and Premature Infants. Transactions of American Neurological Association, 1968.

41. Lucey JF, Ferreiro M and Hewitt J: Prevention of Hyperbilirubinemia of Prematurity by Phototherapy. Pediatrics 41:1047, 1968.

42. Lucey JF: The Future Demise of Exchange Transfusions for Neonatal Hyperbilirubinemia. Dev Med Child Neurol 10:521, 1968.

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2. Multicenter Study of Surfactant TA in Neonatal Respiratory Distress Syndrome: A Training Film. Written: Soll RF and Horbar JD. Directed and edited: Soll RF and Mozeika P. Produced: Lucey JF. Distributed by Ross Laboratories.

3. Prevention of Neonatal Respiratory Distress Syndrome by Tracheal Administration of Surfactant TA at Birth: A Training Film. Written: Soll RF and Horbar JD. Directed and edited: Soll RF and Mozeika P. Produced: Lucey JF. Distributed by Ross Laboratories.

4. Surfactant Films (2), 1990 - Abbot/Ross Laboratories