



**ORAL HISTORY PROJECT**

# **Grant Morrow III, MD**

**Interviewed by  
Joseph “Jerry” Rauh, MD**

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Columbus, Ohio

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Preface	i
About the Interviewer	ii
Interview of Grant Morrow III, MD	1
Index of Interview	16
Curriculum Vitae, Grant Morrow III, MD	19



## **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.

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## **ABOUT THE INTERVIEWER**

### **Joseph “Jerry” Rauh, MD**

Dr. Joseph “Jerry” Rauh is a graduate of Cincinnati’s Walnut Hills High School, Harvard College, and the University of Cincinnati College of Medicine (1955). After an internship at Boston City Hospital and two years in the US Public Health Service, he completed his pediatric residency at Cincinnati Children’s Hospital Medical Center. In 1960 he joined a pediatric practice in Cincinnati and also started the Adolescent Clinic under the mentorship of Dr. Robert Lyon. In 1971, with support from his pediatric chairman, Dr. Edward Pratt, he went full time at the Department of Pediatrics and Children’s Hospital.

Dr. Rauh retired as the director of adolescent medicine in 1997; he still works part time and devotes time to the national board of Planned Parenthood as well as the Alan Guttmacher Institute. He was a charter member and president of the Society for Adolescent Medicine for whom he has done several oral/video histories.

## Interview of Grant Morrow, III, MD

DR. RAUH: I'm talking to Dr. Grant Morrow on Tuesday, June 13, 2000 for the AAP [American Academy of Pediatrics] oral history program. This is Dr. [Joseph L.] Rauh. This is just to see how we sound for a moment. Do you play golf?

**DR. MORROW: I definitely play golf.**

DR. RAUH: How many times a week?

**DR. MORROW: Well, when I was chairman I certainly didn't play very much but last year I got to where I played twice a week. One of the great advantages of golf is I can take potential donors out or friends of the hospital to play. They really appreciate that and I think it's an effective way to get them involved.**

DR. RAUH: Grant, tell me a little bit about your childhood and your own family, where you grew up and your earliest years.

**DR. MORROW: I grew up in Pittsburgh, Pennsylvania and I was a child of the Depression. My parents didn't feel like they could afford more than one child, so I became an only child. Of course with only, first, and male children, I think you get a lot of pressure to be successful. One of the things that always impressed me was that 25 of the first 26 astronauts were only children.**

**My dad, who was a dentist, had gone right into dental school from high school. He went to University of Pittsburgh, so he was out practicing when he was in his early twenties. My mother, who was a scholar, was one of two children. She graduated from college when she was 18 and then taught Greek and Latin in high school. I think she was always disappointed that her only issue never took any Latin or Greek courses when he was in school. It's really interesting how just a few years before I got into that they stopped the requirement for Latin.**

**When I think back on what got me into medicine, probably there were three major factors. One was when I was in sixth or seventh grade; I got a pair of skis for Christmas and went out before Christmas to ski. I had never skied before. I got on them. They didn't have release bindings. We lived across from a golf club. I went roaring down the hill over a tee, got airborne and broke my leg and had to lie flat in bed during the whole Christmas vacation. I think I learned a little about medicine and got fascinated by it.**

DR. RAUH: As you think about that hospital experience, was it very unpleasant? What was your emotional reaction to it?

**DR. MORROW:** The only thing that was really unpleasant to me was the ether anesthetic. I remember they kind of smother you with that cup and dripping ether. I remember I didn't like that at all. But I don't really remember being in the bed and on the ward as that unpleasant.

DR. RAUH: Were you in traction?

**DR. MORROW:** No, I didn't have to get in traction. I just had a cast. I remember that awful itching underneath the cast and I had a wire or something to try to itch my leg. That was a pain. I don't remember how many days I actually stayed in the hospital, probably it wasn't that long.

That was the one thing that got me interested in medicine. The second thing that got me interested in medicine, I think, was my dad being in dentistry. My mother was very interested in me becoming a professional and she thought being a physician was great.

The third came a lot later, when I graduated from the University of Pennsylvania [Penn]. I was awarded the prize in pediatrics at graduation, which kind of made me feel, "Well, maybe that's where my expertise is and where I'd do well." So after I did my rotating internship at the University of Colorado, Denver General [Hospital], I went back to Penn [University of Pennsylvania] and started in pediatrics

DR. RAUH: You were very attached--you probably still are--to the University of Pennsylvania CHOP [Children's Hospital of Philadelphia] hospital. Can you just reflect on those attachments?

**DR. MORROW:** It was interesting. When I was at Haverford [College] and I decided I wanted to go to medical school, we took our MCATs [Medical College Admission Test]. The associate dean came out from Penn to meet with all the people that were interested in medicine at Haverford. There were six of us that wanted to go to Penn. We were interviewed on Friday and five of us got acceptances on Monday, so I never had to really fight to get into medical school.

I was very impressed with the history of Penn and the fact that they were affiliated with the first hospital in the United States. That was a debate between Pennsylvania Hospital and Philadelphia General [Hospital] who both claimed they were the first hospital. The people who were there were very impressive; when you picked up textbooks you saw their names. I just loved Penn. An example of when I was very impressed was when Linus Pauling came to give a lecture at Penn and I attended. At that point he was a



**double Nobel laureate. He stopped his lecture in the middle and he said to one of the people in the audience, "Oh, Dr. [Julius H.] Comroe, I'm so honored that you would come to my lecture." And he went on and he talked about Julius Comroe's accomplishments and then went back to his lecture. I was very impressed with it, being kind of a kid from the Midwest.**

**DR. RAUH:** At the time you graduated from medical school there were no what we call "straight internships," or at least very few. So you went on to Colorado for your rotating internship.

**DR. MORROW:** I went to Denver General. At that time, that was one of the best city hospitals. It was a rotating internship. I felt that it was one of the best years I ever had in medicine because I was able to put into practice what I had spent four years learning. I felt like I'd become a complete physician. I'd always kind of had in my mind that I would be a physician similar to my general practitioner, to make house calls. It wasn't until later that I specialized. But that year in Denver General was really when I felt I was a complete physician. I probably knew more medicine over the entire field than I have ever since.

**DR. RAUH:** That was at the time of the beginnings of the polio vaccine, wasn't it? Did you have any particular experience with the polio epidemic?

**DR. MORROW:** Oh, sure. One of the things that really made me very upset was my CHOP infectious disease rotation at Camden Municipal Hospital. Camden Municipal Hospital took all the infectious disease cases from New Jersey except for three counties. I remember going there and being on call when they admitted a man in his fifties with severe polio. This individual had been the person who had been the head of the polio vaccine program for New Jersey. He had been too old to get the vaccine. It was either 50 or 55 after which they recommended you don't get the polio vaccine. If he was 55, he had just gotten a year too old. He contracted polio and was a completely ventilator-dependent person. I had to deal with these adults who had become ventilator-dependent and, of course, they were in the iron lung.

**DR. RAUH:** Your residency was at CHOP?

**DR. MORROW:** Right, I went there and Joe [Joseph L.] Stokes [Jr.] was the head of pediatrics when I came. Chick [C. Everett] Koop was head of surgery then and I got to know him. It was a dynamic exciting place. It was down at 17<sup>th</sup> and Bainbridge; it was in the really kind of run-down part of the city. I remember you could drive down there and have your car taken apart from time to time, but it was a wonderful experience and a great hospital.

**I remember one of the things that was mind-boggling to me was how my wife and another woman became the two first straight pediatric interns at CHOP. I remember when I went in to talk to Joe Stokes about what I'd do after my residency. He wanted me to go to Great Ormond Street [Hospital] and I said, "Oh, my wife really wants to be a pediatrician and start raising a family." And he said, "Well, you know, I bet it'd be a good idea to have a straight pediatric internship." So while I was in the room he called Harrisburg, talked to the head of the medical board, and found out what needed to be done, which was to deliver a certain amount of the babies at that time. He essentially worked out the straight internship in like an hour in 1962 and she came.**

**One of the funny stories that I remember there was, when I was an intern in Philadelphia, they gave me \$25 a month. There was a lot of ruckus about that. When my wife became an intern, two years later, she was supposed to get \$180 a month, which was an enormous increase. Her check came and it was \$13.26. I was kind of upset about that so I went into the administrator and I said, "What's with my wife's check? I thought she was supposed to get \$180 rather than \$25 a month." He said, "Well, you've got an income. The hospital ran a little short of money and we thought the women didn't need the money." This was in 1962! Can you imagine that?**

**DR. RAUH:** That is mind-boggling.

**DR. MORROW:** The rotation that we had at CHOP was wonderful. I think that was the time when all newborns with jaundice had exchange transfusion. I remember working as a newborn fellow after I'd finished my residency and we staffed five hospitals doing exchanges. One night I had to do 16 blood exchanges among four hospitals.

**DR. RAUH:** You did 16 exchanges in one night?

**DR. MORROW:** Or maybe it was one whole day.

**DR. RAUH:** Even so.

**DR. MORROW:** I had to have the chief residents help with the exchanges. It was incredible. There was Pennsylvania Hospital, CHOP, Hospital of the University of Pennsylvania, and Presbyterian [Hospital]. There was also another hospital we staffed.

**DR. RAUH:** As I recall it took a couple of hours to do an exchange.

**DR. MORROW:** Tom [Thomas] Boggs was the initiator of the fast exchange. It would take us half an hour.

DR. RAUH: I was never taught that.

**DR. MORROW:** Yes, we used to push it in and pull it out really fast.

DR. RAUH: Tom Boggs was involved with exchange transfusions?

**DR. MORROW:** He was at all of them. He was a faculty member and neonatologist and had the referrals. He was running the newborn collaborative [NIH National Collaborative Perinatal Project] project at that time. We spent a lot of time in the delivery room. That was how I got paid, going in and doing APGARs and physical exams and newborn care.

That was the time that [Albert William] Liley from Australia came out with amniocentesis and intrauterine transfusions so that, by the end of that decade, with RhoGAM, exchange transfusions were kind of becoming a thing of the past. Now residents don't even know what they are.

DR. RAUH: Right. When did you first get interested in biochemical abnormalities and inborn errors of metabolism? That field was certainly in its infancy at the time you were training.

**DR. MORROW:** Well, I knew Lew [Lewis A.] Barness and Frank [A.] Oski and Bill [William] Mellman who were at the Hospital of the University of Pennsylvania. So as a result of some of the interaction we had over patients, my interest started. I wanted to work with Lew Barness, so I went up there. He had some projects and a grant on screening for organic acids. We picked up the first known patient with methylmalonic acidemia and spent a lot of time working through that series of diseases. That was very exciting.

DR. RAUH: Did you work in the lab while you were a resident?

**DR. MORROW:** No, I never did any research. I always kind of felt I was going to be a practitioner. Then Boggs approached me about staying on as his partner in neonatology and I decided I wanted to stay on in academic medicine.

I love teaching. When I got to CHOP with Barness I ran the physical diagnosis course for the University of Pennsylvania medical students. We used to go over to Philadelphia General. I remember going over there and there'd be huge wards with 40 bassinets and you'd be able to bring the students in and put two to a patient. For a while at the beginning I really enjoyed it. Then it got a little bit difficult when you were the only person trying to take care of all these students seeing patients.

DR. RAUH: Where did you get the older children?

**DR. MORROW:** Well, frankly, there was no real good ward for teaching where I could handle that many students, so we just did the toddlers or the younger children.

**DR. RAUH:** You went out to the University of Arizona?

**DR. MORROW** Correct.

**DR. RAUH:** After your neonatology fellowship?

**DR. MORROW:** No, I finished my neonatal fellowship and then I went to work with Barness and became a metabolic person. I worked with him for over six years. He left to become chair at University of South Florida. At that point Frank Oski was going to leave and I thought I'd look around. Vince [Vincent A.] Fulginiti invited me down to Arizona. I liked and trusted him. He invited me in 1969 and then again in 1971; I went down there as head of the metabolic service.

It's very interesting that, you know, methylmalonic acidemia was not a very well known disorder. I was supposed to officially start on January 1, 1972, and on December 31, I got a call that there was a patient that was vomiting and had a really low bicarbonate over at Tucson Medical Center. I went over and, to make a long story short, he turned out to have methylmalonic acidemia. Now the chances of my interest being that disease in my first patient and arriving on the day they admit a patient with it is mind-boggling.

**DR. RAUH:** That was your second patient, but a very different type of patient.

**DR. MORROW:** No, this was a boy, a little one year old. He was B12-responsive and I've followed him ever since. He has done well. He graduated from the University of Arizona. He has his PhD and he's on the faculty and is doing well and still takes daily vitamin B12 shots.

**DR. RAUH:** You stay in touch with him.

**DR. MORROW:** Yes, he calls me all the time when there is some new medicine he wants to take or he has some food and he doesn't know whether he should take it. That is probably my most satisfying patient ever.

**DR. RAUH:** You wife went into child psychiatry?

**DR. MORROW:** When I was in medical school I was president of the student medical association and we had to organize and run the election for the freshman class. This was a time when sexism ruled more than it does

now. Janet, my wife, was very beautiful and they elected her secretary of the class. I asked her out and got to know her and we got married. When she finished medical school, she then went on to do the straight internship at CHOP and took time off to raise two lovely girls. When we moved to Arizona, she didn't like the job she had as a pediatrician so she decided to become a psychiatrist. That had been her interest in Philadelphia. As I may have mentioned, she was the first straight intern at CHOP. She was also a member of the first class of four in psychiatry at the University of Arizona; they had just started the residency program.

DR. RAUH: Pioneer in both areas. How long were you in Arizona?

DR. MORROW: Well, I was there really about seven and a half years. I arrived in 1971 and left in 1978.

DR. RAUH: Then what happened next for you, career-wise?

DR. MORROW: Well I was wooed at Columbus Children's [Hospital]. I came here and they told me that they wanted to do several things. One was to build up the teaching and the research programs. Also, it was apparent to me that the board was made up of community leaders and that Children's had a lot of influence in the community.

I thought it would be a good challenge. I also liked the fact of getting back to a children's hospital as opposed to a general hospital where there's a children's ward. I think in general hospitals, pediatrics doesn't have as much clout for getting things done as they do in the children's hospital.

So I came in September of 1978. In the resident class that had begun on July 1, we had tried to match 22 residents and we had matched seven. So I came in here to what was, to put it mildly, a disaster. We limped along for several years with partially filled residency programs and that was very difficult. When the residency went well and the residents were happy and being productive, that was certainly my most happy time as the chairman. It is interesting, the chief resident who was named Mary McIlroy was superb. She has been on several AAP [American Academy of Pediatrics] committees and been very important in the American Academy.

DR. RAUH: When did you first meet Dr. Toni [Antoinette P.] Eaton; do you remember?

DR. MORROW: Liz [Elizabeth R.] Aplin and Toni Eaton had been chief residents here. Liz Aplin was in the state health system and she met me and introduced me to Toni. I must have met Toni in 1979 or shortly after I came.

At that time Bruce Graham, who had stepped down as being chairman and who was finishing up his term as president of the American Academy of Pediatrics, said, "You know, Toni would be superb as head of ambulatory." So I wooed her to come back. At that time it was tough because the state salaries and benefits were a lot better than I could offer, but we put together a package that got her here in 1980. She certainly did wonders in our ambulatory program and our teaching program and delivering care. She had had an interest in handicapped children before she went to the state and she certainly followed up and started a lot of innovative programs there.

DR. RAUH: She must have been a big help in developing your residency program.

DR. MORROW: Oh, yes. I think that is one of the reasons that we went from about 17% female faculty to about 40%. I think she was a very important recruiter. Now, of course, we're similar to a lot of other programs; but we must have 60% plus female residents.

DR. RAUH: Our residency program is the same in Cincinnati.

DR. MORROW: It's interesting, just as a footnote, that as of three years ago we haven't been able to interview all the people who want to come and interview. This is really nice considering that, when I started out, we had to beat the bushes. We almost had fewer people to interview than we had slots. It was really trying.

DR. RAUH: You were chairman of pediatrics here at Ohio State [University], Columbus Children's for 16 years, 1978 to 1994. Describe the changes you made.

DR. MORROW: Yes. Well, I think one of the things that was challenging is that there wasn't really a very well developed full-time system. The people who had been established here and who were well known were very productive in patient care. They basically kept all their income and were paid a stipend to teach. I learned very quickly, how am I going to expand the department if I don't have any revenue to recruit new people?

One of the people here at that time was the chief operating officer, Alan Brass. He came from Michigan and was a very excellent administrator. He felt as I did that we needed to increase the academic full-time faculty, so we went through the process of starting a practice plan. We got a loan from the hospital to start the practice plan. We then tried to recruit as many of the people who were here into the practice plan as we could. We started to put people in the full-time system, pay them a salary and then as we had extra money we expanded.

**We went from 28 full-time MDs to about 140 today. It did very well. It became apparent that you couldn't form a corporation that was for-profit in the state of Ohio because you couldn't put any money into teaching or research.**

**DR. RAUH:** Let's just continue about the practice plan.

**DR. MORROW:** We formed what was called a pediatric academic association [PAA], which is a 501(c)3. Under that corporate structure we could put a lot of the money into research. When I came, our total NIH money was about \$190,000, which was a CCSG, children's cancer study group. I think our operating research budget last year was around \$17 million. We have been able to expand that but it's really only because we were able to get a practice plan that was developed to be academic and to reward people for other than revenue-producing activity.

**DR. RAUH:** The hospital must have increased its patient volume tremendously, especially in the more complex areas of pediatrics.

**DR. MORROW:** I think we've done very well. The number of subspecialties has gone way up. Now, of course, because of managed care we see most of them in the ambulatory area.

**When I came we had really outmoded clinics. They were referred to by one board member as having a "bus station" kind of ambiance. It was really not satisfactory. We've gone to where we now have a new 150,000 square foot outpatient care center that is able to see these patients efficiently. We've dropped our inpatient census dramatically because of decreased average length of stay as well. We have almost as many admissions as we did back then but we do all kinds of things in the outpatient care.**

**DR. RAUH:** Does this hospital have satellites today?

**DR. MORROW:** Yes, we've gotten about seven satellites around the city. We do almost all of our blood drawing and x-rays in these satellites and the pediatricians really like that. We've been able to keep them affiliated with the hospital. One of the things that I felt was most important when I came was keeping private practitioners involved and motivated, and they have been. They've been wonderful.

**DR. RAUH:** Grant, tell me about your experience with the American Academy of Pediatrics and the American Board of Pediatrics.

**DR. MORROW:** Lew Barness, who I worked with, used to be asked by the AAP to give some of the education programs at their annual meetings and he asked me to be part of that. So I got kind of into the American

**Academy in that way. I also was privileged to be part of the pediatric research award [Committee on Awards for Excellence in Pediatric Research] committee. I chaired that for a couple of years. And, of course, Bruce Graham got me involved when he was president. When Toni Eaton became president of the Academy, I think I got even more involved as well.**

**As medical director and chairman, it wasn't easy doing a lot of outside work, but my major effort was with the American Board of Pediatrics. I was an oral examiner, started that probably in the late 1960s, then I got on the Board. When the oral examinations were stopped I became chairman of the American Board of Pediatrics. One of my legacies that I feel proud about is that when I was chairman we recruited Jim [James A.] Stockman [III] to the American Board. I think he has done a wonderful job.**

**I also got involved in the Residency Review Committee, which I thought was really a fun and rewarding group because what we were doing was looking at quality of programs. I chaired the Residency Review Committee as well.**

**All three organizations are important. The American Board's bottom line goal is to certify that the pediatricians that are taking care of our children are competent and do a good job. The Residency Review Committee makes sure that the training programs that say that these people are well trained are, in fact, doing a good job. The American Academy of Pediatrics has always been high on my list because they're basically interested in the patients; they're interested in the kids in the United States. They're not a trade organization, they don't get involved as the AMA [American Medical Association] does (not that somebody doesn't have to do it) with financial benefits and what the physician himself or herself gets from practice. They're really interested in the children. So those three organizations have been very important in my career and I certainly applaud them.**

**DR. RAUH:** When you first became aware of the AAP, did you feel that it was a trade organization rather than a professional organization?

**DR. MORROW:** No, I just wasn't very sophisticated. I just didn't quite understand. I kind of had my nose to the academic grindstone and was trying to survive in the promotion and tenure system at the University of Pennsylvania. It wasn't that I felt one way or the other; it was like a light bulb went on later. I wish I had had the insight earlier on in my career, probably as everybody my age did.

**DR. RAUH:** Tell me about your own family. You have two daughters?

**DR. MORROW:** Going back to my wife, Janet was very socially conscious. I think she instilled some great values in my two daughters. My two daughters are now living in New York City, Manhattan and Brooklyn.



**It is interesting. When we wanted to move to Arizona for my career, Janet's career was very important to her at that point. She didn't see a new career; she wasn't that interested. The children would have been about five and seven. One time at the dinner table she said, "You know, Daddy is going to move to Arizona." It wasn't, "We're going to move to Arizona;" it was, "Daddy is going to move to Arizona." And there was silence and the girls said, "We want to go with Daddy." So she went reluctantly. But I think she then got her training in psychiatry and became a very effective child psychiatrist, so that worked out very well.**

**DR. RAUH:** When you moved to Columbus, did she practice?

**DR. MORROW:** Yes. She wanted to move from Arizona because she was fair-skinned and she didn't like the severe summers and all the sun. So she was very happy moving back here and we've been very happy here.

**My daughters didn't like the school system, so they went to East Coast schools. Beth, my older one, went to Choate Rosemary Hall and then to Yale [University] and then to the Hastings Law School in San Francisco. My younger daughter went to Phillips Exeter [Academy] and then to Brown [University] and then to Columbia [University] business school.**

**I'm proud that they're into children's issues. The younger, Evie, is business manager for Visiting Nurse Service of New York, which is huge; I didn't realize how enormous that organization is. Beth is an attorney who dealt with mothers' and children's issues in the Children's Defense Fund and now works for the California Children's Hospital Association and the Children's Partnership. My older daughter has two children, a three-year-old boy and a six-month-old daughter.**

**DR. RAUH:** Do you enjoy being a grandfather?

**DR. MORROW:** Oh, yes, I like it. You know, my daughter doesn't do anything half-heartedly or without a lot of preparation. She knows more about raising children by far than I do. She'll ask me questions, I'll give my opinion and she'll say, "Well, you know this books says this and this books says this." She's just done a wonderful job of being patient and raising them with good values. I'm very pleased. Hopefully that had something to do with Janet and my pediatric training at CHOP.

**DR. RAUH:** Did Janet teach?

**DR. MORROW:** She did and she worked in our Children's Guidance Centers here at Children's Hospital. She was always upset that the mental health system in the US was based on money driving everything and, as a

result, patients who couldn't pay but who really needed it were having a more difficult time getting access. The Children's Guidance Centers were able to see almost all patients. The way managed care had squeezed out the no-pay patient was distressing to her. I know that in her practice, managed care didn't pay for mental health care. Her private practice people had to pay out of pocket.

DR. RAUH: That became universal, in that field especially.

Could you talk a little bit about your research career? Did you have much time for research as chairman?

DR. MORROW: Not really. When I was with Tom Boggs, the head of radiology at CHOP was a great person named John Hope. He was a wonderful radiologist, one of the early well-known pediatric radiologists. We wrote a paper on newborn pneumothorax together because at that time people were routinely needling them and of course many had complications. So we followed some of these kids with chest x-rays and realized that many of the pneumothoraces disappeared by themselves without therapy. So we did a series and wrote a paper on newborn pneumothorax.

At that time I was working with Lew Barness. I wrote this paper and it went through about six revisions. I had to type everything up and then you had to clip the papers and paste them together to do the editing. So I said to Barness, "Would you mind reading this paper and giving me feedback?" He said, "OK." So I gave it to him Friday. Monday he came in and I said, "Did you have a chance to read it?" And he said, "Yes." I said, "Well, what did you think of it?" And he said, "There are only two things wrong with it." I felt very pleased and I said, "What are they?" And he said, "Well, the science is pure crap and you have to rewrite it in English." This was my introduction into research criticism.

I was with some very smart, exacting people. I mean Bill Mellman, a geneticist, was there as were Frank Oski and Lew Barness. We had weekly research meetings and they were very, very critical. I mean, if you didn't say what you were thinking and it didn't make sense you really got crucified.

DR. RAUH: You told me before we started the formal interview that you had struggled some in English.

DR. MORROW: I went away to school in tenth grade, Shady Side Academy in Pittsburgh. The start was terrible. I was very good in math, But I look back and think that I must have been dyslexic. I had a cousin with dyslexia and I still may misinterpret words every once in a while. I didn't have the benefit of a label at that time; I just had to work a lot harder to get through medical school and college.

**In my research, Barness was a very good mentor and we did some original work in children with methylmalonic acidemia that led me to having a research position at the University of Arizona. Then when I came to Columbus, it helped me. At least I knew what was expected of me in building a research program at Columbus Children's Hospital. We have done very well and I fortunately recruited people who were smarter and more productive than I am. They now are running the research institute and the hospital and they're doing very well.**

**DR. RAUH:** Tell me a little bit about your experience with your Board of Trustees here and the niches you found for yourself. Also, the "road maps" for fund raising, which I know you've done over a long period of time in this community.

**DR. MORROW:** Well, the Board of Trustees was one of the most satisfying and supportive groups that I had to deal with. I think one of the real advantages of being the medical director in a children's hospital is that you get to deal with the leaders of the city. Even though they didn't know that much medicine they knew the right questions to ask about what I was trying to propose. They really would hold your hand to the fire to make sure you're doing it right. My first president was named Art Vorys, who was head of a law firm here in town, and he was excellent. Others were John Fisher, who was head of Nationwide Insurance, and then Frank Wobst, who was head of the bank. They taught me an awful lot.

**DR. RAUH:** Do you enjoy fundraising?

**DR. MORROW:** I didn't when I first started out. But I think it's easy when you're dealing with something that's worthwhile and needed. And, boy oh boy, when you look at the 15 million uninsured children in the US and you realize that we give \$25 million worth of free care a year at Children's; it is needed. That's not contractual losses; that's unreimbursed free care. Somebody's got to pick that up and with Medicaid and insurance companies saying, "We're not going to pay any of the extra costs of an academic institution," it's becoming more and more of a challenge. So I developed a fondness for fundraising.

The breakthrough, I think, came when I went to the board president, John Fisher. We were raising money for research at that time and I said, "John, I'd really like to have you give some money from Nationwide." And he came back to me and he said, "Well, I think we can give \$100,000." And I said, "John, I was thinking of more than that; I thought more like a million or so." He looked at me and didn't say anything. He came back about two weeks later and said, "OK, we got one and a half mil." And I thought, "Well, gee, that kind of works."

**We had an \$80 million “For Our Children” campaign that just finished. We raised \$108 million, which for this community is impressive, particularly when we’re competing against a billion dollar campaign that the university is doing.**

**DR. RAUH:** Have you been active in the Ohio children’s hospitals groups?

**DR. MORROW:** No, I haven’t. I’ve certainly been aware of them and I know the administrator or the CEO has done more than I have. Toni was very involved. I really turned most of the political issues over to Dr. Eaton; she was absolutely superb in presenting in front of legislators or any group in fact.

**DR. RAUH:** At the present time, you are full time?

**DR. MORROW:** Full time until July first, then I'm going to go 80% time. I'm going take a little more time off and do some traveling. It's really amazing, 80% gives me 10 more weeks off. I'm going to continue to come in full-time except when I'm away and then I'm going to take more time away.

**DR. RAUH:** Where would you like to travel?

**DR. MORROW:** Well, of course, I love Nepal and Bhutan and the Far East. I want to go to Patagonia and see some of the mountains there and I want to go to New Zealand.

**DR. RAUH:** Have you been to New Zealand?

**DR. MORROW:** I’ve never been down to New Zealand; I’ve never been to South America. My wife loves to travel. She is younger than I am so she's a lot more able to stand up to the rigor. As I mentioned to you, we were just trekking in Nepal in November for 17 days. Being in high altitudes and working for 6-10 hours a day was something I enjoyed more looking back on it than I did during the actual event.

**DR. RAUH:** You've been trekking all your life, is that right?

**DR. MORROW:** Well, no. When I was in medical school I went over to work in a Friends Africa Mission in Kenya. I climbed in the Swiss Alps and I climbed Kilimanjaro. Another person and I got a porter and we climbed up Kilimanjaro, which was really very exciting for me.

**DR. RAUH:** I assume this is sophisticated climbing, where you have to use ropes?

**DR. MORROW:** Kilimanjaro wasn't; it was just trekking. But I have done the piton and carabiner kind of thing. Janet's sister lived in Seattle and I took a climbing seminar in Mt. Rainier, which was kind of a prelude to going to Nepal. I went to [Mt.] Everest National Park with my daughter ten years ago and we trekked and went up to the monasteries and saw Everest first hand.

The three things that I always wanted to do in life before I checked out was to see Everest from the ground, which I did. I wanted to see the pyramids and go in them. I did that when we were doing some medical traveling with our sister city in Genoa when we had a 500<sup>th</sup> anniversary here in Columbus. The third thing was to play golf at St. Andrews [Links], which I did. It was probably one of the worst weather days that I ever played golf. They closed the course after our foursome because of the sleet. It was 38 degrees and there was a 50 mile-an-hour wind with sleet. We managed to finish, however. I had to carry my own bag because there weren't any caddies; I was told by the starter that, "the caddies wouldn't come out on a day like this." It was an experience I'll never forget.

**DR. RAUH:** Coming back to mountain climbing. Do you consider yourself an adventurer?

**DR. MORROW** I think so.

**DR. RAUH:** Can you apply that to pediatrics?

**DR. MORROW** Well, you know, I think it took me a little bit of adventure to go to Arizona, when I had a really very stable life and job and my wife had a comfortable life. We took off there. Coming back to Columbus where the residency program was kind of in shambles, and half of the faculty had left right before I came, was, I think, an adventure. When I look back on it, I guess the things I have great respect for are the institutions that have been productive. The people have been very productive and well educated and they have contributed a lot. I think the heroes of today are a lot different than the kind of the traditional heroes. One of my top heroes is Albert Einstein; I don't think a lot of the kids today even know who he is.

**DR. RAUH:** This is Dr. Rauh talking. That was the end of the second side of the one tape I have gotten from Dr. Morrow. Thank you.

## Index

### A

American Academy of Pediatrics,  
1, 7, 8, 9, 10  
American Academy of Pediatrics,  
Committee on Awards for  
Excellence in Pediatric Research,  
10  
American Board of Pediatrics, 9,  
10  
Aplin, Elizabeth R., 7

### B

Barness, Lewis A., 5, 6, 9, 12, 13  
Boggs, Thomas, 4, 5, 12  
Brass, Alan, 8

### C

Camden Municipal Hospital, 3  
Children's Guidance Centers, 11  
Children's Cancer Study Group, 9  
Children's Hospital of  
Philadelphia, 2, 3, 4, 5, 7, 11, 12  
Columbus Children's Hospital, 2,  
7, 8, 11, 13  
Columbus Children's Hospital,  
Board of Trustees, 13  
Comroe, Julius H., 3

### D

Denver General Hospital, 2, 3  
dyslexia, 12

### E

Eaton, Antoinette P., 7, 8, 10, 14  
exchange transfusion, 4, 5

### F

Fisher, John, 13  
Friends Africa Mission, 14  
Fulginiti, Vincent A., 6

### G

Genoa, 15  
golf, 1, 15  
Graham, Bruce, 8, 10

### H

Haverford College, 2  
Hope, John, 12  
Hospital of the University of  
Pennsylvania, 4, 5

### K

Kilimanjaro, 14, 15  
Koop, C. Everett, 3

### L

Liley, Albert William, 5

### M

managed care, 9, 12  
McIlroy, Mary, 7  
Mellman, William, 5, 12  
methylmalonic acidemia, 5, 6, 13  
Morrow, Beth, 11  
Morrow, Evie, 11  
Morrow, Janet, 7, 10, 11, 15  
Mt. Everest National Park, 15  
Mt. Rainier, 15

### N

Nationwide Insurance, 13  
neonatology, 5, 6  
Nepal, 14, 15  
New Jersey, 3  
New Zealand, 14  
newborn pneumothorax, 12  
NIH National Collaborative  
Perinatal Project, 5

## **O**

**Oski, Frank A.**, 5, 6, 12

## **P**

**Pauling, Linus**, 2

**Pennsylvania Hospital**, 2, 4

**Philadelphia General Hospital**, 2, 5

**Pittsburgh, Pennsylvania**, 1, 12

**polio**, 3

**practice plan**, 8, 9

**Presbyterian Hospital**, 4

## **R**

**Residency Review Committee**, 10

## **S**

**salary**, 4

**Shady Side Academy**, 12

**St. Andrews Links**, 15

**Stockman III, James A.**, 10

**Stokes, Jr., Joseph L.**, 3, 4

## **T**

**Tucson Medical Center**, 6

## **U**

**University of Arizona**, 6, 7, 13

**University of Colorado**, 2

**University of Pennsylvania**, 2, 5

## **V**

**Vorys, Art**, 13

## **W**

**Wobst, Frank**, 13





## **CURRICULUM VITAE**

Name: Grant Morrow, III, M.D.  
Date of Birth: March 18, 1933  
Place of Birth: Pittsburgh, Pennsylvania  
Office Address: Children's Hospital Research Foundation  
700 Children's Drive, Columbus, Ohio 43205-2696  
Marital Status: Married, Cordelia W. Robinson  
Children: Elizabeth Anne Morrow – 5/24/64  
Evelyn Margaret Morrow – 12/18/65

### **FORMAL TRAINING:**

1951-1955 Undergraduate – Haverford College, Haverford, PA  
B.A. received 1955, Major – Chemistry  
1955-1959 Graduate – University of Pennsylvania  
Doctor of Medicine received 1959  
1959-1960 Rotating Internship – University of Colorado, Denver  
General Hospital  
1960-1962 Pediatric Residency – Children's Hospital of Philadelphia -  
University of Pennsylvania  
1962-1963 Neonatal Fellowship – Pennsylvania Hospital – University  
of Pennsylvania

### **ACADEMIC APPOINTMENTS:**

1962-1963 Assistant Instructor, University of Pennsylvania School of  
Medicine, Department of Pediatrics  
1963-1966 Instructor, University of Pennsylvania School of Medicine,  
Department of Pediatrics  
1966-1968 Associate, University of Pennsylvania School of Medicine,  
Department of Pediatrics  
1968-1970 Assistant Professor, University of Pennsylvania School of  
Medicine, Department of Pediatrics

**ACADEMIC APPOINTMENTS: (continued)**

1970-1972	Associate Professor, University of Pennsylvania School of Medicine, Department of Pediatrics; tenured position
1972-1974	Associate Professor, University of Arizona School of Medicine, Department of Pediatrics
1974-1978	Professor, University of Arizona School of Medicine, Department of Pediatrics; tenured position
1975-1978	Director of Neonatal Biology, University of Arizona School of Medicine, Department of Pediatrics
1976-1977	Acting Chair, Department of Pediatrics, University of Arizona School of Medicine
1978-1993	Chairman, Department of Pediatrics, Ohio State University College of Medicine
1978-present	Professor, Ohio State University College of Medicine; tenured position

**PROFESSIONAL APPOINTMENTS:**

1963-1965	Assistant Physician to the Out-Patient Department, Pennsylvania Hospital
1963-1972	Assistant Physician, Children's Hospital of Philadelphia
1965-1972	Assistant Chief, Philadelphia General Hospital
1965-1972	Associate Physician, Hospital of the University of Pennsylvania
1972-1978	Staff Physician, University of Arizona Medical Center
1972-1978	Staff Physician, Tucson Medical Center
1978-present	Active Staff Physician, Columbus Children's Hospital
1978-present	Attending Staff Physician, University Hospital, Ohio State University

**MAJOR ADMINISTRATIVE ENDEAVORS:**

<u>The Ohio State University College of Medicine</u>	
Chairman, Department of Pediatrics	9/1/78 – 12/31/93
Chairman, Practice Plan Review Committee	10/24/84 – 3/6/85
Director, Division of Biochemical Disorders	1/1/94 – present
<u>Children's Hospital, Columbus, Ohio</u>	
Medical Director	9/1/78 – 12/31/93
Medical Director, Children's Hospital Research Fdn.	9/1/78 – present
Chief, Department of Pediatrics	9/1/78 – 12/31/93
Chief, Section of Biomedical Disorders	1/1/94 – present

National Association of Children's Hospitals and Related Institutions  
(NACHRI)

Elected to Board of Trustees	9/23/80 – 9/22/83 9/20/84 – 9/19/86
Appointed to Council on Pediatric Health Care & Delivery	10/15/80
Appointed to Council on Information Resources	1982 – 1983

**MEDICAL EXPERIENCE:**

Clerkship in Clinical Medicine, Kenya, East Africa	1958 (summer)
Neonatal Research, Pennsylvania Hospital	1963 – 1965
Clinical, research and teaching experience - Children's Hospital of Philadelphia, Hospital of the University of Pennsylvania and Philadelphia General Hospital at the University of Pennsylvania, Philadelphia, PA	1965 – 1972
Clinical, research and teaching experience - University of Arizona Medical Center and Tucson Medical Center, Tucson, AZ	1972 – 1978
Clinical, research and teaching experience Columbus Children's Hospital and the Ohio State University Hospitals, Columbus, OH	9/1/78 – present

**MEMBERSHIP IN EDITORIAL BOARDS:**

Advances in Pediatrics, 1975 – present
Pediatrics, 1979 – 1985
Journal of Pediatrics, 1978 – 1985
Practice of Pediatrics, 1978 – 1980

**MEDICAL LICENSURES:**

Pennsylvania State License	8/18/60
California State License	5/18/61
Arizona State License	1/1/72
Ohio State License	8/11/78

**BOARD CERTIFICATION:**

American Board of Pediatrics	11/1/64
Recertified: 6/82, 7/89, 10/93	
Sub-Board of Neonatal-Perinatal Medicine	11/15/75
American Board of Medical Genetics	3/15/82

**MAJOR FIELDS OF INTEREST:**

<u>Primary Interests</u>	Amino acid and organic acid metabolism, particularly in the neonatal period and in patients with inborn errors of metabolism
	Vitamin responsive states
	Biochemical aspects of hyperalimentation
	Neonatal obesity
	Prenatal detection of inborn errors of metabolism
	Evaluation of Pediatric Residency Education
	Neonatal hyperbilirubinemia
	Trace metal metabolism
	Neonatal nutrition – emphasis on vitamins and protein
<u>Secondary Interests</u>	Calcium metabolism
	Respiratory distress syndrome
	Renal disorders in children

**ACADEMIC HONORS AND AWARDS:**

Shady Side Academy – Cum Laude (1951)
Haverford College – Honors in Chemistry, Phi Beta Kappa (1955)
University of Pennsylvania, Lowenberg Prize in Pediatrics (1959)
Alpha Omega Alpha – Elected for achievements as Chairman, Researcher and Physician (1986)

**PROFESSIONAL AND SCIENTIFIC SOCIETIES:**

American Board of Pediatrics (11/1/64)  
American Academy of Pediatrics (4/22/65 – present)  
American Institute of Nutrition  
American Pediatrics Society (Active)/Society for Pediatric Research  
(Emeritus)  
Subspecialty Chairman, Metabolism, 1970 and 1982; Genetics, 1980  
American Society for Clinical Nutrition  
American Society for Human Genetics  
American Society for Parenteral Nutrition (ASPEN)  
Arizona Medical Association  
Association of Medical School Pediatric Department Chairmen  
Midwest Society for Pediatric Research (Emeritus)  
Philadelphia Society of Pediatrics  
Western Society for Pediatric Research (Research Council 1977 – 1980)

**UNIVERSITY AND PROFESSIONAL COMMITTEES:**

University of Pennsylvania

Clinical Research Center Committee  
Record Room Committee  
Search Committee for Chairman of ENT Department  
Transfusion Committee

University of Arizona

General Research Support Committee  
Student Progress Committee  
Appeals Subcommittee of Student Progress Committee  
Housestaff Committee, University of Arizona Medical School,  
Chairman  
Pediatric Line Committee, Tucson Medical Center  
Promotion and Tenure Committee, Department of Pediatrics,  
Chairman  
Curriculum Committee Department of Pediatrics Chairman  
Search Committee for Chairman, Department of Surgery  
Ad Hoc Committee for Promotion of Faculty in Various  
Departments  
Search Committee for Chairman, University-Wide Department of  
Biochemistry  
College of Medicine Promotion and Tenure Committee, 1976-78;  
Chairman, 1978-79  
Search Committee for Nutritionist, Dept of Nutrition and Food  
Service, Chairman

## **UNIVERSITY AND PROFESSIONAL COMMITTEES: (continued)**

### The Ohio State University

Representative to the Committees of the Board of Trustees of The Ohio State University Hospitals (Member At-Large to Medical Administrative Committees) 9/1/80  
Chair, College of Medicine Search Committee for Chairman, Department of Surgery, 1985-1986  
Member, College of Medicine Search Committee for Chairman, Department of Obstetrics/Gynecology, 1986-1987  
OSU Vice President for Health Services' Policy Council, 1986  
College of Medicine Representative to Medical Humanities Advisory Committee – 7/1/87  
Appointed to Nisonger Center Program Advisory Board – 1987 (Mental Retardation & Development Disabilities Center)  
Search Committee for Provost, The Ohio State University – 1989  
Chairman, Committee to Review Department of Internal Medicine Residency Program, March 1991  
Search Committee for Dean of the College of Medicine, The Ohio State University, 1994-1995  
Grievance and Appeals Committee, the College of Medicine, The Ohio State University, 1996-1999  
Promotion and Tenure Committee, Department of Pediatrics, The Ohio State University, 1995 – present

### The American Board of Pediatrics (ABP)

Board Certified 11/1/64  
Appointed Oral Examiner 1979 – 1989  
Appointed to Subspecialties Committee 1/1/87  
Elected member of the Board, ABP, 1986 – present  
Appointed as Chairman, Committee on Education and Evaluation of Residents, 1989 (3-year term)  
Appointed to Guidelines for Combined Training Program Committee, 1988  
Appointed as Liaison to Sub-Board of Pediatric Nephrology, 1989  
Appointed to Joint Committee with Association of Medical School Pediatric Department Chairmen (AMSPDC) and American Board of Medical Specialties (ABMS) 1989  
Elected Chairman-Elect at 1990 ABP Annual Meeting – September 1989  
Elected Chairman ABP, at Annual Meeting, September 1990 (Term: 1/1991 – 12/1992)  
Reappointed as Member, Executive Committee, ABP January, 1993 – December 1995, serving on: AAP-ABP Liaison Committee; Long-Term Investment Committee; Nominating Committee; and the Council of Past Presidents/Chairmen

**UNIVERSITY AND PROFESSIONAL COMMITTEES: (continued)**

Accreditation Council Graduate Medical Education (ACGME)

Member, Residency Review Committee for Pediatrics, 1983 – 1989; 1995 –

Chairman, Residency Review Committee for Pediatrics, 1988 – 1989

Member of Standing Panel for Accreditation Appeals in the Specialty of Pediatrics, June 1993 – May 1999

American Board of Medical Specialties (ABMS)

Committee on Certification, Subcertification and Recertification (COCERT) March 1990 – March 1993

Elected to Nominating Committee, March 1991 – February 1993

Elected to Executive Committee, 1992 – 1994

American Academy of Pediatrics

Appointed to Committee on Awards for Excellence in Pediatric Research, July 1, 1993 – June 30, 1996

Chair, 1995 – 1996

**OTHER PROFESSIONAL ACTIVITIES:**

Conferences Attended as Speaker

1. AMA Convention, Atlantic City, New Jersey, 6/18 – 6/22/67; “Screening for Metabolic Diseases”
2. AAP Postgraduate, Denver, Colorado, 9/10-9/13/69, “Screening for Metabolic Diseases”
3. North Pacific Pediatric Society Meeting, Vancouver, BC, 3/4-3/7/70; “Computer Assisted Diagnosis”
4. Vail Conference on Pediatric Practice, Vail, Colorado, 9/16-9/19/70; “Computer Assisted Diagnosis”
5. Post Graduate Program, American College of Obstetrics and Gynecology, Atlantic City, New Jersey, 10/15-10/17/70; “Resuscitation – Evaluation of Newborn, Genetics, and Malformations”
6. Newborn Symposium, Louisville, Kentucky, 11/5-11/6/70; “Prenatal Detection and Treatable Forms of Inborn Errors”
7. New Jersey Academy, Trenton, New Jersey, 10/6/71; “Clinical Approach to Management of the Newborn”
8. American College of Obstetrics and Gynecology, Wilmington, Delaware, 10/14/70; “Evaluation of the Newborn and Congenital Disorders”
9. American Cleft Plate Association, Phoenix, Arizona, 4/15/72; “Biochemical Aspects and Prenatal Diagnosis”
10. American Academy of Pediatrics, New York, New York, 10/15/72; “Failure to Thrive”
11. American Academy of Pediatrics, Tucson, Arizona, 11/25-11/26/72; “Management of hyperbilirubinemia in the Neonatal Period”
12. Arizona Medical Association, Scottsdale, Arizona, 4/25/74; “The Influence of Drugs, Infections, and Chromosomes During Pregnancy on the Fetus”

**OTHER PROFESSIONAL ACTIVITIES: (continued)**

Conferences Attended as Speaker

13. American Academy of Pediatrics Round Table, San Francisco, California, 10/22-10/23/74; “Failure to Thrive”
14. Wilmington Pediatric Society, Wilmington, Delaware, 9/17-9/19/76; Visiting Professor
15. Third Annual Symposium on Perinatal Medicine, Upstate Medical Center, Syracuse, New York, 10/27/76; “Detection of Metabolic Errors”
16. Los Angeles Children’s Hospital, Los Angeles, California, 11/17-11/19/77; Visiting Professor, Department of Pediatrics
17. AMA Winter Scientific Meeting, Miami, Florida, 12/10-12/13/77; “Nutrition in Childhood”
18. National Association of Pediatric Nurses’ Associates and Practitioners Annual Meeting, Chicago, Illinois, 10/22/78; “Problems in Nutrition”
19. Institute for Developmental Research, Cincinnati Children’s Research Foundation, Cincinnati, Ohio, 5/1/79; Visiting Professor
20. Children’s Orthopedic Mental Research Center, Seattle, Washington, 8/8-8/9/79; Visiting Professor, Department of Pediatrics
21. Children’s Hospital of Pittsburgh, Pittsburgh, Pennsylvania. 10/11/79; Visiting Professor, Department of Pediatrics
22. Polyclinic Medical Center, Department of Pediatrics, Harrisburg, Pennsylvania, 1/14-1/16/80; Journal of Pediatrics’ Visiting Professor
23. Cleveland Clinic, Department of Pediatrics, Cleveland, Ohio, 7/31/80; Visiting Professor
24. Upstate Medical Center, State University of New York, Department of Pediatrics, Syracuse, New York, 9/24/80; Visiting Professor
25. University of Oklahoma, Department of Pediatrics, Health Sciences Center, Oklahoma City, Oklahoma, 4/20/81; Visiting Professor
26. 15<sup>th</sup> Annual Newborn Symposium, University of Louisville Health Services Center, Louisville, Kentucky, 10/29/81; Visiting Professor
27. Baystate Medical Center, Springfield, Massachusetts, 2/4/82; Visiting Professor, Department of Pediatrics
28. NACHRI Annual Meeting, Chicago, Illinois, 10/8/82; “Faculty Practice Plans”
29. University of Arizona Health Sciences Center, Tucson, Arizona, 1/31-2/4/83; Visiting Professor, Journal of Pediatrics Lectureship
30. University of Florida, Gainesville, Florida, 12/7-12/9/83; Visiting Professor
31. 7<sup>th</sup> Annual Continuing Medical Education “Pediatric Update”, Puerto Vallarta, Mexico, 1/31-2/3/84; Featured Speaker
32. St Louis University/Cardinal Glennon Memorial Hospital for Children, St Louis, Missouri, 4/9-4/10/85; Featured Speaker
33. Children’s Hospital Medical Center of Akron, Akron, Ohio, 4/19/85; “Pediatric Update”, Featured Speaker
34. Accreditation Council for Graduate Medical Education (ACGME), Chicago, Illinois, 1/5/87; Speaker at Workshop for ACGME Field Staff, “Special Requirements for Pediatrics & Subspecialties Pediatrics”



**OTHER PROFESSIONAL ACTIVITIES: (continued)**

Conferences Attended as Speaker

35. Neonatal Manpower Meeting, Ross Laboratories, Tempe, Arizona, 3/25-3/29/87; "Community Hospital and Universities"
36. Advisory Board, Children's Research Center, University of Arizona, Tucson; 3/14-3/15/88; Visiting Professor
37. Neonatal-Perinatal Medicine Fellowship Program Directors Meeting, Washington, DC, 5/2/88; "New Mandatory 3-Year Fellowship Program and Fellowship Program Resultant Changes"
38. Hadassah Medical Organization, Jerusalem, Israel, 1/10/89' Visiting Professor, "Amino Acid Metabolism & Inborn Errors of Metabolism"
39. Gaslini Children's Hospital, Genova, Italy, 1/13/89; Visiting Professor, "Amino Acid Metabolism & Inborn Errors of Metabolism"
40. Schneider's Children Hospital, Department of Pediatrics, Long Island Jewish Medical Center, 1/26-1/27/89; Visiting Professor, "Clinical Clues for Diagnosing Inborn Errors of Metabolism"
41. Twelfth Annual Pediatric Update Conference, Columbus Children's Hospital & The Ohio State University, Hawaii, 2/7/89; "Recognizing Inborn Errors of Metabolism"
42. University of Wisconsin/Madison Medical School Department of Pediatrics, 8/29-8/30/90; Site Visitor, Department of Pediatrics, Review of Pediatrics
43. Grant Hospital, Sixth Annual Update in Neonatal-Perinatal Medicine, Columbus, Ohio, 10/16/91; "Inborn Errors of Metabolism" and "The Ins and Outs of State Newborn Screening"
44. National Research Council Conference, Society in Crisis: Problems of Women and Children and Approaches to Solutions, Washington, DC, 7/21-7/22/93; "Session III: Training of Physicians in the Problems of Women and Children. A. Major Problems in Training"

**COMMUNITY AWARDS:**

1993 Health Care Leadership Award – Given by Hospital Association of Central Ohio

**GRANTS AWARDED AS PRINCIPAL INVESTIGATOR:**

National Institutes of Health: Metabolic Studies in Methylmalonic Acidemia  
1/1/70 – 12/31/72, \$84,407

The National Foundation: Glycine and Branched Chain Amino Acid Metabolism in Non-Ketotic Hyperglycinemia and Methylmalonic Acidemia  
7/1/73 – 6/30/74, \$35,000  
7/1/74 – 6/30/75, \$35,000  
7/1/75 – 6/30/76, \$22,000

**GRANTS AWARDED AS PRINCIPAL INVESTIGATOR: (continued)**

National Institutes of Health: Metabolic Studies in Methylmalonic  
Acidemia  
6/1/74 – 5/31/77, \$118,174

Arizona Department of Economic Security: Mental Retardation – Genetic  
Counseling  
7/1/73 – 6/30/74, \$15,000  
7/1/74 – 6/30/75, \$15,000

The National Foundation: Summer Science Research Grant for Medical  
Students  
6/6/77, \$1,000 (Robin Clark)

The National Foundation: Characterization of Mutant Fibroblasts Using  
Tissue Culture Techniques  
4/1/78 – 8/31/79, \$20,000

The National Foundation: Summer Science Research Grant for Medical  
Students  
7/1/78, \$1,000 (Joan Berman)

Department of Health and Human Services, Division of Research  
Resources: Biomedical Research Support Grant  
4/1/84 – 3/31/85, \$21,671  
4/1/85 – 3/31/86, \$32,110  
4/1/86 – 3/31/87, \$36,999  
4/1/87 – 3/31/88, \$29,671  
4/1/88 – 3/31/89, \$33,200  
4/1/89 – 3/31/90, \$35,368  
4/1/90 – 3/31/91, \$26,893  
4/1/91 – 3/31/92, \$12,243  
7/15/90 – 6/30/91, \$10,026 (Small Instrument Grant)  
8/1/90 – 7/31/92, \$10,084 (Small Instrument Grant)  
7/1/92 – 6/30/93, \$16,121 (Small Instrument Grant)  
9/1/94 – 8/31/05, \$23,145 (Small Instrument Grant)

**GRANTS AWARDED AS CO-PRINCIPAL INVESTIGATOR:**

Arizona Diabetes Association: Prospective Study of Maternal Obesity  
and/or Carbohydrate Intolerance on Fetal Outcome, 7/1/78 – 12/1/78  
(with Michael Kappy, MD, Principal Investigator; Grant Morrow, III,  
MD and Gail G. Harrison, PhD, Co-Principal Investigators), \$10,000

**PUBLICATIONS IN JOURNALS, PEER-REVIEWED:**

1. Morrow III G, Bongiovanni AM, Bomberger JHA, and Gobbs TR: The Effect of Triiodothyronine on neonatal hyperbilirubinemia. *J Pediatr* 68L413-417, 1966.
2. Morrow III G, Kivirikko K, and Prockop DJ: Hydroxyprolinemia and increased excretion of free hydroxyproline in early infancy. *J Clin Endoc* 26:1012-1014, 1966.
3. Morrow III G: Citrullinemia – a preliminary case report. *Am J Dis Child* 113:1571-59, 1967.
4. Morrow III G, Hope JW, and Boggs TR: Pneumomediastinum – a silent lesion in the newborn. *J Pediatr* 70:554-560, 1967.
5. Morrow III G, Barness LA, Fost A, and Rasmussen H: Calcium metabolism in osteopetrosis. *Am J Dis Child* 114:161-168, 1967.
6. Morrow III G, Barness LA, and Efron ML: Citrullinemia with defective urea production. *Pediatrics* 40:565-574, 1967.
7. Morrow III G, Kivirikko K, and Prockop DJ: Catabolism and excretion of free hydroxyproline in infancy. *J Clin Endoc* 27:1365-1372, 1967.
8. Downes JJ, Arya SC, Morrow III G, and Boggs RT: Transient respiratory distress syndrome in the newborn. *Arch Dis Child* 42:659-662, 1967.
9. Barness LA, Oski FA, Williams ML, Morrow III G, and Arnoud SB: Vitamine E response in infants fed a low-fat formula. *Am J Clin Nutr* 21:450-44, 1968.
10. Barness LA, and Morrow III G: Methylmalonic Adicuria – A newly discovered inborn error. *Ann Int Med* 69:633-635, 1968.
11. Morrow III G, Barness LA, Auerbach VH, DiGeorge AM, Ando T, and Nyhan WL: Observations on the co-existence of methylmalonic acidemia and glycinemia. *J Pediatr* 74:680-690, 1969.
12. Morrow III G, and Barness LA: Studies in a patient with methylmalonic Acidemia. *J Pediatr* 74:691-698, 1969.
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