Stuart Speedie, Ph.D.
Narrator

Dominique A. Tobbell, Ph.D.
Interviewer

INSTITUTE FOR HEALTH INFORMATICS
HISTORY PROJECT

UNIVERSITY OF MINNESOTA

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In 2015, the Institute for Health Informatics (IHI) celebrates the 50th anniversary of health informatics at the University of Minnesota. Early institutional markers serve as the formal beginnings of the emergent discipline of health informatics at the University of Minnesota, designating the University of Minnesota as one of the first academic institutions to support and subsequently anchor the development of the new discipline. In 1965, the National Institute of Health (NIH) Division of Research Resources awarded the University of Minnesota's College of Medical Sciences a grant to establish a Biomedical Data Processing Unit at the University. Two years later, the Hill Family Foundation awarded a ten-year grant to Professor Eugene Ackerman to initiate a graduate research and training program in Biomedical Computing. In 1968, the College of Medical Sciences established the Division of Health Computer Sciences, which would serve as the administrative home for the NIH research resources grant, housed within the Department of Laboratory Medicine. The Division provided interdisciplinary training to pre-doctoral and post-doctoral students applying health computer sciences technology to health services research. In 1974, the University of Minnesota was awarded the prestigious National Library of Medicine Grant for Training in Health Computer Sciences, which formally established the Graduate Program in Health Informatics at the University of Minnesota. The Division and its institutional successor, the Institute for Health Informatics (created in 2006), received continuous training grants from the National Library of Medicine until 2009. For fifty years, the University of Minnesota has been one of the preeminent health informatics institutions in the United States.

The Institute for Health Informatics History Project captures, analyzes, and records the history of health informatics at the University of Minnesota. Through oral history interviews, the Project preserves the personal stories of faculty members and National Library of Medicine administrators who were involved in the early history of the field and have keen insights into the history of health informatics at the University of Minnesota.

Biographical Sketch

Stuart Speedie received a B.S. in Computer Science (1969), M.S. in Educational Research, Psychological Statistics (1970), and a Ph.D. in Educational Research, Educational Psychology, Statistics and Measurement (1973) from Purdue University, Indiana. After earning his Ph.D., Dr. Speedie took a position as senior associate in evaluation in the Improving Teaching Competencies Program at the Northwest Regional Education Laboratory in Portland, Oregon, a position he held for two years. From July 1975 through January 1996, Dr. Speedie was a faculty member at the University of Maryland. In 1983/1984, he spent a sabbatical year at Stanford University School of Medicine in the Division of Clinical Pharmacology. While at the University of Maryland, Dr. Speedie served as Director of Education at the University of Maryland's School of Pharmacy from 1975 to 1981; Assistant Dean of Pharmaceutical Informatics at the School of Pharmacy from 1981 to 1991; and Associate Director of the Center on Drugs and Public Policy at the University of Maryland Graduate School, Baltimore from 1989 to 1996. He was associate professor of Pharmacy Practice and Administrative Science from 1980 to 1993 and professor of Pharmacy Practice and Science from 1993 to 1996. In February 1996, Dr. Speedie joined the Division of Health Computer Sciences at the University of Minnesota when his wife, Marilyn Speedie, Ph.D. was recruited to serve as Dean of the University's College of Pharmacy. In addition to joining the Division of Health Computer Sciences, Dr. Speedie was appointed professor of Laboratory Medicine and Pathology, Director of Health Science Academic Information Systems in the Academic Health Center (from February 1996 to July 1996), and Special Assistant to the Provost of the Academic Health Center for Information Technology, a position he held until the end of 1999. He was then recruited by the Medical School to serve as the school's Director of Education Informatics, a position he held until July 2007. From 1999 until 2013, Dr. Speedie served as Director of Graduate Studies for the Health Informatics graduate program, and between 2006 and 2008 he served as interim co-Director and then between 2011 and 2013 co-Director (both times with Connie Delaney, Ph.D., RN) of the Institute for Health Informatics.

Dr. Speedie's research has focused on the impact of health information technologies on patient outcomes, provider perceptions and attitudes, and organizational outcomes. In particular, his research has focused on the impact of technologies of health information exchange, telehealth, and electronic prescribing. He has also been heavily involved in the design of information systems to support clinical research in primary care settings. In 2008, Dr. Speedie was inducted into the American College of Medical Informatics.

Interview Abstract

Stuart Speedie begins by discussing his educational background and his early career spent first at the Northwest Regional Educational Laboratory in Portland, Oregon, and then at the University of Maryland School of Pharmacy where he served as Director of Education. He discusses his early interest in information systems and technology and his

five-year NSF-funded research project on the development of expert systems on the appropriate use of drugs in hospital settings, which he developed during a sabbatical year at Stanford University. He describes his responsibilities disseminating information technology at the University of Maryland and the information systems research he conducted there. Next he discusses his move to the University of Minnesota, his appointment in the Division of Health Computer Sciences and in the office of the Provost of the Academic Health Center, and his role on the Provost's Reengineering Task Force on Information Technology. He discusses his role within the Division of Health Computer Sciences (subsequently renamed the Division of Health Informatics); his work in telehealth and telemedicine; and his collaboration with Stanley Finkelstein on the use of telehealth technologies in homecare. He next discusses the NLM Research Training in Medical Informatics program. He describes the efforts to establish the terminal Masters in Health Informatics; the influence of different directors—Laël Gatewood, Donald Connelly, Julie Jacko—on the Division and later, the Institute for Health Informatics; his collaborations with Donald Connelly on the impact of health information exchange on patients and hospital emergency departments; the influence of Connie Delaney's appointment to the Institute for Health Informatics; and the Division and Institute's long-term relationship with the Mayo Clinic.

Interview with Doctor Stuart M. Speedie

Interviewed by Dominique Tobbell, Oral Historian

Interviewed for the Academic Health Center, University of Minnesota
Oral History Project

Interviewed in Doctor Tobbell's Office in Diehl Hall
University of Minnesota Campus, Saint Paul, Minnesota

Interviewed on September 11, 2014

Stuart Speedie   - SS
Dominique Tobbell   - DT

DT: This is Dominique Tobbell. I'm here with Doctor Stuart Speedie. It is September 11, 2014. We're in my office in Diehl Hall.

To get us started, if you could, give me a little about your educational background.

SS: Certainly. I went to school for my undergraduate degree at Purdue University, earned an undergraduate degree in mathematics and computer science. There was no real computer science degree, at the time, so I got to do it in mathematics. I got distracted by the political situation. [sigh] This was back in the 1960s. Actually, as a result, I ended up getting a master's and a Ph.D. in educational research with the intent of saving the world through public education.

Then, my career went on from there in various places.

DT: Where did you go after you graduated with your Ph.D.?

SS: My first position was at the Northwest Regional Educational Laboratory in Portland, Oregon. I ended up authoring a series of textbooks on using IT [information technology] applications for educational administrators and, then, doing evaluation work for them. I was there for two years and, then, went to the University of Maryland School of Pharmacy and became their director of education.

DT: What led you to your interest in using information technology in education?

SS: Actually, information technology was something that I had an interest in, acquired at relatively early age. This was back in the years when they had NSF [National Science Foundation] summer camps. I went to one where they were teaching mathematics and engineering. One of the things that they were teaching us about was doing basic

programming using Flexowriters, which were these paper tape machines, to create programs and make them run. I was fascinated with that. Actually, I wrote my first program, which played 3-dimensional Tic Tac Toe.

[chuckles]

SS: I carried that fascination with information systems and technology through my entire career. My first undergraduate year was at Wesleyan University in Connecticut. There, they had a computer system in the astronomy observatory in the basement. So I used to go play with that evenings and weekends.

DT: That sounds great.

SS: When I went to Purdue, I did major in chemistry, and physics, and math, and sort of got into computer science when they started making those courses available.

DT: So you were able to use information systems in your graduate work as well?

SS: Oh, yes, both in my graduate work and my employment. The job I had the last two years I was an undergraduate was to run the class registration program for the student registration system each day fall and spring, so I would carry this big deck of cards and run it through the computer to schedule all the students for their classes.

DT: I'm guessing you were Mister Popular.

SS: Well, I always got the classes *I* wanted.

[laughter]

DT: That was a very smart decision to take the job.

SS: Even when I wanted my master's and Ph.D., it was heavily quantitative in nature, doing analyses and using those technologies to do the analyses that went along with the research. It's always been an important part of my professional and personal interest.

DT: When you moved to the University of Maryland, was that your first foray into health informatics or using information systems in health sciences?

SS: Health informatics didn't really exist at that time. This was 1972 when we moved there.

There's a little aside… My wife [Marilyn Speedie] also went to Purdue. She is a pharmacist. When we went to Oregon, I worked in Portland, and she had a teaching position at Oregon State University in Corvallis. One of the reasons I ended up going to the pharmacy school is that they also wanted to hire her. Actually, we were one of those fortunate couples who found two positions within the same school at the same time.

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DT: That's fabulous.

SS: It doesn't happen much anymore.

I'm trying to remember what my title was…certainly, director of educational programs or activities. Basically, what my job was at that time was to try help the faculty improve their teaching skills and abilities and I got into using technologies to do that and kept that going.

Eventually, I started becoming involved with the researchers. One of the things we were very interested in, at the time, was how drugs are used in nursing homes. We collected a lot of data about the drugs that were being used in nursing homes, prescription dispensing, etcetera, so I ended up writing computer programs to sort those out, which ones were an appropriate use and which were an inappropriate use.

DT: So that's really when you…

SS: That's really, probably, how I got involved in health informatics.

While I was doing that, working on that, I ended up going down to a seminar in Washington, D.C. That was an advantage of living in Baltimore; it was close. [Edward A.] Ed Feigenbaum from Stanford University was giving the presentation. Afterwards, he needed a ride to the airport, and I had the capability to do that, so I gave him a ride to the airport. We had a terrific discussion about artificial intelligence in medicine at that time. He said, "Well, we have some great programs out at Stanford. Why don't you check into it?" I'd just gotten promoted, and I was eligible for a sabbatical. So in 1984, I did a full year sabbatical at Stanford. Again, both my wife, and I were able to do that.

DT: You've been really lucky.

SS: Yes. Yes. We closed down the house, took our third grade daughter, traipsed across country, and spent a year at Stanford in Palo Alto, which was absolutely a delightful year. I met a lot of the people who are prominent in health informatics today there. I developed a research project that lasted for about five years. It was a research project that had the unique distinction of being terminated by the earthquake in San Francisco…

DT: Oh, wow.

SS: …during the World Series. We were just in the process of installing an experimental system in the Palo Alto Veterans Administration [V.A.] facility. The earthquake severely damaged that facility, and we couldn't do it. Then, our funding ran out.

DT: Oh, goodness.

SS: And the government wasn't interested in giving us an extension.

DT: That's too bad. What was the project?

SS: We were developing expert systems that were looking for appropriate uses of drugs in the hospital setting taking into account laboratory values that were available and diagnostic information that was available, as well. We sat within an early version of the V.A. system and would go through all of the drug therapy for patients, and, basically, flag those prescriptions or those drug orders that seemed to have problems because of the potassium level too low or already on another drug that is similar, all those sorts of things that were a diagnosis that were contraindications. It was a very early form of the computerized physician order entry systems that have come along, subsequently.

DT: It sounds really valuable at the time and, subsequently, obviously.

SS: We were in competition with, I think, about three other groups. They had more resources than we did.

DT: Who were you funded through?

SS: That was AHRQ [Agency for Healthcare Research and Quality], actually. So it wasn't NLM [National Library of Medicine].

[chuckles]

DT: Unlike most other health informatics work.

SS: Right.

DT: It makes sense that that agency would be interested in funding that work.

SS: They were looking to improve patient safety, at the time, and did have some money, at that point. I was able to actually pick up on a project that had been developed by another group at Stanford and build on that. That was AHRQ funding, as well. That worked out pretty well. [Edward H.] Ted Shortliffe was there at the time. He was head of the program. Mark Musen was a student. A number of people subsequently got onto other activities we were in the program with, at the time.

DT: A great experience then.

SS: Yes, it was. It was a great experience.

DT: Then, you returned to Maryland?

SS: Yes, returned to Maryland—that was in 1984—for another twelve years. We came back and had other technology projects that we were interested in doing. I worked with the Maryland Medicaid to do what's called drug utilization review, to automate that

process using expert system rules. We developed a system that would do that for them. We ran into the politics of information systems that sometimes make it difficult to fully implement the system but the ideas got carried through.

Then, I was given some responsibility for disseminating the use of information technology throughout the pharmacy school and the University of Maryland-Baltimore campus, UMB campus. I introduced email to the faculty.

DT: Wow.

[chuckles]

SS: And got them using it. We set up a computer lab for students. I remember spending weekends stringing network cables through the ceiling to get everybody set up. That was fun.

DT: That's neat.

SS: I did write a test scoring program that was in use for about twenty years after I left, in terms of being able to score mark sense test sheets and things like that.

DT: You've left quite a legacy behind.

SS: Yes, yes. Well, most of it has disappeared by now.

DT: You mentioned the politics of information systems. Could you elaborate on that?

SS: When you have an information system that's developed at a state agency with all of the rigor, they're very reluctant to allow people from outside to make additions to that system, and we were outsiders. When we got our system developed and demonstrated and it worked, then we wanted to connect it up, and they basically said, "No. It's too much of a risk for us to do that." That's the history of academics working alongside organizations that have developed their own information systems and are using them for their business purposes. They're very reluctant to have outsiders mess with it.

DT: Yes, that makes that transfer of knowledge and technology difficult then.

SS: Yes.

DT: What led to your decision to come to Minnesota? That was in 1996, I believe.

SS: Yes, it was 1996.

I'll go back to a little story… We'd been at Maryland about eighteen or nineteen years, so we figured we were going to retire, that this was going to be our career for the rest of our lives. So we bought a piece of property in western Maryland, which is not too far from

Morgantown, West Virginia, and built a nice little house on it. This was going to be our retirement area and our vacation home during the summer. So we got that completed.

About three months after that was completed, my wife got a call from the School of Pharmacy saying, "We really want you to come and be dean here." She took a look at it and decided it was something worth doing.

As part of that process, I was hired as well. I had an appointment in the Department of Laboratory Medicine and Pathology—I think that's where my tenure home was up until I started a phased retirement—and in the health informatics group that was there, at the time.

DT: Do you still have your retirement home ready for when you do eventually retire in west Maryland?

[chuckles]

SS: Well, it's there. Actually, we rent it out as a vacation rental. So it's still there. We use it periodically.

DT: When you arrived here, what was the culture like in the Division of Health Informatics?

SS: Well, when I arrived it wasn't the Division of Health Informatics.

DT: It was still Health Computer Sciences?

SS: It was Health Computer Sciences, yes.

It was, in some ways, sort of winding down. There had been a lot of activity with Doctor [Donald P.] Connelly developing their laboratory systems. But he had gone on, for a period of time, to work with McKesson that was developing electronic medical record systems. So he was gone for several years.

There was a simulation facility [National Micropopulation Stimulation Resource] that Doctor [Laël C.] Gatewood had had funded for a number of years. That was closing down at about that time. The person who was very much involved in that was in the process of seeking another position.

But there was Lynda Ellis and [Stanley M.] Stan Finkelstein and Laël C. Gatewood and myself. We were basically running the Division; although I was really the new guy on the block, at that point. The three of them already had lengthy careers.

Have you talked with them?

DT: Yes. I have interviewed them. I've done part one of an interview with Don Connelly, as well.

SS: Okay. Good.

I brought some of my research activities with me from Maryland and was winding those down. I got here and started off doing some teaching in research methodology and working with graduate students. I had a different kind of a position, because I, also, had an administrative set of responsibilities with the Academic Health Center.

Do you know about the era of [William R.] Bill Brody?

DT: I do and, actually, I was going to ask you about your involvement in the reengineering process.

SS: Oh, yes.

[chuckles]

SS: Well, Bill Brody hired both my wife and myself. One of the things that he did early on was appoint me as the person to run the Reengineering Task Force on Information Technology. So I probably spent the first year and a half that I was here doing that most of the time and learning about all the other University reports that had been generated over the years, at the same time. I think I counted eleven or something. I'm sure the stack is considerably higher now. For a variety of reasons, nothing much came of that. I had the opportunity to talk with a lot of people and find out what they were doing and got introduced to a lot of people. But, ultimately, the report ended up where a lot of those reports do: gathering dust somewhere. I don't know if it even exits any longer.

Brody, then, moved on to an even more successful career. He's president of [Johns] Hopkins [University].

DT: Do you know what his hopes were behind reengineering, particularly in terms of what his vision was for reengineering IT? Or was he hoping that you would tell him or the Task Force group would tell him what that should be?

SS: [chuckles] Uhhh… I never got a good sense of what he was specifically looking for. What I think he was trying to do was, basically, stir things up as much as possible to see if they would settle out in a new and potentially different pattern. We made a number of recommendations. Still today, in terms of IT, there are lots of little IT shops around. When people can afford to hire people around them, they do. So you have all of these. They should have been brought together a long time ago. They were certainly financially inefficient. They supported people. They supported the people who running them but, also probably, provided a better level of support to their immediate groups. But there were no standards, you know…all sorts of things. [sigh] I think he probably wanted to see a more centralized, organized group, which, eventually, came about, and we have the

Academic Health Center Information Service. That's primarily a business group or has been a business group until fairly recently. We were focusing more on research and education, and that didn't come to pass.

DT: When Brody left, did you stay in the provost and what became the senior vice president's office?

SS: Well, sort of, yes.

[chuckles]

SS: I was still doing faculty types of things in Health Computer Sciences. I'm trying to think… I'm not sure exactly… Stan Finkelstein was director of graduate studies when I first arrived, but, I, eventually, ended up taking over from him in that role. I don't remember how many years it was after I got here that I did. Also, I was, at that time, after the reengineering, directed to head the biomedical graphics group.

DT: What did that entail?

SS: Those were the people that used to do posters and slides and drawings, traditional artwork for faculty and students in the Medical School when you used to actually have to shoot pictures, right, instead of do them as PowerPoint. I managed those groups of artists, photographers, etcetera, for I think it was three years, something like that. I'm not sure exactly. We introduced the use of computer technology a little more and tried to get them more involved in doing things like designing web pages and using the technology to produce the graphics that people were looking for. That was an interesting session because managing a business like that was not something I ever trained for.

[chuckles]

SS: Frankly, I think the senior vice president's office wanted me to close the place down, get rid of the people.

DT: That's not a fun position to be in.

SS: I didn't do that. I tried to help them figure out ways to survive. They did survive; that is for a while.

Eventually, I got recruited by the Medical School to be their director of educational computing in the Medical School dean's office.

DT: At the same time as being core faculty in Health Informatics, you also had another appointment in administration in various guises?

SS: Yes.

What I didn't mention along the way is that just shortly after I finished the reengineering group, the Academic Health Center had a telemedicine project that was funded by HRSA [Health Resources and Services Administration]. The Hospital had it originally. It was transferred to the Academic Health Center. There was a director of educational resources for the Academic Health Center that left and he had charge of that. I was told, "Okay, you take care of it now." So I learned about telemedicine. That, actually, started a relatively long term interest and involvement in that area, which I, eventually, brought back to Health Computer Sciences Health Informatics and the Institute of Health Informatics. For about ten years, we ran a telemedicine program that provided healthcare to a number of rural sites in Minnesota: dermatology, cardiology, gastroenterology, and those sorts of things. We had people doing that. We got involved nationally in telehealth and telemedicine. I, subsequently, passed that off to a rural hospital to try to continue and expand. It's not something the University should have been involved in. I passed it off to them, and they took it on for a period of three years, and, then, let it go. So it sort of died.

But in the meantime, I got involved with a group at Avera Healthcare in Sioux Falls [South Dakota]. They had something called the Telehealth Resource Center. After being involved with them for about a year, Avera, the organization, decided they didn't want to do it anymore and said, "You take it."

[laughter]

SS: So we inherited the Telehealth Resource Center and we've been doing that for the last… Well, let's see. This is our fourth round of funding for that.

DT: That's also funded by HRSA?

SS: That's funded by HRSA, yes.

DT: Have you found that that telemedicine gets good outcomes for patients who use it?

SS: It has many advantages for patients who use it. Are the outcomes any better than if they'd been seen in a doctor's office? That's hard to tell. The best advantage is they don't have to travel often long distances to see a specialist here, so there's an economic benefit in that. The other is—it's hard to measure—the question of access. They *see* a specialist when otherwise they might not have at all. One would hope that leads to better outcomes. The evidence *is* ambiguous about whether or not it's superior to regular care, face-to-face care. But, certainly, the preponderance of evidence says that it is equal if used appropriately.

DT: I know that in the 1970s when there were efforts to institute early forms of this, it was all about getting over the access issue or not, of rural patients not having access to specialty services and even, in some cases, primary care services. I take it with the telehealth that if the patient needs diagnostic work, they obviously still, then, have to travel for the diagnostic work. This is for the consultation.

SS: Well, the predominant one is consultation, but not necessarily traveling for the diagnostic work. If you have a specialist here and the patient is at a critical access hospital in rural Minnesota, they can get the diagnostic work done there.

DT: Sure.

SS: …which is one of the benefits and attractions for those hospitals to try to arrange for those services.

DT: Yes, so that's neat.

SS: It is becoming more and more a part of healthcare. We've always said that what we'd like to see is that the term telehealth would disappear. It's another method of healthcare delivery. There's nothing terribly special about telehealth. It's not its own separate world. It's a mechanism that provides more accessible and potentially more efficient and effective healthcare delivery.

DT: Why is it that the rural hospitals themselves, the hospital in Sioux Falls or the healthcare system in Sioux Falls, didn't want to keep going? What was their rationale for passing it off?

SS: The rural hospitals often viewed it as a temporary solution that they would use until they could recruit their own specialists. So we had that happen in a few instances. Other situations had to do with the fact that there was an enthusiastic group, an active group of personnel that ran it at that site and they went on to other things, so there was no enthusiasm left to do that. The third reason is that we would have the specialists involved in it who were critical to making it work and the specialist would say they'd run out of time. They would have their local clinic office full, so they didn't want to do it. It had its failures.

What we've seen is it's much more successful within healthcare organizations where the telehealth is within the organization. It might be from the tertiary care hospital in Duluth to the affiliated critical access hospital somewhere in western Minnesota or the [unclear] rural health clinic or something like that. If it's all within the same referral system, it's much more effective. That's really what we're seeing now in Minnesota. There is significant growth, but it's really been in those areas. The Mayos, the Allinas, the Essentias of the world are waking up to its utility.

DT: I'm really interested in my own research on kind of rural access and issues around access and shortages of rural physicians, also in primary care like in the 1970s onwards. I'm really interested in this.

SS: It's a fascinating area in terms of what is the social and professional context and how much difference that makes in delivering this kind of care.

DT: Yes. This is great. This is where a lot of your research focus has been then, since you've been...

SS: My professional activities, yes. I've also maintained a research program and worked with students over that period of time and collaborated with faculty.

I collaborated with Lynda Ellis looking at ways that they could use expert systems to predict biodegradation pathways. We worked on that for about four or five years.

I had a very successful collaboration with Stan Finkelstein looking at homecare. We had two funded projects that tried to implement telehealth technologies but within the home putting computers, and video cameras, and monitoring devices in patient's homes determining whether or not they had an impact on the medical outcomes as a result of that. We did that with two projects. One was initially with just a simple videophone that worked over the regular telephone lines. Then, we had more of a broadband computer-based connection with video monitoring. This was within the homecare context. We were working with homecare agencies in rural Minnesota. We found that there were certainly efficiencies in terms of nursing time. Nurses spent less time with those patients as a result in responding to problems. There were positive outcomes in terms of reduced emergency departments visits or hospital admissions. This was a randomized, controlled trial too. We ended up sort of deciding that what we were demonstrating was not so much as a technology impact but that technology was enabling a higher intensity of care for those patients, because, basically, you were having more frequent contact with them, more frequent exchange of information. That intensity led to better outcomes.

DT: I'd heard from Stan about the home patient monitoring. It sounded like a really important innovation with so much potential. I was wondering about the potential relationship between the telehealth that you first described and then this telehealth in the home. It's like two different scales but both pretty important.

SS: I think it is and in much different settings. There are huge issues of financial reimbursement that have a major impact. Remote monitoring is an area that's still growing. There have been a number of experiments like Stan and I did, some of which have demonstrated its utility and others which questioned its utility, which I think is probably reasonable.

Where we see it going is… One of the areas is I think it's going to continue to support home health, but they don't get reimbursed for using it directly. They're allowed to use it to provide some of the services they're required to provide as part of our home health service. The other area is probably in the wellness area and consumer use.

You saw what Apple did yesterday, right, with their new [smart] watch?

DT: Right   [chuckles]

SS: It's going to monitor everything you do.

DT: I'm teaching an undergrad course on medicine and technology in modern America.

SS: Really?

DT: In my first class, I talked about why are we learning about the history of medical technology. One of the slides I put up was—I think it was Samsung—that last year there was a newspaper headline about one of their health monitoring watches. Do we need this? This is what this course is going to have us thinking critically about. It's one of those questions.

SS: Good. Yes, I think I saw the flyer for that. How is the enrollment?

DT: It was capped at sixty. We had a wait list, and people asking to get on the wait list, and asking how can we get in the class for next year.

SS: Wow. What kind of students take that course?

DT: Some pre-med. Several of the students are pre-dental, because they've got Dental School interviews, missing class, a lot of the Biology Society Environment majors, a lot of pre-health science.

SS: No engineers, particularly?

DT: No, that I've seen, which is too bad. A lot of the engineering students take the history of technology survey that my colleague teaches. It's a fun class.

SS: From talking with the people in this interview, you might pick up a few things about the history of health information technology.

DT: Oh, absolutely. [chuckles] I will plan to integrate this when I teach it next year, for sure.

You mentioned being director of graduate studies. I wonder how much involvement you had with the research training grant while you were here.

SS: Well, initially, I had very little involvement with it. I just, basically, advised some of the students who were funded through the program that was run by Laël. We always had that group of students who were funded by the fellowship and had a number of other students who were graduate students in the program and funded by RAs [researcher assistantship], TAs [teaching assistantship], or self-funded. So I sort of took care of the rest of those, administered the program, and tried to get it to grow and move in new directions. Actually, I did that for quite a while. It was maybe 1998 or 1999 to 2010.

DT: That's quite a while.

Were there any changes in the types of students, particularly in the kinds of backgrounds the students had, that you were getting in the program?

SS: No. There's always been an interesting mix. You've had some health professionals who wanted to really move into a new direction within healthcare. You've had the technology group who was looking for—I characterize it—a place to employ their technology skills. Then, there's a third group of people who just thought it was an interesting area and might not have any background in either healthcare or technology. We had some very interesting people in that regard. Often, some of our best students came from that direction. It changed a bit after we no longer had the NLM training grant. There were fewer physicians who were involved in the program; although, it sort of climbed back up as it's become a hot topic and more well known in the field. Laël pretty much ran the training program. I only got involved in it when she decided she did not want to pursue it any longer, and I sort of got delegated the task of trying to write the new ones and collaborate with Mayo. [sigh] Obviously, it didn't work too well, because we didn't get funded. Now, they're restricting even further the funding. It's going to be a challenge. Personally, I think the National Library of Medicine is going to have a dramatically decreased role in promoting informatics at the federal level from now on. It's moved into NIH [National Institutes of Health], and NSF, and the other agencies. You can sort of see it by the miniscule level of funding that the NLM receives.

DT: I was in [Washington] D.C. last week at the NLM and interviewed Milton Corn to get his perspective on…

SS: Okay. It's amazing he's still moving around. [chuckles]

DT: That was a really interesting interview.

What can you tell me about the establishment of the master's in health informatics?

SS: One of the things I was pushing for some time after I got here was to try to create a new department of informatics. At some point, we changed the name from Health Computer Sciences to Health Informatics.

DT: Yes.

SS: Frankly, I don't remember when that was. Maybe somebody else has that information.

DT: I have it in the timeline, but I don't have it written down on my question outline.

SS: Part of that is sort of that attempt to see if we could establish a department in the area, which, ultimately, did not get very far. Realizing…learning about the politics of the University of Minnesota and the difficulties of establishing departments was difficult to do, so we sort of backed off. One of the questions that came up was how can we increase and grow the program? It seemed to us, at the time, that there was a demand from people

who were already working to have additional training in the area and that the traditional science research based master's degree was too much for them. So we needed a more professionally oriented degree. That's one of the things that I did take on as the director of graduate studies. We put together a proposal for a master's in health informatics as the professional degree within the field and, basically, pushed it through all the levels, the Graduate School and the Board of Regents, and got it approved in about two years. We anticipated about ten to fifteen students per year in the program. Sometimes, it's been better; sometimes, it's been worse. But it's been a good addition, because it does bring in another group of students who are more practically oriented. That's really the kind of training we give students. I did that while I was also directing the educational computing in the Medical School.

DT: That was a busy time.

SS: [chuckles] I always sort of did that, and I guess the people who took me on for administrative tasks knew that I was going to be doing those sorts of things.

DT: Yes, I do have that it was at the same time.

SS: I gradually brought through some good students in that period of time. One I'm particularly proud of, actually, did his degree in telemedicine and worked with Stan and I. Did Stan mention George Demiris?

DT: Oh, maybe he did. The name is familiar.

SS: I consider George my best student. Was he my first Ph.D.? Uhhh… Well, he was one that I was particularly proud of. He went on to a faculty position at the University of Missouri-Columbia, for four years. Then, he went on to a position at the University of Washington. He's doing very well, is well funded, runs an NLM training program, has a center for research in telehealth. That was one person who did their graduate degree in that area.

DT: That's great.

Laël Gatewood stepped down as director a few years after you got here in 2000. Then, Don Connelly became director.

SS: Yes.

DT: Can you reflect on that transition period?

SS: I think we'd been sort of talking to Leo [T. Furcht]… You've had lots of references to Leo.

DT: Yes.

SS: …for some time about how we could transition things. Certainly, one of the longstanding recommendations was that we bring back Don to head up the group. As I recall, Laël was receptive to that notion. I think the transition was fairly easy. The nice thing about Don was that Don was also a clinical laboratory medicine specialist. So he had a better involvement with the department's clinical activities than, perhaps, the rest of us did.

Did Laël tell you about all of our moves?

DT: Yes. [chuckles] Yes.

SS: Okay. So that happened about the time that we moved into the seventh floor in Mayo [Memorial Building] and those facilities.

DT: Yes.

SS: Don really, I think, helped the group, particularly in its relationship with the department over the years.

Again, I tend to collaborate with all the faculty members, so Don and I actually developed a grant proposal, again funded by AHRQ—that seems to be my funding agency—to look at the impact of health information exchange on patients and hospital emergency departments. It involved HealthPartners, Allina [Health], and Fairview [Health Systems]. This was the era when there was all this hype about how exchanging data was going to improve outcomes for patients. This was another research program where we ran into the realities of business, etcetera, what things were supposed to happen and didn't happen. Actually, we never completed the experiment, but we got initial data that did demonstrate that there was some impact of electronic health records on various outcomes for patients, but it was not as obvious as you would expect. It was not a huge effect, nor a uniform effect. It varied by disease, and it varied by location where it was happening. That sort of ended up our research work, at that point.

Toward the end of Don's term, Connie [W.] Delaney arrived at the School of Nursing hired by Frank [B. Cerra] as explicitly an informatician. We had been sort of floating this idea of an informatics center, kicking that around for a couple of years, and Connie came along, so we just sort of brought her into the fold. I think it was really Don and Connie and I that wanted to pursue the idea. I want to claim some responsibility for the original idea, because it sort of came from my thoughts about a department. But, then, when we got together with Don and Connie, they got some traction with the senior vice president and some grudging support from the Medical School.

[laughter]

SS: We didn't follow exactly the correct routes. We got approval talking to the deans and all the deans agreed to support it. We, for a couple of years… [pause] Who was the previous librarian? Janice [Jaguszewski]?

Note: The name I was looking for was Linda Watson.

DT: Wendy [Pradt Lougee]?

SS: No. She was very forward-looking and innovative. She retired.

DT: I don't know why I think her name was Wendy.

SS: Wendy Lougee is the over all…

DT: Was it Wendy Broberg?

SS: No.

DT: I can find it out so I can put it in the transcript [correctly Linda Watson].

SS: Okay. Laël hasn't mentioned it?

DT: Several people have mentioned her but none of us could remember who it was. There's a series of librarians, and I need the chronology of librarians, basically, because there are several mentioned, and we can't remember all their names.

SS: She and I were named co-chairs of the nascent Institute for Health Informatics, at that point, and started to bring it together in terms of talking with the deans, and providing reports, and talking about recruiting faculty, and getting faculty involved in it.

[pause]

Then we had Julie Jacko come. We were informed one day that there was a new director of the Institute and that it was Julie Jacko.

DT: So you weren't even aware that that was going to happen?

SS: No. It was not discussed in the least with I don't think anyone at our level or lower. We had known about Julie because Julie had been being shopped around for a while to faculty in various departments. As happens on those spousal hires there's not necessarily anybody who picks up on it. So we thought it was dead. But, then, she was named. It was interesting because she had no professional history in the field of health informatics. She was, basically, an engineer, but she was accomplished and she knew how to do things. She did get us negotiating with Frank to get the space, and the money to renovate the space, and get that all set up. She did collaborating on the training grants from the ONC training grant when I went away on sabbatical in 2010. They got that money. That had a huge impact on the growth of the program. We grew up to ninety students from thirty. That was a big impact. We didn't hire any faculty, as I recall, except one teaching person.

There were some interesting issues with the CTSA grant proposals. [pause] She was being named head of the biomedical informatics component of the CTSA in two rounds.

Do you know the story about the second round?

DT: No, I don't.

SS: Oh, well, the reviews came back and they got an eight out of ten. The reviewers basically said, "We told you the first time this person wasn't qualified. Why did you name her again?"

[pause]

SS: I think it was sad in a way. Unfortunately, she was not interested in learning about informatics. She was a very successful engineer and had her own fields that she was working in the human interface. But she never really connected and she did some things that she shouldn't. That all led to the departure, so…

DT: After she left, you and Connie resumed the co-directorship?

SS: The librarian [Linda Watson] and I were co-directors up until the point… Uhhh… [sigh] When I came back from sabbatical, Connie then asked me to be the co-director with her. I still ran the graduate program for a couple of years. I took phased retirement in 2013 and that's when I turned over the graduate program to David [S. Pieczkiewicz? - YES].

DT: So are you still co-director?

SS: No, I don't have any administrative responsibilities

DT: That's phased retirement. [chuckles]

SS: Yes, yes.

We're still trying to recruit a director.

DT: Right.

SS: Hope to have one for the fiftieth [anniversary].

[laughter]

DT: Have you had much experience working with Mayo [Clinic]? That's been a long collaboration, a long relationship between the University and Mayo.

SS: Personally, no. Certainly not in a research area, I haven't had any collaboration. The principal contact has been with [Christopher G.] Chris Chute there, who has been on our graduate faculty for a number of years, mentored some of our students. We've always tried to keep a graduate student level contact between the organizations. In that respect, we've had a continuing relationship there. He's done a wonderful job of mentoring some of our students who have gone on to great things. That relationship from a graduate education point of view has been very beneficial for the program. But research wise, no.

Frankly, for a number of years, there wasn't a lot of research going on in informatics. Stan had the work that he was doing with his monitoring of lung transplant patients, NIH grant, longstanding. I had some money from various sources, mostly from AHRQ and HRSA, that went along, but that was pretty much it. It really changed with the arrival of Genevieve [Melton-Meaux]. She was ambitious in getting grant proposals out and getting them funded. Julie was, to a certain extent, as well. She was a good grant writer; she knew how to write grants. That's a very valuable skill to have. The research activities are what we need to focus ongoing. We're trying to do that. We've got new people on board who are focusing on that, as well. That's very helpful.

After I got back, I headed up the search committee for a couple of years. I guess I was responsible for bringing in Saif Khairat and Gyorgy Simon, and the new faculty member with the Nursing School, Chih-Lin Chi.

[pause]

DT: We've covered a good amount of ground. I wonder if there's anything else that you'd like to share about health informatics in general or about Health Informatics at the University.

SS: [sigh] I imagine that your people have already complained about how difficult the road was over the years, that there wasn't a lot of respect or support.

DT: You can also add to that.

SS: Okay. I guess I would add to it, but I think in some ways there was reason for that. You have to accomplish things if you want to be respected. We weren't always accomplishing things that were important to the University. In spite of all of those things, we have a good reputation among the informaticians nationally. In the ACMI [American College of Medical Informatics] group, we have a fair number of members of that: Don Connelly, Laël, myself, Connie, and Bonnie Westra. That's a pretty singular honor to be nominated for that.

Laël, in many respects, is one of the founding members of informatics. She was certainly a founding member of ACMI. She has had a longstanding presence and influence in the field and probably has never been properly honored for that. She kept this program going

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for many years pretty much singlehandedly and has a number of students that are making significant contributions.

[pause]

SS: I just got an article today that we're listed in the top twenty-five informatics programs in the country. Have you seen that?

DT: No. That's great.

SS: For master's in informatics.

What we've seen, though, is that we are benefitting, as other programs are, from increased interest in health information technology. Health informatics has grown since the HITECH Act [Health Information Technology for Economic and Clinical Health] of the Federal Government, all the money that's been going into encouraging adoption of HIT. It is really transforming the field. It's transforming it in interesting ways, though.

I don't know if you know that many of the programs of many of the people who got involved in bioinformatics and health informatics got their start and really developed a reputation as system developers. They actually built hospital information systems.

DT: I didn't realize that.

SS: Yes. Home grown, they were called. That era has gone away and the new generation is not going to be doing that anymore. They're finding new directions to go. In the early days, informatics was a lot of physicians and professionals getting together and showing off their toys.

[chuckles]

SS: That's changed. That's gone away. I think it's moving toward a more systematic scientific approach to things. It's also caused some changes in the field that rightfully need to change.

I guess the other thing that is important to mention is—maybe Laël mentioned this, but I want to make sure it's recognized at some point—there is a very deliberate reason for choosing the title Health Informatics. The national movement was to name these programs Biomedical Informatics. That did not apply to, as far as we were concerned, a very interprofessional approach. So we deliberately picked Health Informatics as more inclusive of all of the health professions. That's been a very deliberate goal of Laël's since year one, as far as I know.

DT: She has said that, and Connie said that. It's very clear.

SS: It's interesting that it's getting some traction. [chuckles] There are probably as many programs that are named health informatics as there are that are named biomedical informatics.

DT: It seems to be a very strong feature and actually something that Milt Corn highlighted saying that Minnesota is distinctive in the public health informatics that it does and the nursing informatics that it does. That's something that I plan to highlight in what I write about for the anniversary, for sure.

SS: Okay, good.

Well, I can't think of anything else to say. I don't have any amusing anecdotes.

[chuckles]

DT: This has been wonderful. This has been great. Thank you.

SS: You're welcome.

[End of the Interview]