

American Medical Informatics Association Nursing Informatics History project

Purpose

The overall purpose of the Nursing Informatics History Project is to document and preserve the history of nursing informatics.

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Jean Arnold: Nursing Informatics Pioneer

Q: Please introduce your self and tell us about yourself.

A: Okay, my name is Jean Arnold. I first started in nursing at a combined diploma baccalaureate program in the central part of Massachusetts in Fitchburg State College in Burbank Hospital School of Nursing and I always wanted to be a teacher of nursing. And I love nursing, but they told me when I was a baccalaureate student that I needed to go on. So I left... when I graduated from my four years and three months of combined collegiate nursing education, I moved on to the big city of Boston, and there I worked for awhile as a nurse, a staff nurse at New England [...Deaconess...] Hospital. And at that time, my best compliment I ever received was that I was pretty good for a degree nurse. All right?

And then after about nine months, I went to school at Boston University. I was one of those fortunate ones that received a traineeship for my master's education. So I graduated from Boston University with a master's in med-surg nursing, now known as adult nursing, and a minor in education, just like... nursing degrees were hard to come by. Even in Fitchburg State, I got a bachelors in a science and the major was education, even though I had the joint, combined program at Burbank, where I received a diploma in nursing.

So I had a combined respectable degree and diploma, and then after my degree at Boston University, I left the state of Massachusetts and went to Connecticut and worked at Yale, New Haven, University of Connecticut, which had a campus in Storrs, and I did a year as a nurse educator.

And then like any other young women, I took on a new adventure, and decided to go to California for a year. And there I worked at San Francisco State College at the time the rise of the hippies and Haight-Ashbury, etc. So I stayed there for about nine months.

And then I left in June because I got tired of the fog, and went back to New York-New Jersey, and worked at Montpelier Hospital, and there I became involved at Lowell's Nursing Center, did my masters in nursing, and took a part-time job as I was going to school at Teacher's College Columbia University. Because I got involved in associate degree education, they wanted me to get my masters, and there I met Mildred Montag, Alice Ferns [?], and all of the wonderful people that teach at this college at Columbia University. So I was one of those part-time students getting my masters, and teaching at a brand new community college called Bergen Community College. So I had the best of both worlds because I had a lot of technology, unlike the state colleges. And it's still true today.

And then in 1970, I was awarded my masters degree, and that time Mildred Montag told me that I could not waste my time by not... staying in associate degree education was fine, and as you know, she was one of the founder of that whole concept. She said to go on for my doctorate at Teacher's College Columbia University, which I did nursing education, and struggled through my dissertation on teaching strategies. And for my doctorate dissertation, I did a comparison of teaching methodologies. At that time, it was program instruction, you know, a little staff technology we had at that time, and also traditional instruction. And so I developed a little program, and then I forget what else I did. But, anyway, compared three different teaching strategies, and found out what everybody else did that no matter what methodology you did, everything, it was equally effective, which was disappointing to people who were introducing technology. But at the same time, you just said, 'Well, it's equally effective. Why can't I use it?'

Q: So what are the initials? It's RN and then Ph.D. ...

A: Okay, I'm RN. BSE. MS, MED, and EDD.

Q: When did you first get into informatics? Talk about your transition. How did that happen?

A: Well, that happened... at that time, I had my doctorate. This is the early 80's, and I was involved in teaching at Rutgers College of Nursing at that point. And I was... you have to understand that I got involved in non-traditional education. When I graduated with my doctorate from Columbia, I went up to New York State... in fact, one of my part-time jobs was working for Regents External Degrees, being a clinical nurse evaluator, CPNE, we called it, which they still have to this day at Excelsior College, which is formally the External Degree, which became Regents. And at that time, I became involved with understanding how you could do stimulations, etc., and, also, the real world to teach students and evaluate them extremely.

So then what happened is in the 80's, I was then at Rutgers College of Nursing, but still being called occasionally to do some CPNE's and then being an advisor in non-traditional education. And then as part of my work at Rutgers, I became in 1985, the representative to Thomas Edison State College, which at that time was a New Jersey version of the New York External Degree program.

So then, at that time, I was very much involved because my educational experience at Bergen Community College was technology, you know, audio-visual, etc. And so when the computer came along, I got involved with, 'Oh, well, how can I use the computer now in the classroom?' So I became very involved in computer-based education. And as a result of working with computer applications, I then heard about the meeting in Washington, D.C. called the SCAMC, which is the forerunner to AMIA today. And that's a Symposium on Computer Applications, SCAMC, and everybody gathered in D.C. at that time...

Q: Talk about that gathering. As I understand, you came in through audio-visual and through teaching. So now, talk about that gathering in Washington. What happened there?

A: Okay, Symposium Computer Applications in Medical Care. All right? And that was called... and that was a big gathering of those people interested in the use of the computer in the medical field. And there was a gathering of some nurses who happened to come from different areas, mainly from the northeast. And we met and decided at that meeting that we would develop our own special interest group. All right? And that was in the early 80's. And so in the early 80's, we then went every year after that to that gathering at the Sheraton Hotel, and then afterwards it... it then became to alternate between D.C. and Baltimore, and then, subsequently, to various areas of the country.

So we would gather. And those of us who were introducing the use of computers and developing computers in nursing application courses evolving into informatics courses, and we would share and network. And we just loved the idea of we were on the right track, so we would have thought, even though everywhere we were at home, we were considered big change and enemy people, and became enemies at home, because we were changing the way things were going to be done in the traditional classroom. And so we would develop and

exchange our course syllabi and to see how we would evolve. So we... it became a huge network, where we share and collaborated, and we became life-long friends and colleagues.

Q: You were still focused more on nursing education, or was there a time when the focus sort of shifted and also included applications in nursing practice...?

A: Yes, all... that's what we had to be very careful to do and to educate each other, and to remind ourselves that we weren't just teaching how to use a spreadsheet, how to use a database, that that was not nursing. That we had to talk about how you would use those software as a tool to illustrate how nursing was being done, whether it be a spreadsheet for a budget or a database for developing nursing care plans, etc. And so that was a critical thing, and so when someone new came and said, 'Well, I'm teaching a computer course for nurses, too, and I... isn't it great the way I'm using a, you know, a spreadsheet, etc.?' And we'd have to say to them, 'Well, then how are you using it with nurses?' And that was a critical thing, and very important.

Q: Was there ever a moment when you sort of kind of went, 'Whoa...'? Where you sort of got how important computers and technology could be in the field of nursing?

A: Yes, and that was very critical in my estimation, it is that when you started reading about... you know, the first book came out [by Rita Zielstorff], and then you started to see other books, you started to.. 'Well, I'm using these applications, and I want to now see if...' if you're working with registered nurse students, they're the students who's out there in practice, and they're kind of like, 'Show me. I'm here. I'm back here to get my baccalaureate degree.' And then you started to show them what you could do with a database program, and the power of that. And they did... they were very intimidated by the computer, and very anxious. And that time, we were looking at attitudes. But then we said, 'We got to look at these applications and say, okay, on... you know, look how you can use this in your practice. If you're a nurse manager, fine, you can use the spreadsheet to be...develop a budget, but if you're actually out there in the field, look what you can do with this to track infections. And this is nursing. Okay? And this is what we want you to understand, and how it will help you to deal with the kids in the school, and tracking the kids, etc.' So it became a very a-ha moment.

And then when we started... we got smarter, and we took the courses and we inter... took the students in... the newbies, or the... what we call the generic student, with an RN. And the R... the advantage... the beauty of that is that the baccalaureate student, generic student was very, very savvy with computers, whereas the RN was intimidated. So you put the two together, and the RN, who had all this wonderful nursing could now marry the computer with her practice, and that was a big a-ha.

Q: So back in those early days when you started looking at, okay, how could this be used in clinical practice, I think you mentioned tracking infection. What were some of the earliest uses in nursing practice in technology?

A: Okay, the very earliest use in computers was that you made them very comfortable when you did little, simple graphics, like a bar chart, and they could see that they could illustrate what they were... what they were talking about in a bar chart. And you say to them, 'Okay, now, you can go back to your boss and say, 'This is what I'm doing and this is what I want to do.' And you can make a presentation using something simple like this. And so you would take their data from their workplace, and work with them in how they could make a point, because many of them were frustrated in their work situation, and you were helping them to make a difference.

Q: I want to go back to something you said earlier. When you first got into this, your work was not widely celebrated. Let's talk about that.

A: Well, way back when, one of the first things that we did at Rutgers College of Nursing was that we had developed what we called a Computer Conference, and annual Computer Conference. And we were holding one of those every year under the auspices of the Rutgers College of Nursing Continuing Ed program. And we did not... and, of course, I was at that time a member of the tenured faculty teaching in a traditional adult nursing program, and when Gail Pearson and I produced a book based on all of the things that happened in New Jersey, and in early times in New Jersey, we brought the book to a faculty meeting and put it on the desk, like all faculty did with articles and books, etc. And the senior high resisters, of course, look at the book and just said, 'That's not research.' Okay? And they did not understand why it was so important to record all this, because that was part of the beginning history of informatics. And so that was very tough on us, but we, we learned very quickly from each other at... networking at conferences that an expert is someone who lives 50 miles... that is at least 50 miles from the home base. And we all consoled each other that way and said, 'Okay, we may not be a... you know, we didn't think of ourselves as experts.' We out there... we were people out there trying to make a difference in introducing computers and understanding it ourselves.

And then we... then we also felt that it was critical that we make a difference at home. But when we couldn't do it with the high resisters, we just did it other ways, you know, among each other. We did it in elective courses, we did it in, you know, all the... anyway you could get in the door—okay?—in a traditional sense, but still spread the word. And that's very critical, spread the word. And we did spread the word among each other. And if you had a problem, you knew you could pick up the phone and call so-and-so and say, 'Well, how are you doing with this?' And that was the greatest things about the evolution of nursing informatics. It was a field of nursing, in which everybody was new and willing to share.

Q: Was there ever a moment when you said, 'I am a nurse informaticist'?

A: Oh, I think I realized that as we grew from computer applications to the word 'informatics,' and we started thinking about ourselves that way, and what we did is that we tried to say, 'Well, people are going to be stumbled by that word 'informatics.' It's not going to work with the high resisters. So I would say to everybody, 'It's information handling. You know what that is. You deal with information everyday. And so we're here to help you to make you manage information in a better manner.' Whether you were talking to the high resister or whether you were talking to a student or colleague, you... I used that, and it worked very well.

Q: When you look at your career and in nurse informaticist, is there a particular vision, a particular philosophy, anything that sort of guided you in your career in this way?

A: I would say people told me that I was a risk-taker and that I threatened people. And I learned that mostly from my bosses, .. on the other hand, I was doing a lot of right-hand work for, for deans, whether it be implementing an undergraduate program or implementing a grant, etc. And so they, they told me that I had to understand that, and the kindest words that are ever said to me by one of my bosses was, 'Rise above it.' And I took that and that made me go full speed ahead. And I didn't let any resister stop me after that.

Q: Who was the boss?

A: She was my dean, Dean Dorothy Demaio at Rutgers College of Nursing. And that that time, she was instrumental in implementing a first Ph.D. program in Nursing. And she had to jump through a lot of hurdles to get that through a liberal-based college. And she didn't really understand informatics, and she would joke with me all the time, 'What is this informatics thing? What are you talking about? I don't understand it.' And it was my job to teach her that this was very critical in our education program. And so she didn't mind because I would bring in money to buy hardware, you know, either from state funds, etc. And she thought that was great. She didn't have to get it out of her budget. So when I had to do with her, .. help her with her tasks, she kind of said, 'You're doing okay, kid. Rise above it.' And when we got... hit all the high risk resisters, I just never stopped after that. And I didn't care. I just implemented graduate education in informatics. It took a long time, but it did happen.

And what happened over time was that we had to grow from one... we always had classes in Newark and... and New Brunswick. Okay? And we all had to travel to New Brunswick one day a week. But when it happened that we had to move from Newark, Brunswick, and Camden, I then had a newer dean, and I said to her, 'I don't want to be driving down to Camden at 5 o'clock in the afternoon, and coming home after 9.' And I said, 'I would like to do an online course.' And she said, 'Go for it.' And so we did. And, of course, the resisters wouldn't let me do a whole course, so I bit off the five-week segment online. You know, and at that time, we didn't really have online as you know it today, but we had the video simulation, interactive video that we could use for computer-based education, and we also had video conferencing, where we could have cameras set up like this in the classroom in Camden. And so we only had to go down... and so when I started going down there, once, giving an orientation to the students, and they saw me face-to-face, there was no problem after that.

And then the other instructor thought, 'Oh, she's doing that. She's not driving five weeks.' You know, so they kind of got a little interested in how I could do that. And they didn't... they didn't accept it initially, but they got very interested.

Q: You mentioned some folks that you've worked with. Who do you think were really key people that you worked with early on to make this a field?

A: I would say one of the first persons I met way back in the early 80's was Virginia Saba. And at that time, I was writing a grant in collaboration with somehow else in terms of continuing education-related in relation to computers, and a joint grant between a hospital facility and there. She happened to be in the office where they were writing grants, and she helped me in terms of writing the grant. I think we got approved, but not funded. But she then became a, a force, in that I saw her all the time at these annual meetings. And we all met, and that worked. And she was one of the ones I exchanged course outlines with. So I would say she was very instrumental and very supportive.

Q: What do you see as your key achievements of what you've given to the field?

A: I would say one was I only wrote that one book on computer applications in practice and nursing education, but I would say that gave everybody the history of you don't have to reinvent the. This is how we did it with the grants we had available at our hospital facility. These were the first nurses that were setting up systems in the state of New Jersey, and it's all within that book. And, plus, we also shared a lot of conference proceedings in that book that were part of our annual Rutgers conference that is still occurring today. And I served on that

committee while I was a faculty member there. And, and then also we came involved with the University of Maryland at this summer institute where I am today.

Q: Do you see any other milestones that you see that really moved nursing informaticists along into the mainframe, key events?

A: I would... I have to think now, in terms of key events. I would say one of them when we... was the a-ha, when we realized we weren't just talking about applications in informatics, and that we all kind of moved along. I would say another thing that was very instrumental was the fact that at this SCAMC nurses group that formulate... that became a special interest group as part of SCAMC, and now it's a working group with AMIA, is that we developed regional groups, and we all said we will go back and network with those system nurses and help them to evolve in beginning involved in informatics. So we had to convert then from being a system nurse to an informatics nurse and teach them. And so we then developed little groups in our area, whether it be a region. Like in my area, New Jersey was a region. So we developed the interest group in there, and now I have a... there's a group that's going on today that's called HINJ, and that's the Health Informatics Nurses of New Jersey. And that evolved from that SCAMC special interest group.

The other thing that I would say in my career is I was the first one to develop a computers and applications nursing course in the state of New Jersey at... while I was at Rutgers. And then my most recent, I developed the first online course in nursing informatics for Thomas Edison State College, which is now an online nursing education program. And now we're moving forward into our graduate program, and I'll be teaching... I'm writing and developing the Health Technology course, which will begin next year for an RN to an MSN. So we're one of the few that are requiring, which I never achieved at Rutgers, requiring the nurse informatics course for all undergraduates.

I did achieve requiring nursing education... a nursing informatics course for RN to BSN, and then that five-week segment in the graduation program while I was there. But now, we developed the first true online nursing course for Thomas Edison, which evolved into an all-online nursing program, which is going on now.

Q: When you talk to young nurses, how do you describe informatics?

A: I tell them it's what's you've been doing pushing the pencil in so hard that you want to make it easier for you, and that's called informatics, information handling. And we're all... have always had too much to do on the paper. And if you want to get back to the patient, this is the way to go.

Q: Are you surprised by how the field has evolved?

A: I'm not really surprised. You know why? Because we've shared and collaborated from day one, and I think that is the secret. And some nursing fields did not do that, and I think that's critical. We had... maybe we did it because we were all new and we had such a wonderful support network, and we participated on national and international basis. And we all grew up together, basically, and learned from one another, and learned from other disciplines. The fact that we interacted with other disciplines, whether it be ACDIS which is a group involved in education, or with SCAMC, which became AMI, where you were working with other health disciplines made a big difference. That interdisciplinary approach really paid off.

Q: Has the tide turned... when it really was accepted?

A: It didn't happen. And... when, when I left Rutgers, I think what happened... and I left in 1998, not because of the high resisters, because it was time to move on, and I was moving to part-time status at that point. I just said... the reason it didn't happen was because the high resisters were in a very traditional mode, and I was in a traditional setting, and they accepted some of what I did, but they did not accept all of it, because they didn't have respect for it as a true field, like nursing research. They thought it was something that was not scientifically-based, etc. But when they...and the fact that when you judge people in the academic field, and I was in a very traditional school, I did fine as a tenured professor, but I achieved that because of my other accomplishments. I mean, I did publish and I did it at, at conferences like SCAMC, in proceedings, and some of the computer and nursing journals.

The reason it didn't get totally accepted is because it was change, and change is a big, big R in resistance. Okay? Some... but people were very surprised when they saw that I was involved in other fields. And I'd say I've got the most respect from my deans over time, because they respected that what I did, and the fact that I took the risk, and I didn't care whether I was going to be accepted by all my peers. But whenever I dealt with new faculty, you know, and I was out there dealing with those nurses, I gained a lot of respect, as well as out ... at national meetings.

So will it ever... has it evolved? Is it going to get better? Yes. Are we at the point where we have one simple requirement that all undergraduate programs have a required nursing informatics course or that it be integrated? No, we still have not achieved that. We're still working on that. But I'm happy to say that I at least have been able to do it at Thomas Edison State College, and a little bit at Rutgers, and it's evolving into great numbers now. And, you know, University of Maryland has always been the model for what you can do on the masters and doctoral level in informatics, as well as other schools, but University of Maryland was the first.

Q: Were you a bit of a rebel?

A: So they say. So they say. But I think you have to be a survivor, too.

Q: So you talk about taking risks. Looking back, what were some of the biggest risks that you took, as far as...?

A: I chose the risk not to become a full professor. I remained at associate professor, because if I had gone the traditional route and had done more research... I did do research. I developed a patent on computerized diagnostic reasoning, but that was not accepted by my colleagues in the senior nursing faculty. They felt that that was not something... they didn't understand what a patent was, number one. Number two, my provost did not. Number three, my dean did not. Also, the... my provost and my dean looked at proceedings as not the same as being in a refereed journal. So when I looked at moving up from associate professor to full professor, I knew what the things were, what the requirements were, because I was advising as an undergraduate director new faculty how to move up in the field. And I chose to do what I was doing in order to proceed in informatics, and I said, 'I'm doing fine.'

Q: Talk about the patent.

A: I received a patent for computerized diagnostic reason system, and that's in which I developed a scenario... you know, if you go back and look at problem-solving that you learned in fifth grade—okay?—we eventually got fancy in nursing and called... had nursing process. All right? So when you go back and you're... and, remember, I'm primarily an educator, and I found that in dealing with students, we were all concerned of, of them learning how to think better and to make better judgments, whether they're undergraduate or graduate students. So I evolved a scenario situation dealing with expert panels where you developed scenarios and you had two major components. One is called problem identification, which everybody does in the field of science, is that you identify a problem and you look at a way to deal with it. So in nursing and in medicine, we call that a problem list, and we call it...so my first such component was problem identification with data...with supporting data. The, the supporting data is embedded in the scenario. And then...so you would test the student in terms of problem identification, or the nurse, and then the other thing was that the second part was the intervention. After you've made your problem list and you've done your supporting data, you're evaluated on that first. And then part two, you're expected to go back and choose what you think are the critical problems and to come with a plan of care for it, which is the nursing process, you know, assess, plan, implement. But we were only looking at assessing and planning now, so it's on a piece of paper, and it can be in the computer too.

And then, basically, you were able to come up with a way to look at whether or not they made a sound judgment, number one, in the problem identification, did they did not choose supporting data. Number two was the intervention plan: Did you choose three of the five possible problems, and then did you development a plan of care to go with it that was sound, and it had, you know, outcomes? And then you were able to then judge them in terms of was the assessment...the intervention plan valid, was it valid with some validity, or was it not valid at all. And then what you did was you came up with a score, and it was not available to 100 score. And that's one of the reasons why the algorithm was recognized by the U.S. Patent, because you weren't looking a traditional multiple choice A, B, C, D, and you had a logarithm that worked a way for doing it, and you could do it on paper, and you could do it on computer. And you could take that case and you could be a mechanic, trying to figure out...or you're someone coming to fix your washing machine, how do you fix it. So that was a generalized ability of it that was acceptable to them.

Q: And what year did you get that patent?

A: Let's see, what year what that? 1990?

Q: Where do you think the field is going to go?

A: Oh, I think the field is going to go because we are in the information age—okay?—and that we have to recognize that as we go through so many types of... when we... it's a revolving cycle, in terms of nursing shortage, and as we have an increase in population of people requiring more care and less nurses, number one, technology has to be used more and more. And then, number two, is that we can no longer live in a world where we don't have an electronic health record. So we have to move forward. And looking back, you'll say, 'Well, why didn't I do it sooner?' Because I've met some colleagues now since I've left Rutgers and have said to me, one of them, a couple of them, who were administrators have said to me, 'How did you put up with it? How did you survive that?' Well, I know why... how I survived it. I was out here with all my buddies and we were doing great things that we are continuing to do great things.

Q: You had a lot of fun, right?

A: Yes, we did! We had great times, whether it be dancing in the lobby at the Sheraton or... at all hours. I can remember doing that with Gary Hales, which was one of the founders of *Computers and Nursing Journal*. We did. We, we really knew how to have fun. And I think we were all... we are all still-risk takers.

Q: I hear at the conference you're going to be talking about merging nursing languages and reimbursement using codes. Talk about your background. What have you done that brought you to that point? What can you say about your background and what you're going to be talking about here at this conference?

A: Well, if you go back to way back when, when we first started teaching nurses about nursing diagnosis, because nurses are doers. Whenever else comes for them as a situation they do it. So, basically, what we got involved with is that you wanted to teach nurses that you don't just do things. You do it in relation to a problem. That was... and that's number one. Number two is that you have a reason for what you're doing, and they're... you should be reimbursed for it. Way back when, one of my part-time jobs when I was a graduate student was to be a private duty nurse. Now, I remember getting a paycheck for my... for my work as a private duty nurse—all right?—and going into some of the main hospitals in Boston and showing up and taking care of patients, who appreciated you, respected, and... respected you and paid you. All right? So way back in, as your career evolves, you start to go back to things.

And as a nursing, we have in nursing informatics, there have some great nursing classifications developed. And so one of our jobs in informatics is to educate others about what a nursing language is. And it often goes back to when I went to college, and under its ways of knowing. And ways of knowing are respected in each profession. And what you would have to do in nursing to respect it as a nursing profession is to demonstrate our ways of knowing, when you demonstrate your ways of knowing through a nursing language. And in order to do that, you have to document using computers and you have go to. So that's why we're... I'm talking about nursing languages, and coding, in that when you look at a nursing language, you just don't tell somebody they got to use it, just like they don't tell anybody that they got to use the nursing process. You have to tell them, 'Here we are. Here's a problem. How do we fix it?' And you have to do it with a way you document it, and you can't document in computer without a code. And, by golly, as a professional nurse, I want to be paid for what I know.

Q: There's medical informatics and then there's nursing informatics. What do nurses bring to this field of medical informatics?

A: They bring their ways of knowing, and they know that they need to interface with the physician. So you really can't talk about embedding a nursing language into an electronic health record without relating it back to what the medical diagnosis is. People get scandalized by that and say, 'Why are you looking at medical diagnosis?' because we all take care of the patients. All right? So if in... there's a discipline in health care informatics. Health care informatics is an evolution of medical informatics, nursing informatics, and what other health professions have to do. So medical informatics, yes, they look at particular things, but we're talking about some of the same things. They have their own language—CPT, ICD. They haven't formalized it. It started out on a piece of paper. They have to get that into the record. I mean, we're still talking about what they call computer physician order entry, but ICD, which is used all over the world, is, is recognized by the federal government's reimbursement, and it's going to be in the medical record no matter what, because that's

how doctors get reimbursed. So we have to look at their model, plus we have to look at what's special about us, and nursing informatics is not medical informatics, but we do have to meet.

Q: And you kind of talked a little bit about this, but lessons that you've learned. What would you say to people who are coming into the field now, lessons that you've learned along the way?

A: Well, I have to go back to my three little words here: Rise above it. Okay? Number one. Number two, just do it. And number three, so what if you're a risk taker? Just do it, rise above it, and go for it. And I would pretty much say that you have to understand that you, number one, are a professional, and, number two, you have to be an advocate for yourself and the patient, not just the patients. And the only way to do that is to become visible and represent nursing, and you have to... and nursing informatics will help you to do that.

Q: Anything else that I haven't asked you about the early days? What was the client like then, like the socioeconomic client? Anything else?

A: Well, I'd say one of the early days is that if you were a nurse educator and you were going to a conference, if you were going to get any money at all, and I will throw out the figure of \$100. All right? And, say, you wanted to travel from New Jersey to D.C. All right? What could you do for 100 bucks, in order to attend a conference for three days, etc.? So you had to take your own buck in order to get there and to present. Okay? And to do that. It wasn't... you know, you weren't going to get paid like a business person would to go to this trip. Your likelihood among the pool of faculty to get that \$100 reimbursement for a conference was tough, because you didn't have respectability. So if you wanted to go and join your peers and participate in one of these meetings, you had to put out your own dollar. And, number two, the socioeconomic environment was good because all of us were paid as faculty. We weren't respected for what we did, but we just did it anyway. And so the socialability was great. The development of sharing ideas was wonderful. So you didn't care how much it cost if you got that because the payback was greater intellectually. And that's what you did.

Q: You talk about you're a-ha moment. Talk about your early understanding when you realized, 'Whoa! We don't need to be writing this stuff down on paper anymore.' What was going on then? How did that come to you?

A: I think it came when you started... I think, all of us had started very simply with a-ha when we all got a word processor. And you said, 'Oh, my God! I don't need that 8-1/2 by 11 sheet anymore to sit down and write something. I can do this right on the computer.' So you say to yourself... and then you... all of us had some involvement in terms of teaching methodology, so when you started seeing graphic programs like PowerPoint and before that Harvard Graphics, you said, 'A-ha! I can use this computer. Yes, it's a tool, and it's like a stethoscope, only better.' And we can use this now to represent what we know and do, whether it be writing or presenting an idea. And I think the... as I said earlier, the selling, being able to present what you know and do in your work situation really works with registered nurse students. And I think that's really very important. Once they see that, and you taking from the presentation mode, and you say to them, 'Okay, now, we're going to document nursing practice, and we're going to try and represent nursing in these little database exercises, etc.' And you... they have to really think before they do anything on the computer, and design that database. It really is a big a-ha for them, as well as you, when you realize the power.

Q: How do you see nursing, itself, evolving, and the role of nursing informatics in everything moving forward? What are the challenges that are ahead?

A: The biggest challenges, I think, are ourselves as a nursing profession, that we don't really think collectively to put our best foot forward in front of legislators and politics. And I'm not saying support a candidate or choose the right party. That's not it. What's it all about is understanding how the world of politics work, how change works, and working with them to understand better what nurses do. I mean, we're still dealing with in our society is a nurse is a nurse is a nurse. All right? And when you... and what we have to do and computers and informatics with help us to do is to justify and to document what we know, and to differentiate between what is an ADN nurse, an LPN nurse, a certified nursing aide, and a doctoral nurse. I mean... and a nurse practitioner. I mean, we have nurse practitioners, but they haven't helped us in terms of representing what an advanced practice nurse is, anymore than clinical nurse specialists have. And the only way we can do that is to get right back up to the legislative level, like at the Center for Medicaid and Medicare, and say, 'Hey, this is what we do and basically what we know.' And we have to explain to them why it's so important in a nursing home, why is it that we do not have RN's on each unit taking care of our most seriously ill patients, whether it be in an acute care setting or a nursing home.' Because... because we don't have that, I would estimate that we are going to have a higher mortality rate in nursing homes because we're going to have more nursing homes and more patients and more people dying at home because... unnecessarily. We've talked about medication errors and how the bad publicity that nurses get for medication errors. Well, the technology will help us with the medical errors. There's no question about that, because we're going to have the PDA to help us with the med reference right there at our fingertips. We have it already. But we... we have nurses doing that on their own. There's not someone saying to every nurse, you should have this PDA, you know, and this lab test for an electronic reference.

So what we're really going to see coming down the road as we come... now, we have the words we're bouncing around now, evidence-based practice. Well, that's not any different than saying to the newbie nurse 30 years ago, we got to have a rationale for what you're doing. Okay? But that's got to evolve. You can't just put things in the computer and say, 'Hey, we've got this expert system,' or 'We've got this nursing care plan where there are... with evidence, which is documentation from the literature,' that this is the way to go. You got to have nurses that have the expertise, and we know they have it, and because of their knowledge base, to role play for other nurses what they know. And then... and as was said earlier this morning, I... there was a different word, but we have to have nurses that are in front of the patient more, you know, face value, be there, observe. Okay? I learned, way back when in our undergraduate education, very fundamentals nursing, observation and communication is the basis of all nursing care. And, basically, the computer helps us to document our observations, and to indicate what we... how we intervene. And an advanced nurse, whether it could be an expert or newbie, based on their knowledge base, really, really can demonstrate when you document. And... granted the degree doesn't always show a difference in the beginning. Time takes care of that, or their expertise. Informatics will help us to do that, and then we have to gather the data, because the data isn't any good unless you aggregate it. And once you aggregate it, then you bring it up to your agency level and then to your national, and that's how you get the politicians initially.

You start in a little basis. You might start with a little group. One of the things I'm thinking about very seriously now is that... you know, gone are those days when I would go for state funding or, or national funding. I wouldn't... I'd start small, like I went back and did with computers for... with small private sources. And that's where you get the bucks, and that's where you can demonstrate. And then you bring it to lobby.

And then... and one group that I think would be very important to work with that most of us are overlooking is AARP, because ARP... AARP is interested in the elderly. And we haven't networked with them, and they have a large lobby in Washington, and I think we can do wonders with them.

Q: So you're saying that nurse informatics has the gift of really understanding the big picture from the data. Do you want to talk about that?

A: Yes. Well, right now, we're still... you know, it's very exciting to be living in these times, because you can talk with all these little nurses that... I mean, I belong to the Tampa Bay Informatics Group. Okay? So occasionally, I go up and have lunch with all these little... what we originally called system nurses. 'Well, I'm working with system so-and-so,' and 'I'm working with system B.' Well, I haven't got a clue what this system is. I mean, I know what the big names are out there. But you start and you start talking with them, and you... they've got such a little picture. It's that little application. And you got to say, say to them, 'Well, have you heard about, you know, the Informatics Group? Do you...do you know what informatics means?' And you kind of... if you just turn on a few light bulbs among this group, you really are starting to make a difference because they really need to understand the big picture, and they...and say to them, 'Now, do you think you could take this data and put it together with so-and-so's data?' So that we start getting, you know, that instead of going backwards, in terms of data mining, you're getting data at the bedside, at the atomic level. And you got to work with the vendors to do that, and you got to point out to some of these nurses, 'You're not getting what you really want.' You know, and then move forward.

And unless we get more datasets on a national level, whether it be... we have the dataset model, but then we have to put them on... aggregate them on a national level, and that's when we'll get attention, and that's what nursing informatics... it's working on it, but we have to... we got a long way to go.

End of Interview