

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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Rita Zielstorff

Interviewer: Please tell me your name, and your educational background, and your title.

Rita Zielstorff: Alright, my name is Rita Zielstorff. I have an R.N. from St. Elizabeth's Hospital School of Nursing in Brighton, Massachusetts. I have a bachelor's in nursing from University of Pennsylvania. And I have a master's in nursing from Boston University. And, my current position—I'm with PricewaterhouseCoopers, and I am a manager in their consulting division, health industries advisory, in the health information technology group.

Interviewer: OK. First, the basics. How would you describe nursing informatics?

Rita Zielstorff: How would I describe nursing informatics? I would describe it as the use of information technology to help nurses do their work. So, that includes decision-making; it includes work flow; it includes education; it includes administration. So, all of those things.

Interviewer: Please briefly describe your career in nursing that led up to your involvement in nursing informatics.

Rita Zielstorff: My career in nursing that led up to my involvement in nursing informatics. I had been actually in practice for about nine years in a variety of positions. I had been a staff nurse at Montreal General, where I moved to after I finished my R.N. Then I worked as a school nurse while I was doing my bachelor's degree. Then I—after I finished my bachelor's—I went to Mass. General Hospital, where, again, I was a staff nurse, in the surgical floors. And then I was a charge nurse, and a head nurse. And while I was a head nurse on the surgical intensive care unit, there was a little blurb in the newsletter in Mass. General asking for a nurse to participate in the design of an automated medication system in the Laboratory of Computer Science at Mass. General Hospital. And I thought it sounded intriguing, so I went to interview for the position, not knowing any.... I had literally never seen a computer. This was way before there was such a thing as a desktop

or a laptop, or home computers, even. So, I interviewed for the position and got the job, amazingly enough.

Interviewer: Did you have an “aha” moment when you realized the value of informatics?

Rita Zielstorff: In terms of an “aha” moment when I realized the value of nursing informatics—I don’t know that it was an event, really. I joined the Laboratory of Computer Science, where Octo Barnett was the director—certainly one of the premier, very early pioneers in medical informatics. The importance of the field was very apparent right from the outset, once I got exposed to the writings that he had done, the work that he was doing, the grant-funded work, so I didn’t need to have any particular, anyone telling me that this was an important field. It just became very apparent very quickly that it was, and I saw the immediate applicability of the technology for nursing, so it was an easy realization to come to.

Interviewer: When did you first consider yourself an informatics nurse?

Rita Zielstorff: When did I first consider myself an informatics nurse? I don’t know if it was an event, actually, so much as I was using my nursing expertise, my knowledge of how nurses particularly handled medications, how they recorded medications, that I was hired for to participate in the design of this automated medication system. It was a grant-funded project. And so, the value of that technology for helping nurses do their work, and for helping make the whole medication process safer, more efficient, was very apparent right from the outset. And my contribution to that, you know, was certainly something that was valued all the way around.

Interviewer: Let’s talk about you, your personal aspirations, your personal accomplishments. Did you have an overall vision that guided your work?

Rita Zielstorff: An overall vision that guided my work is a hard question to answer. If I had to do it, which I guess I do, I’d say that it became apparent right from the outset at the Lab of Computer Science, which had such a strong emphasis on decision-making, using

technology to assist with decision-making, that you need—in order to have the computer help you with that—you need to have structured data. And that data is, in terms of efficiency—which was another passion of mine—if you were going to use the technology to help nurses be more efficient, then that data had to be reusable. It’s absolutely silly to have nurses recording data into one application and then having them record the same data in another application, because those two applications didn’t talk to each other. So, the notion of structured data, so that it would be retrievable, analyzable—sort of had a few “aha” moments from getting exposed to systems outside of the lab. And to the degree that they didn’t do that, I realized how important it was to do that.

Interviewer: Who were some of the people that you collaborated with to accomplish your vision or your goals? And any little anecdotes, any memorable experiences with them, would be nice to hear about.

Rita Zielstorff: People that I collaborated with early on. Certainly, Octo Barnett was my chief mentor when I started in the Lab of Computer Science, and Octo’s quite a personality. Anybody who has ever known Octo or even heard him speak at conferences knows that he has a very humble way about him, and yet he’s a brilliant man and a very good teacher, and so was my mentor right from the outset in terms of medical informatics. And he always asked me to see myself as a computer scientist—not necessarily as a nurse informatician. So, in terms of nursing mentorship, certainly Harriet Werley was a person who was just a guiding light for me from early on. I could see that she really got it, as far as informatics was concerned. And she really took an interest in me and in my career and gave me opportunities that I never would have been exposed to otherwise. Yvonne. After a time in the Lab of Computer Science, I joined half-time the Department of Nursing. I went back to the Department of Nursing half-time. When I went to the computer lab, I actually became, I had an appointment in the Department of Medicine in the Lab of Computer Science. Then, after several years, I took a joint appointment back again in the Department of Nursing so that I worked half-time in each, and got the opportunity to work with Yvonne Munn, who was the Chief Nursing Officer at Mass. General at that

time, who really mentored me in terms of encouraging me to use my informatics background and skills to really get involved with nursing endeavors at that time. So that's how I got involved with the National Commission for Nursing Implementation Project and the ANA and the work that they were doing. And she really encouraged that, fostered that, funded that; so I owe her a lot for that.

Interviewer: You wrote one of the early books on nursing informatics. Can you tell us about that book, how it came about, who you collaborated with?

Rita Zielstorff: The book that I edited—that was, as you reminded me, the first book on nursing information systems in the United States. I beat Werley and Grier's work by just a few months, but that book did come out a few months before the Werley and Grier book. I had actually, once.... You know, in the lab, doing research, publication was just part, something that you do. And I wrote an article, actually, on the need for nurses to become part of information system design, and I submitted that manuscript to a nursing journal, that shall remain nameless, that sent a letter back to me saying that they had recently had an article on nursing information systems, and they didn't really think the appetite for that topic was very great, so it would be many months before they would publish another one. And they suggested that I try to get it published elsewhere. So, I submitted it to the *Journal of Nursing Administration*, and the editor of that journal actually called me and said, "I'm so taken with this paper, I'm not even going to put it through our editorial process. I want it in our journal as soon as possible. Furthermore, would you write a column for us, monthly, on nursing information systems?" So, it quickly became apparent there would be no way that I could write a monthly column, so I suggested instead asking nurses who I knew were doing work in the field to write articles, and I would edit. You know, I would solicit the articles; I would edit them; I would help them to develop the articles; I would submit to them an editorial plan for the topics every year. And that worked well. I did that for several years, and I'm proud to say that I think that that was an early body of work in nursing systems that wouldn't have existed if that editor had not encouraged me to do that. So, the publisher of that journal asked me, once

I started writing the column, to also write a book. And, again, the idea of doing a book was just too daunting to me, so I suggested editing a book. So, again, I made up a series of topics that I thought would be good to have in it, and either used articles that were already published, or helped authors to develop them for the book, and that's how the book got developed.

Interviewer: Now, fast-forwarding in your career, now some of what you're known for is related to consumer informatics and the personal health record. Can you tell us about that—how you got interested in that?

Rita Zielstorff: In terms of consumer informatics and how I got interested in that—I had transitioned out of the Lab of Computer Science into the Partners Healthcare System. Let's see—what was it called then? I think it was called "Information Systems Research and Development." And so that was at the corporate level. It was in the IS department, but it was its own little R and D unit, and that was headed by Jonathan Teich. And Jonathan invited me to develop a website for Partners that would be used by consumers and would be the face of Partners to the community, to the consumer community. So that was my first exposure to consumer computing. I had to do a fair amount of research. What do consumers like to find in a hospital website or in a health care network website? Started to learn about terminology. How are they going to find the material they're interested in? So, consumer terminology came to be an interest. And when I left the Information Systems Research and Development group and went to a vendor, an e-health vendor firm, where Jonathan Teich was a director—was actually their CMIO—I was handed the product of patient portal. They wanted to have a patient portal. The company had a community portal. They were developing a physician portal. They wanted to have a patient portal. And because of my background at Partners, they asked me to be the product manager of that. So, again, more research. What do consumers need? What products are available? What does the competition do? Because I was in a vendor environment. I had to find out what other people were doing. So that's how I built up, had to build up kind of a store of knowledge about that topic. Got interested in consumer

vocabulary in an even bigger way. Got interested in the topic of physician-patient communication, and how patients do communicate with their health care providers, what their reactions are to the language that's in medical records, things like that. So that's really the genesis of my interest. Then, when I went to PricewaterhouseCoopers, they—the leadership in the health information technology group—felt that personal health records were really a transformational technology. And I told them about the work that I had done with consumer computing, and so they asked me to do sort of an environmental scan. What is the lay of the land with personal health records? What are the issues? What are the products? What are the trends? And so I became sort of the firm go-to person for personal health records. And so the whole thing has just kind of been one opportunity after another in the field, building on what I knew and adding to what I knew. And that's how I got involved in it.

Interviewer: Now, how has being a nurse helped you in the jobs that you've described?

Rita Zielstorff: How has being a nurse helped me in the jobs that I've described? A lot of the work that I've done has really been fairly physician-focused, because that was the focus of the research that was done at the Lab of Computer Science. I tried to inject a nursing perspective in that whenever I could, but when I went to the Department of Nursing half-time, and was encouraged by Yvonne Munn to really have a more nursing focus, then, obviously, being a nurse made it much more, much easier for me to go get into the realm of the issues that were prominent at that time. Nursing nomenclature was a very big issue, and so, obviously, nursing nomenclatures are centrally concerned with what nurses do, and yet we were in the computer lab involved with the development of the Unified Medical Language System. And so I was able to kind of bridge both of those. And in the work with the American Nurses Association that Norma Lang got me involved in, I was able to use the connections that we had to kind of bridge what was going on in the nursing world, and was able to get some of our nomenclatures through the ANA database steering committee, reviewed by the National Library of Medicine, for inclusion in the UMLS. And so, you know, being a nurse, in that respect, I think, has been helpful. In

terms of consumer computing, I think that nurses have a very, a lot to contribute to that field just by virtue of the fact that we are patient advocates, by virtue of our training and education. We know about patient education, about communicating with patients. We're very closely tied to being in tune with nursing's needs—with patients' needs, rather. So, I think nurses have a lot to contribute to the field of consumer informatics.

Interviewer: What do you see—and these can be your own achievements, as well—what do you see are significant events that have shaped the field of nursing informatics?

Rita Zielstorff: Significant events that have shaped the field of nursing informatics. As I think about those, certainly the Minimum Data Set Conference, I think was—that was led by Werley and Lang, was organized by Harriet Werley and Norma Lang—was a key event in nursing informatics, because it brought together a group of nurses who—many of whom—had never spoken together before. And these kind of computer nurses joining these very prominent researchers in the world of, you know, what do nurses do, how do they express that, and bringing together government and policy people—it was a very remarkable conference for bringing together of a group of very disparate, people with very disparate interests. So, I saw that as a signal event in nursing informatics. Certainly, the National Commission on Nursing Implementation Project, which was charged with doing, bringing to some practical conclusion the recommendations of the National Commission on Nursing, was a signal event, because the use of technology was one of the recommendations of that national commission. And so there was a very large conference convened to bring nurses together to say, “How are we going to use technology to help nurses do their work?” That was important, too.

Interviewer: Turning to nursing research, or research related to nursing informatics—what were the important questions addressed by research? Or what questions are there still out there to be addressed by research in informatics?

Rita Zielstorff: When I think about research that's been done in nursing informatics, again, I think very quickly of nomenclature, because that, a lot of that fundamental work was funded with

research. The nursing implementation—the nursing intervention classification, rather—work was funded by research. The Omaha System was funded through a contract. Virginia Saba’s work was funded through, I think, a contract. And so a lot of that work, that very fundamental work, with helping nurses to have terms for expressing what they do, and having that information both be structured for analysis, research, payment, reimbursement, description of what nurses do, I think, was very important. There’s been funded research in how nurses make decisions that’s been key, I think, to the development of nursing informatics. And, certainly, a lot of the research that’s been funded in relation to helping patients to make decisions—so, the patient-funded computing, I think, has been an important area of research that has added a lot to our knowledge.

Interviewer: When you think back to your first involvement in informatics, what were some of the earliest events you recall?

Rita Zielstorff: Early events that I recall, in terms of my career in informatics, include—I’ve already mentioned the Minimum Data Set Conference, the National Commission on Nursing Implementation Conference, the paper that came out of that, that I worked on, to develop definitions of what nurses, what informatics do. I’m sorry.

Rita Zielstorff: Let me think of my co-authors on that one—Sue Grobe and Carole Hudgings were my co-authors on that “Next-Generation Nursing Information Systems” document.

Interviewer: OK. So, if you’d just start again, that’s important, too. Mention that. I don’t think other people have mentioned that. So what were some of the early events you recall in informatics?

Rita Zielstorff: So, some of the early events that I recall with respect to nursing informatics, as I mentioned, were the conference—the Minimum Data Set Conference—convened by Werley and Lang, the National Commission on Nursing Implementation Project—their project to help to determine how technology could help nurses, and the document that

came out of that; that the committee charged three of us with really pulling together the results of an invitational retreat to really express how nursing information systems could help nurses. So, Sue Grobe and Carole Hudgings and I worked very hard to pull together material from that three-day retreat, and that document that came out of that—“Next-Generation Nursing Information Systems”—was used by a great many people after that, a lot in nursing education as well, to help nurses learning about informatics to determine what is needed out of next-generation systems in order to assist nurses the most.

Interviewer: In informatics, can you think of anything happening in the social or political environment that either constrained or helped the development of the field—social and political impact?

Rita Zielstorff: I don't have an answer for that one.

Interviewer: That's OK. Do you think it was difficult to establish the discipline of nursing informatics?

Rita Zielstorff: In terms of difficulties establishing the field of nursing informatics, I think that, in the beginning, there wasn't much work going on, which is probably—especially in the nursing realm—so it was, and we were—those of us who were doing work—were scattered all around the country. We didn't have that many opportunities to talk to each other. As we began to talk to each other through a few conferences.... I remember distinctly the conference convened by the NIH Clinical Center—Carol Romano and Kathleen McCormick convened that conference—and that was very well-attended, and kind of surprised, I think, a lot of people at how many nurses were interested in what was going on with nursing information systems in the field. So, the difficulties, I would say, were just the fact that it was new, there weren't many nurses doing it, and it was hard for us to communicate with each other. And until the avenues of that communication got to be a little richer, then it was hard to get a critical mass of people who were communicating and bringing things forward.

Interviewer: You've sort of answered this already, but can you recap how the field has evolved? And are you surprised at how the field has developed?

Rita Zielstorff: In terms of the evolution of the field, certainly the establishment of advanced degrees in nursing informatics has just done enormous amounts for the development of nursing informatics as a discipline. It has forced us, as a result of having to establish a curriculum—you need to define what it is the field is about in order to define what nurses need to learn about the field—so, I think that the very design of curricula for nursing information systems—the master's and the Ph.D. programs—has done an enormous amount for advancing the field.

Interviewer: What are some lessons learned that you would like to pass on?

Interviewer: You know, what are some lessons learned?

Rita Zielstorff: So, lessons learned about, as I've gone through my career—what might I say to someone who's coming new into the field—is really to take advantage, to try to take advantage, first of all, of what's out there. There's a massive amount of literature now that's out there. There are many opportunities for education now that are out there. There are distance learning courses. There's almost no excuse for a nurse who finds herself in the position of having to take responsibility for something related to information systems when she doesn't feel that prepared—there really are a lot of resources now for nurses to do that, whether it's, as I said, the literature that's out of there, distance learning courses, find out, you know, in your city, whether there are others around. Try to join.... Now we have the groups that are almost in every major city that are part of the nursing alliance. And, so, conferences. So, there are many opportunities now for nurses to enrich themselves and to get learning about the field. I would encourage new nurses to do that.

Interviewer: Where do you think the field is going, and what opportunities or road blocks are ahead?

Rita Zielstorff: Where do I feel the field is going? I think that the bounds are limitless. We have so many opportunities for participating, now, in so much that has to do with using

information technology to improve safety, to increase efficiency and effectiveness of care. The field is—we've seen at this meeting here.... Should I mention this meeting here? Sorry about that.

Interviewer: That's fine.

Rita Zielstorff: We're seeing it at meetings—that there is so much work going on in the government now with the Office of the National Coordinator, all the bodies that are being formed for standards, a nurse can really pick, these days, an area where they would like to focus. Do they want to focus on standards? There are plenty of avenues for doing that. These government bodies are always looking for input about the standards, about their work, their documents. And so, I think that nursing can contribute in any one of many, many ways, and all you have to do is pick an area of focus. Go for it.

Interviewer: Why do we call it “nursing informatics”? And you've kind of answered this, but you can say it again. Why is it “nursing informatics,” and what do nurses bring to the party?

Rita Zielstorff: Why is it “nursing informatics,” and what do we bring to the party? I've been part of a lot of discussions over the years about whether it's “medical informatics” or “health informatics” or “nursing informatics” or “biomedical informatics.” I do think that there is a discipline of nursing informatics that deserves its own body of expertise, because we do have, as nurses, something unique to bring to the table. We have a holistic view of the patient. We have our own ways, our own techniques of communicating with patients, based on the knowledge that we know about how patients feel, how patients think, about best ways of motivating patients, of partnering with patients. We know about the problem-solving process that is very analogous to the system life-cycle process. We are trained from the outset about the nursing process, which is really the problem-solving process, and that has been an underlying influence for me in everything I do. It just makes such absolute sense. If you're going to tackle a problem, first you need to get the data and do your assessment. Then you need to define the problem. Once you have defined the problem, you need to figure out what are some possible solutions, choose an

alternative, and then, you know, implement that solution, and then evaluate whether that solution is working or not. That's the nursing process. That's the problem-solving process. That's, you know, very analogous to the systems development life-cycle process. So, we bring a lot to the table that we sometimes don't even realize that we bring.

Interviewer: OK. Are there any other comments that you would like to add so we can recognize the contribution of Rita Zielstorff to nursing informatics?

Interviewer 4: You know, as I... You've done a really great job of talking about mentors that you've had, and some real specific historical experiences, and I'm glad that you were able to capture that. One question is: Your work in industry is different from some other folks—could you say a little bit about what you've learned about getting into industry, and any messages you'd like to pass on to somebody else who might be interested? What would be important for them to know?

Rita Zielstorff: By "industry," you mean the vendor firm...

Interviewer 4: Yeah.

Rita Zielstorff: ...that I was with, as opposed to the consulting firm? OK. For nurses who go into the vendor world, I will say that, yes, I've had the opportunity to work in a variety of worlds, each one of which has been very different, each one of which has contributed a lot to my own experience and knowledge that I've been able to bring forward. So I've worked in the research field, I've worked in the applied informatics field, and when I joined the vendor firm, I went to a very applied area where now, not only did you want to do a good job, but you wanted to do a good job as quickly as you could, because you had to get products out there into the field. And so my project management skills became really key when I moved into the vendor world. And I was fortunate to be able to work on products that I was very interested in. So, the patient portal was a passion, a natural passion. The physician portal that I collaborated on, you know, was certainly very analogous to the

work that I had done with the COSTAR Ambulatory Record System. So I was able to do that. So, the pressures were different in the vendor world, but that had its own satisfactions, because you had to have tangible results, whereas in an academic medical center, it could be months, sometimes years, before you ever saw the result of your work, just because in an academic medical center, process sometimes can be very protracted. In the vendor world, process is not key. You must get product out. So that was a new orientation, but a satisfying one in terms of if you're a person who likes to have tangible results from what you do. That was satisfying in that respect, I have to say.

[End of interview].