

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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Nancy Stagers

Nancy Stagers: My name is Nancy Stagers and I'm currently an associate professor at the University of Utah. I was the first graduate at the University of Maryland's doctoral program where we're filming this today, and that was 100 years ago in 1992!

Interviewer: First the basics, how would you describe nursing informatics?

Nancy Stagers: It's an unusual question I think for an interview.

Nancy Stagers: OK. Describing nursing informatics is actually an unusual question I think for an interview of pioneers. We've worked very hard to standardize that very definition. And in fact some of the work that I've been able to do with the ANA has built upon the Judy Graves work in informatics which is the intersection of computer science, nursing science and information science and looked at the management in communication of data information knowledge and now wisdom as of 2007 in all facets of patient care and nursing practice in general. So whatever the current ANA definition is let's just put that out there.

Interviewer: Briefly describe your career in nursing that led up to your involvement in nursing informatics, how were you first involved.

Nancy Stagers: In nursing—how was I first involved in nursing informatics, well I guess I just kind of fell into nursing informatics because I've always been interested in efficiency. So early in my clinical career I worked with—for example an orthopedic surgeon and we developed a neurovascular checklist for soldiers who were casted and had maybe fractured femurs or whatnot. So I've always been interested in efficiency. My career in nursing has been very non-traditional. I had a number of clinical experiences in pediatrics, in orthopedics, in let's see large, large cases like hip replacements, and knee replacements, I've done med-surg, been a head nurse of a 70 bed male surgical unit—which was an experience in

the army. And so I had a broad number of experiences I think in clinical. And then in 1981 when I realized that instead of having to type a title and a paper by centering the typewriter on the page and then backspacing one by one and counting the number of characters in the title and doing this math in your head, instead of that you could push two buttons and center a title, it was an epiphany for me that actually computers could really help you do ordinary kinds of things but much more efficiently and effectively. So that was my trigger for getting into just the technology piece of it. When I came to the University of Maryland to do a masters degree, before we even called nursing informatics “informatics”, I just became fascinated with how information and technology might transform the practice of clinical care and nursing specifically. And so I did a master’s thesis on the quality of information before and after two different nursing units had implemented just the lab system—of course there weren’t very many nursing applications in 1985, and so I just looked at the quality of information which was actually an informatics topic before we talked about it as informatics. So my degree then was in administration and so I just kept getting deeper and deeper I guess into informatics and what it might do to transform the practice of nursing.

Interviewer: You sort of answered this, but tell us did you come to understand the value of informatics.

Nancy Staggers: I think over, how did I become, let’s see—let me try that again. How did I become...

Interviewer: Understand the value of informatics...

Nancy Staggers: Yeah, how do I understand the value of informatics and given my history in the past I think, mm hmmm, I think I’ve always had an appreciation for information and the power of information even before it was computerized. And what kinds of information helped the practice of nursing and once technology was introduced in particular even simple things like email, one of the first things that we installed was the Veteran’s Administrations System in a military hospital and one of the applications that they had was email. So in 1985 we installed email in a system and as you look at how

communication of information is different before and after such a simple application you become highly aware of what that value is in informatics. And then looking at how people creatively use an email application from clinical application so people who used email to transmit records and data that were important to nursing like continuing education or people who used it more creatively to email around the, maybe people that they wanted to date or soliciting dates on email. Now of course we wouldn't do that now, but it certainly was a creative application at the time. So I guess and I'm just watching the number of applications evolve over time you become acutely aware of how much of value informatics is to nursing.

Interviewer: When did you first consider yourself an informatics nurse, whether or not you called it informatics nurse?

Nancy Staggers: I think that really happened after I was formally prepared in informatics here at the University of Maryland. Before I just felt like I was a nurse who was acutely interested in what informatics might do for nursing, but I didn't consider myself a specialist or an expert or even anyone who would have an area of expertise in this area until I was formally prepared. And so that was really the fall of 1991 when I graduated with a doctorate in Nursing Informatics from this school.

Interviewer: Let's talk about your personal aspirations and accomplishments, what overall vision guided your work—has guided your work.

Nancy Staggers: Overall vision—I think my overall vision has been very much influenced by the work of Dick & Steen's vision of the Computer-Based Patient Record. So Dick Steen's work in 1991 understanding that the way that we take care of patients in particular and the way that we design systems is all patient centered. So while nursing informatics is very important we're all integrated in the care of a patient. So that kind of vision formed the way that we worked in teams in the military, the way that you designed systems, the requirements that you did, the way that you implemented systems. So that, since I have

been so centered in clinical care and how to support clinical care with informatics, I'd say that was really the vision that helped me move along.

Interviewer: Who were some of the people that you collaborated with to accomplish your vision or goals and any memorable experiences you can relate.

Nancy Staggers: I'd love to talk about the people that I collaborated with. But many of them are non-traditional. Since I was very early in informatics and also the first nurse to be formally prepared in the military in informatics then I didn't have colleagues at the time. So I collaborated with people outside of informatics, I was very interested, and actually tripped over human computer interaction by taking a course at an Allied University here at the University of Maryland. And the person that I worked with was Tony Norcio who is a psychologist and does human computer interaction. He also collaborated with Ben Schneiderman who's on the computer side of human computer interaction and he's of course well known nationally and internationally as one of the founders of human factors in human computer interaction. So those are people that I collaborated with on a human computer interaction side. The person who's most memorable I think in my career is actually somebody who's not informatics at all—and she's a pediatric nurse, her name is Peggy Comb. And Peggy Comb was my section supervisor when I was a baby nurse in the army and I was the head nurse of a GYN unit for the very first time and scared to death. She was excellent at staff development and mentoring people. And in fact this is 30 years later and we still keep in touch. But she instilled values in me to mentor others in development, career development. And so as I began my career in informatics, especially in the military, I made a point of mentoring others from physicians to nurses to pharmacist and as we developed our interdisciplinary teams for example—the first team that we had that selected a clinical information system that's installed in army sites nationwide—actually three of the 10 people ended up with careers in informatics, they were initially clinical but then once they got immersed and they saw what can happen when you apply informatics to clinical issues then, then they became enamored as well. And so those folks have leadership positions now in informatics—so those are people

that I collaborated with. On the academic side my first course was taught by Carol Gassert, she was fresh out of her program at Texas and so we maintained both a friendship as well as an academic and a collegial alliance through publications. And, last but not best is Marietta Mills who mentored many, many students and she served as a role model as she was an executive a VP for nursing at the University Trauma Center and then came over to academe. So she had the nice blend of an executive presence as well as futuristic thinking—even though she wasn't formally prepared in nursing informatics. So those are the people who have influenced my career.

Interviewer: What do you see as the significant events that have shaped the field of nursing informatics?

Nancy Stagers: The significant events that shaped the field of nursing informatics I think have actually roots in the 1970's. And they were opportunities I think at the NAH Clinical Center when they installed the TechniCon Data System and people like Carol Romano took leadership positions. And Carol Romano told me once that she began putting on the NIH seminars as well as doing publications only because people were asking her the same questions. And so, the, I think that was a significant event just seeing that you could actually do it. Looking at successes like El Camino in California also a TDS installation and then, Dot Pocklington's and I believe it was Susan Sparks's publication that was a compellation of publications that was I believe in the 1970's—those were pretty much founding elements as well as Virginia Saba being at the division of nursing and all of us looked to her. Let's see and then *Computers and Nursing* journal when it was just a newsletter and some of us have every issue of *Computers and Nursing*—I'm sure Sue Newbold does as well have every issue of *Computers and Nursing*. So I think those were significant events—I think the ANA finally came on board in the early 90's and in 1994 when we were designated as a nursing specialty that gave us legitimacy writing the *Scopes and Practice*—that was significant. I'm amazed now that the conference today is 500 people who are interested in nursing informatics that's sold out, even five years ago, you wouldn't have seen that. So when Kathleen McCormick says we have critical mass I believe we finally do.

Interviewer: OK, you mentioned *Scopes and Standards of Nursing Informatics Practice*, would you like to tell us more about that and your involvement in those documents.

Nancy Stagers: My role in the *Scopes and Standards of Nursing Informatics Practice* in the United States has been to chair two task forces to revise the *Scopes and Standards*. The first one was written in 1994, the second one was a panel of seven of us who met very frequently, took a look at the first *Scopes and Standards* and expanded the meta-structure section—talked with Judy Graves who was wonderful in helping guide us to think about the concepts that she developed data information and knowledge and then move it beyond that we added a new paradigm to meta-structures for nursing so the nurse patient environment, etc—we added decision making. And that was probably always supposed to be a concept, we just hadn't thought about it that way. And it is really the centerpiece of where we want informatics to make a difference at least in clinical care. So I chaired that second *Scopes and Standards of Practice*. We released that in 2001—another piece of that *Scopes and Standards* was Cheryl Thompson and I took a look at the definition for nursing informatics, traced the evolution of that definition and then provided the ANA our thoughts about the definition which fortunately stuck and now that I've chaired that ANA *Scopes and Standards* for a second time we have retained that definition. The Canadian Nursing Informatics Association has adopted that definition as well so we have North America and then AMIA has done some work in definitions as well. In the second piece of the *Scopes and Standards for Nursing* we have greatly expanded the “Ethics” section, greatly expanded or moved away from titles and positions for nurses and talked about some of the sub-areas that nurses function in and called that “Functional Roles” instead—and people can mix and match those various functions into new and creative titles. We see nurses still doing implementation, but we see people now doing development, being entrepreneurs and very exciting positions for nurses. And in the *Scopes and Standards* we also expanded the “Future” section which will be a lot of fun to look back on five years from now and see how dated all of that looks. So I was pleased to have that opportunity to revise both of those *Scopes and Standards*.

Interviewer: Let's talk about research—what were the important questions addressed by research related to nursing informatics?

Nancy Staggers: The important research for nursing informatics I think have not been addressed yet. We spent the 1990's talking about terminology, which is an excellent topic, I'm very glad there are people whose lives are fascinated by terminology, but it was the major funding stream and so other important questions weren't funded as much. Nursing in general at the National Institute for Nursing Research saw informatics as almost divorced from patient care—I believe. Now that is changing in the 2000's so that clinical care and informatics are seen as adjuncts and we see funding being appropriated there. I believe important questions for the future will center around how we support decision making wherever it's made for clinical care in nursing administration and education or in research as well. So I see some of the important trends maybe even in something that I thought originally was a theoretical—but as we look at evidence based care which is a current trend right now and techniques for generating knowledge into the future perhaps knowledge discovery and knowledge development, KDD, and data mining will be important questions for the future. A current question right now is how to make systems more useable and adoptable by people—how to. A third important question I think is just how to install systems in a more timely manner, of course we're just trying to install the fundamentals now into facilities since the majority of facilities don't have full electronic health records and yet our system life cycle is so very long. And I'm sure these kinds of questions will look silly to people in the future because they will be on to new and better issues—but those are the current issues that we're looking at right now.

Interviewer: Expand a little bit more on your dissertation research—you're known for work with human factors and usability, can you tell us a little bit more about that?

Nancy Staggers: My interest in usability really began with my dissertation work. I looked at a simple display in a character based system—I hope people in the future will know what a character base system is. Just looking at how you might recreate a lab display or display

of critical lab values so that people could more quickly and more effectively detect critical information. I worked with Ben Shneiderman and Tony Norcio, read everything I could about human-computer interaction to take a look at the effectiveness and the efficiency of designing presentations. It was, I have to say that idea was well received but it was so very new in nursing it was almost frustrating for a while to publish and speak for probably 15 years and have people kind of nod their heads boy they like the idea but really there wasn't any momentum in the ideas of usability. I've had four grants, four federally funded grants in usability related issues. I've done I think about 71 presentations and now finally we see that the number one issue identified by the educational reform group, the TIGER Group, is usability. So that's pretty gratifying that if you just wait 15 years then maybe your ideas will come to fruition. So that was my dissertation and my one research program, so I developed some theoretical basis in that area, I developed two instruments—one of which is the nursing computer experience questionnaire, I've gotten about 80 requests for folks to use that questionnaire, so I guess that's pretty good I guess.

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

Nancy Stagers: Some of the early events in nursing informatics I can remember sitting at one of the NIH Nursing Informatics Symposium that they had and listening to Grace Hopper who was the inventor of COBOL, she also had a grand sense of humor and having her tell stories about how she mentored people in the navy to speak well because she would make them pay a quarter every time they said "uhm" or they hesitated, and just knowing that a woman could actually be a leader and be so well respected in a field I think gives you confidence that the old hierarchy of Dr. Nurse and male/female was being broken down by pioneers like Admiral Hopper. So that was an early memory of just being exposed to the exciting platform that was to come. I think that we had no idea what was really gonna happen, but you could feel the energy in the air and the synergy of people coming together to talk about a topic that they were all fascinated by. I guess that's my earliest

memory. Another memory might be working with Dot Pocklington—she was an let's see the CIO's executive, not an assistant, but she worked with the CIO in strategic issues and so actually putting a face to someone who I had revered and who really began thinking about nursing informatics as something that you might research was something new and novel. And by the way she likes to make cheese biscuits; she's a very southern lady.

Unknown: How has the field evolved and are you surprised at how the field has developed?

Nancy Staggers: The field has evolved I think logarithmically. So the field began really with a few core people but then as we began formally training people, the numbers have increased exponentially I believe. So it took us awhile to get going and lay some of the foundational work but now we have thousands of people who are actually doing nursing informatics work. And we've gone from people who have bootstrapped themselves into nursing informatics positions to people who are innovators who are using their knowledge and wisdom to really make a difference in the field. That's kind of general information about how the field has evolved.

Interviewer: Dr. Staggers are there lessons learned that you would like to pass on?

Nancy Staggers: I think I would like to pass on one single lesson—there could be many, but just one and that is for people who are interested in innovation, many of us are impatient and we're frustrated that other people don't see the vision that we see—for example getting information to the right provider at the right time at the right place. So those kinds of initial visions that we developed, take a while for other people to realize. So as I mentioned before the work that I've done in usability has taken so long to catch on I was very impatient and in fact had almost given up and I've done work in other areas in the meantime because there just didn't seem to be synergy and momentum. So my one lesson would be have some patience and develop coalitions and sometimes people aren't ready for what you have to say because it's so new and novel to them and it shakes their world. If you're going to transform clinical practice sometimes it just takes a while even if you

don't consider yourself a pioneer maybe you are in some ways and it just it takes people a while to realize that, so maybe a little more patience than I had.

Interviewer: Dr. Staggers where do you think the field is going, what opportunities or roadblocks lay ahead?

Nancy Staggers: I think the future is unlimited for nursing informatics. I think our boundaries are beginning to blur between informaticists in various professions. While we'll still retain our identity as nursing informatics the edges between medicine, dentistry, pharmacy are blurring so much that we'll have a core foundation of informatics methods, skills, and knowledge, and then we'll have a professional identity. But we have larger goals in mind, such as better patient care or better quality or better administrative methods that are much more synergistic. We've just finished some work in the ANA so my mind is tainted by some of the things that we said in that document that will look very dated in probably two years. I think the way that the field is going that will be sustained is always the primacy of information and knowledge and wisdom. And that technology and informatics will be the support for moving that forward. so we'll have innovative technologies like nano-technology which some will claim will change every man-made object that we've created to-date but yet is really the information and the knowledge that are contained and supported by that technology going forward. I think, for once nursing has an alliance and that's very encouraging going forward and we have perhaps gotten away from some of the traditional inviting that we've done and we can move forward more as a group.

Unknown: You mentioned [inaudible]...

Nancy Staggers: I don't mean a formal alliance, because currently we have the alliance for nursing informatics—but what I meant was just an alliance of, maybe coalescing our thinking about what is nursing informatics. We still have, what terminologies are important to support the field. We have some fundamentals that will then open up windows to the future.

Interviewer: Why do we call it nursing informatics—what do nurses bring to the party?

Nancy Staggers: Well, why do we call this nursing informatics, think there are fundamental pieces of knowledge that nurses have that no one else has. From values, from knowledge, from skills, that despite us having core attributes in informatics such as system analysis or database design or ethical principles applied to systems or privacy and confidentiality for instance—that there are specific things that nurses bring. [unintelligible] on the non-academic side in implementing systems I think nurses have been leaders because, one they understand clinical operations in all settings, they are used to being integrators and patient advocates so they're used to looking at other professions and what they contribute in a patient centered manner if it's a clinical system. They understand how other people work, how other people think, how they're values are translated then into healthcare, and so they are naturals at informatics because they're already integrators of information and when you apply informatics tools to that, it's just another type of integration. We are advocates for information, we're advocates for patients and I think other professions can't say that. So I'm very proud to keep the nursing piece in my title of nursing informatics. While much of my practice is actually been integrated into a hole I still always think of myself as a nurse. That actually has held me in good stead having that clinical identity and having a strong clinical background because you understand what the issues are, what potential solutions are, what's gonna work, what isn't gonna work—especially for nursing but also for other health professions as well.

Interviewer: That ends the formal questions that I have for you but is there anything else you'd like to add or go back and rethink.

Nancy Staggers: Can I talk a little bit about some of my other work besides the ANA and the usability?

Interviewer: Please do.

Nancy Staggers: OK.

Interviewer: You can talk about your military career really.

Nancy Stagers: No we don't talk too much about that. I think let's see, let's talk about two things if you don't mind. Let's talk a little bit about the work that we've done on informatics competencies. Some of the initial thinking and where we went with that, the competencies work was actually an accident and it was an assignment from uhm, from a supervisor that I had to integrate competencies into the bachelorette curriculum in my first week of a job as an academic. And I didn't know how to study that. And the only way I can think about it is you can't just integrate some set of competencies no matter what it is in just one facet of an organization or a profession without thinking about the other levels that are there. But surely this work was done. So I called up Carol Gassert and I talked to Chris Curin and low and behold this work wasn't done. Well given all the work that I had done in implementing clinical information systems well we shouldn't just think about nursing informatics competencies—they're really informatics competencies for everybody, they're more patient centered but wouldn't other professions need to know this as well. And so where we wanted to go first was really interdisciplinary competencies. However, it's hard to do interdisciplinal when you don't even have competencies around your own profession. So that's how we started the competencies work. And that seemed to ignite a small spark. Even though there were other people before hand who had done work and competencies it seems like the timing was just right. Sort of like the patients lessons learned, that I talked about before—some of it is, it's just the timing, just the timing. So we did the work on validating a long list of competencies—we had wonderful people to work with—Rita Schneider for instance has very fine thinking and developed almost the entire list of informatics innovators out of her head. So we have to give credit to Rita Schneider for that. But then here's the trick, so we have this list it caught on in Universities and agencies across the country and then here's what happens in your own institution you take that list back to the bachelorette curriculum committee about 18 months after I'd had that assignment and they didn't like it. And so in my very own backyard it never got implemented—but then you're doing consulting to every other agency, so just go figure sometimes people aren't ready and so

you have to have a little more patience and now they're ready. Its five years later—but now they're ready. And I guess I should talk a little bit about my military career because I've had a pretty non-traditional both nursing career and military career. In my military career I was a clinical nurse for I guess about eight years, and then I had a non-traditional role as a nurse methods analysts and I think that actually is part of thinking and transition to informatics as well—because the nurse methods analyst was a position where we worked for the finance officer as a liaison to nursing and you had a dotted line to the VP for nursing or the chief nurse—and you could get involved in whatever projects that you liked. But they like you to think about ways to save money and standardization and efficiency and so you do things like you'd walk through the supply warehouse and you'd look at how many transducers we had in an ICU across the institution and so you'd bring together committees and get consensus on a transducer that would support all of our environments. So when nurses went from place to place they didn't have to learn how to manipulate and use different transducers. So, that, that kind of system thinking if you will I think translated really well into informatics. However it was very non-traditional. And then once in the military I went into informatics and got educated in informatics then they called me to my face they wondered if you'd get promoted and you were so non-traditional and again it just took people awhile to realize what the value might be or even what the word informatics meant—you'd spend probably a decade trying translate to people what informatics means and you still get those kinds of questions. But in the end, I was the, the nursing informatics consultant to the Surgeon General for three years. I developed a cohered of people in both interdisciplinary and nursing and nursing informatics is now a very strong presence in the military. Now mind you there were hills and valleys because at one point they decided to turn off formal education of army nurses in informatics and then realized a few years later that actually now that they were installing all these systems and doing all these other things having nursing informatics people would actually be pretty helpful. So, so I guess there was just a small piece there in developing nursing informatics in that—I'm pleased to say that it's much easier for the people after me now. So the people who, who a decade late after I got out of the military

now are progressing to leadership positions much more easily—the barriers that were there, and when, when I was, in my career have just crumbled and so something a job that took me five years to get to after my doctoral program someone else Caterina Lasome was placed immediately, well not immediately she, she had the time to get to that position so it's pleasing to see and fun to imagine what life will be like as the next generations go and if they can have the time to get into leadership positions. I know one more thing I should talk about OK, and then I'll shut up—and that is being an associate CIO at the Health Sciences Center for the University of Utah and that position was a brand new position—associate CIOs were new in the country—and being able to affect an enterprise health system with an electronic health record was a very gratifying experience. And being able to instill project management principles into an organization that hadn't used formal principles in their project management and do those kinds of more of a wide spread initiatives was a lot of fun. So I've spent my career with one foot in operations and the other foot in academe and so I work for awhile in one and then I'll say when I'm in operations well I don't have any time to write so I'll go back to academe and then you say I don't have any time now to influence what's going on in clinical operations. So I've gone back and forth in each of them—but probably spent most of my time installing systems, designing systems, selecting systems and evaluating them and just thinking about the future would bring.

End of Interview