Professor Evelyn J.S Hovenga – Health Informatician

A short biography detailing my career progression.

My career in Nursing Informatics began in 1984 following the receipt of a letter from Maureen Scholes, the then Director of Nursing of the London Hospital, inviting me to represent Australian nurses on a newly established IMIA working group enabling nurses and others interested in informatics to test their ideas and to ascertain the nature and scope of the support for such activity. To this day I have no idea how Maureen Scholes obtained my name or who may have recommended me for this role.

I had undertaken computer studies in 1979 while undertaking a Diploma in Applied Science at the Lincoln Institute, now LaTrobe University. It was one of the very first post graduate courses available for nurses in Australia. There was a high demand and we had to pass an entrance exam to fill the small number of available student places. The course coordinator, Margaret Strang had decided that nurses needed to consider using computers. She did a deal with the Royal Melbourne Institute of Technology so that we were taught by one of their lecturers and we were able to make use of their main frame computer capable of statistical data analysis. We learned how to program in BASIC. I did fairly well and in 1982 was asked to give my very first lecture to members of the nursing research group on how to make use of computers. I also completed my Bachelor degree in Applied Science that year. During 1984 I worked with the Royal Australian Nurses Federation (RANF) to produce a publication titled 'Computerised Patient Data and Nursing Information System: Some considerations". In 1988 the RANF produced a second publication in information processing, a 'Practical Guide to the Use of Computers in Nursing' .

I was employed as a senior nursing advisor by the Victorian Health Commission when I received that letter. I had been instrumental in introducing memory and a screen for my secretary's typewriter, followed by dedicated word processors and computers for use by staff within the Nursing Division of the hospital section. We were responsible for administering a section in the then Hospitals and Charities Act concerned with budget allocation for nurse staffing in all 169 hospitals plus district nursing, school nursing and remote area nursing within the State of Victoria, Australia. Later I introduced a couple of personal computers, one of which had a spreadsheet application that I used extensively in conjunction with the Finance department.

This Victorian Health Commission was well advanced in the use of information systems. All hospitals provided financial and staffing data via telex technologies to a central computing service. We received monthly printouts providing individual hospital productivity, staffing details such as number by classification and associated budget and actual year to date financial data. In addition I managed all research activities associated with a State wide Ministerial Enquiry into Nursing. This provided me with an abundance of data we processed on our new personal computers for policy development purposes and to assist with industrial negotiations as there were numerous disputes over nurse staffing levels during this period.

Prior to taking on this senior nursing role I had developed a Patient Assessment and Information System (PAIS), an acuity system that enabled nurses to better manage and monitor their workloads during 1981-82 while employed as a Work Study Officer within the Victorian Health Commission. I used a TRS80 personal computer with a program developed in BASIC to analyse all the work

sampling data collected for this project. This nurse acuity system became instrumental in the resolution of many industrial disputes. When as an operating room suite nurse manager I was recruited as a workstudy officer I was sent to the Footscray Institute of Technology to learn time and motion study. This was followed by in service courses on MODAPTS (Modular Adaptation of Predetermined Time Standards). I loved the work and enjoyed the many hospital visits to undertake numerous productivity studies. During this period I also studied, economics, statistics for researchers and first year mathematics at Melbourne University where I learned how to program using Pascal and the Unix operating system. Later I attended the Royal Melbourne Institute of Technology on a part time basis to undertake a Graduate Diploma in Information Systems. This is when I learned how to design and develop databases.

In 1985 the Royal College of Nursing , Australia had invited me to deliver a paper on managing resources using computer technology at their annual conference with the theme titled "Information Processing – Challenges and choices for nurses" along with an invited speaker Clare Ashton from the UK. That same year I convinced the Victoria Government that I needed to undertake a world tour to explore the likely impact of computers on nursing. The IMIA Nursing WG provided all the necessary contacts for me to visit in the USA, Canada, England, the Netherlands and Switserland. It took a lot of organising via snail mail and the need to comply with Government funded overseas travel regulations but it all came to fruition in May 1986. I visited Los Angeles, San Francisco, Calgary, Edmonton, Cleveland, Toronto, New York, Washington DC, London, Leiden and Geneva and met up many senior nurses who were intimately involved in system development and implementation.

Following my wirlwind tour of 19 days I recommended the need to focus on patient centred systems replacing departmental systems and to plan to purchase bedside terminals as only then would nurses be able to make good productive use of these new technologies. This report has obviously landed in an archive somewhere as we continue to have significant technology deficits in these areas. Later that year I attended Medinfo in Washington DC at my own expense along with at least 20 other Australians. This was the beginning of our Australian health informatics professional network. The previous year a number of nurses decided to establish a nursing computer group, 70 nurses turned up at the first meeting organised by Joan Edgecumbe and Robyn Harvey, I became a committee member of the Nursing Computer Group Victoria.

An invitational workshop was held I Stockholm in 1987 to develop Nursing Informatics competencies. This was another occasion where I had the opportunity to work with world leaders in this discipline so I didn't mind the personal financial investment needed to attend. We shared a vision. It was at that time that it occurred to me that it would be beneficial for Australia to host an international Nursing Informatics conference under the auspices of IMIA's WG8. I managed to persuade the newly established visionary and enthusiastic Nursing Computer Group Victoria (NCGV) to prepare such a proposal. We were successful and prepared to host the Fourth international Conference on Nursing Use of Computers and information Science in Melbourne in 1991 with me as Chair. That challenge was formidable as we were relatively small in number, a very young group with little financial backing taking on a major venture. Needless to say we had some nail biting moments but the group's commitment to be successful never wavered.

In 1989 one of the nursing computer group members, Anita Griffin who was also a nurse educator initiated the publication of the first Australian textbook on Nurses Using Computers. My contribution

was based on the work undertaken at a Nursing Computer Group workshop facilitated by me with the aim of establishing user requirements for a computerised nursing information system.

My colleague Joan Edgecumbe was the NCGV treasurer, together we met with a local bank manager and were successful in obtaining a loan of $5,000 unsecured seed funding. Interest rates were 23% at that time. Soon after, I was able to secure a 3 yr sponsorship deal of $75,000 from McDonnell Douglas that guaranteed our ability to make it happen. In addition Qantas provided 3 overseas trips for promotional purposes. This enabled me to attend the 1989 Medinfo in Bejing and later in Singapore, the 1989 AMIA meeting in Washington DC, and MIE1990 conference in Glasgow to promote NI'91.

By 1987 my nursing acuity system had been computerised and was used by more than 100 hospitals Australia wide. A new Health Minister had resulted in a perception that nurses' use of my nursing acuity system was resulting in the cancellation of many elective surgery cases due to insufficient nursing resources. He considered this contrary to his policy objectives of reducing surgical waiting lists and banned the further use of that system. He refused to accept that his health service administrators were not making good use of the information provided along with the adoption of sound admission and discharge policies to manage available resources optimally. I had become a political outcast.

In addition there had been a major restructuring following legislative changes resulting in the Commission becoming a Department with eight regional centres. The central nursing section of the hospital division was made redundant. The new regional directors did not want to employ senior advisory nurses as they wanted to be in control. No hospital would employ me in a senior line management position but many were happy to make use of my knowledge and skills in a consulting capacity. The department had a no redundancy policy so continued to employ me. I had taken long service leave and several months paid sick leave following a knee reconstruction in Austria to repair a skiing injury. I was then given a research assistant job working on a clinical costing project to develop nursing service weights associated with the later introduction and use of casemix based funding. I used this opportunity to start working first on a research Master's degree followed by a PhD making use of the research undertaken during the early 1980s to develop that nursing acuity system. My employment situation meant that I was increasingly working at home on all the volunteer professional work, full time study and able to take on some private consulting work. This enabled me to undertake the many conference planning and scientific program committee management tasks from 1988 to 1991.

Our first commitment associated with conference planning was to attend the 3rd NI conference in Dublin in 1988 where we would also promote the Melbourne conference to be held in 1991. I was a single Mum with a mortgage, lots of job insecurity and no spare cash so I took a weekend job managing an aged care facility to save the funds to go to Dublin. I was invited to attend the post conference on Nursing Decision Support systems. I had no idea what that was all about and read all the papers sent to me via snail mail on the plane. I was fortunate to be appointed as a deputy Chair to one of the working groups, with Rita Zielstorff as Chair, taking care of all the documentation. This resulted in me writing a chapter for the subsequent Mosby publication. The support and encouragement I continually received from my international colleagues was an inspiration for me while going through very troubling and difficult personal times at home.

The 1991 4th International NI conference held in Melbourne was a great success. We attracted around 700 paying registrants, of whom around 300 came from overseas despite the then recent Gulf war. We produced three publications for the pre-and post conference workshops as well as the in excess of 800 page conference proceedings edited by me. Managing the paper submissions required me to develop a database in Dbase III, it was all very time consuming. We had no staff other than an external event manager who knew nothing about scientific paper submission and selection processes. I was it! Preparing the camera ready copy for these publications was a huge task on an XT personal computer with a 10MB harddrive, using word perfect or wordstar 2000. Files were all sent by snail mail on 3 $^{1/4}$ inch discs. Many authors had not complied well with the author guidelines and some of the papers from non English speaking authors required a lot of editing.

Our substantial profit was used to fund two post conferences, one for the International group of invitees and another for national invitees with the objective to establish a National Nursing Informatics Group. I convinced this group to then provide the seed funding for the first national Health Informatics Conference (HIC) that was held in Brisbane in 1993. Its profit was then used to fund the establishment of the Health Informatics Society of Australia (HISA), its office and secretariat. The original format has changed little for all subsequent annual conferences. The Nursing Informatics Australia group is now a HISA special interest group and holds its annual conference as a one day preconference to HIC.

Following all this activity I was employed on a part time basis as the policy officer for the College of Nursing Australia, and became their representative on the newly established IT-14 committee and a number of sub-committees for Standards Australia with the brief to develop Health Informatics standards. My position with the College didn't last as I was seen to have an unwanted bias to information systems! My exposure as the NI'91 conference chair did lead to an invitation from Prof Amy Zelmer to work in the Health Science Faculty of Central Queensland University, firstly on a contractual basis from Melbourne. Prof Zelmer was a Canadian employed to develop a new nursing curriculum and manage the first intakes of nursing students following the transfer of nurse education from hospital based training to Universities.

During the late 1980's she had decided to install a computer network. All academics were given a computer to use on their desk and were expected to make good use of it. For example all meeting notes were placed on the server in place of printing, copying and distributing via the usual method. I began my academic career late 1991 using my own home computer, an XT running DOS, a 96kb modem linked to my fax line so that I could use the University's main frame computer more than 2000kms away, to send and receive files as well as use email via a program called Kermit. A year later I was appointed as a Senior Lecturer to manage and deliver the new Graduate Diploma in Health Administration and Information Systems I had developed as a contractor, so moved to Rockhampton.

The following 15 years ending in my retirement in 2007, were used to consolidate my work in Nursing and Health Informatics that included further course development and research work and the establishment of a Health informatics Research Centre. I also continued to voluntarily work in standards development for Standards Australia, contribute to the establishment and management of HISA, running the annual national conference, work for IMIA's WG8 Nursing Informatics and later WG1 Education supported financially to a large extent by Central Queensland University (CQU).

While employed at CQU I changed from the Health Science Faculty, where I had been responsible for not only all Health and Nursing Informatics education but also the entire computing network, and the introduction of multimedia enabling computer assisted learning and website development, to the Business and Informatics Faculty where I successfully progressed my academic career to establish a Health Informatics Research Centre and be appointed as a full Professor in Health Informatics.

During my academic period I was the lead editor for an Australian text on Health Informatics published by Churchill Livingston in 1996. I was appointed as an international expert advisor to the 4yr (1996-2000) European Union's funded NIGHTINGALE project – [Nursing Informatics: Generic High-level Training in Informatics for Nurses; General Applications for Learning and Education]. This work again provided significant opportunities to work with many international colleagues. This included some work with the International Council of Nursing's project developing the International Classification of Nursing Practice (ICNP) via the European Union's funded Telenurse project followed by the TelenurseID-ENTITY [Integration and Dissemination of European Nursing Terminology in Information TechnologY] project.

IMIA's WG8 became a special interest group and I took on its Chairman's role from 1997-2000. My primary contribution was to establish a strategic planning process and to restructure the group to enable more nurses to participate in a number of task forces. This was followed by an appointment as Chair for WG1- Education (2000-2003) following my contribution to the development of the first edition of IMIA's educational guidelines published in 2000. At that time we explored the possibilities of establishing a virtual University as a means of addressing the dearth of health (and medical) informatics expertise. This resulted in the recruitment of many IMIA institutional members as this was a pre-requisite to participation and an IOS Press publication edited by me and Dr John Mantas on Global Health Informatics Education. I was later appointed as Vice President of the IMIA Board (2003-2006) and contributed to the review, update and publication of the second edition of IMIA's educational guidelines published in 2010.

Locally I was one of the foundation Fellows of the newly established Australian College of Health Informatics (ACHI) in 2002 and served as its President in 2004. I also worked with HISA to develop a successful bid to host the Medinfo2007 in Brisbane that resulted in me Chairing that conference. In addition I was an invited expert on numerous Government funded committees including on workforce capacity building initiatives and the National Health Data Standards committee. I continued to work in standards development and represented the Standards Australia IT-14 committee on a National Health Information Standards Advisory Committee in 2003-4.

I was very fortunate to receive funding for two post doc Fellows, one of whom, Dr Sebastian Garde, established the first ontology based clinical knowledge repository storing the first computable clinical concept definitions (archetypes) developed by members of the openEHR foundation at the Centre for Health Informatics & Multiprofessional Education, University College London where I was later appointed as an Honorary Senior Research Associate. This repository was a precursor for the system now known internationally as the clinical knowledge management (CKM) system that provides an international collaborative environment for the continuing development of archetypes to be used in the development of e-Health clinical technical solutions. Dr Garde continues to manage

this as well as the free electronic Journal of Health Informatics we established for which I continue to be the Chief Editor.

My other post doc fellow, Dr Carol Hullin, enabled the establishment of a research link with a major teaching hospital in Melbourne plus an agreement with the Chilean Ministry of Health. Our collective work in Chile has resulted in the establishment of a national Health Informatics professional organisation, a number of health informatics educational programs, one of which has recently been accredited by IMIA and the commercial development of clinical information systems. Dr Hullin continues her work to introduce health informatics in developing countries in her new role as the Lead eHealth: Information and Communication Technology Specialist for the World Bank. The three of us plus one of the original book editor, Dr Michael Kidd edited the next edition of the Australian Health Informatics text in 2010. This second edition has more global appeal; it was translated into Spanish and published in Santiago, Chile.

Following my official academic retirement in 2007 CQU has closed down all health informatics education and research activities. I did slow down, enjoyed an extended stretch of travel with a friend as a 'grey nomad' and I spend more time with my family especially my seven grandchildren making use of my Melbourne apartment. I have continued with the standards development work for which I was also frequently one of the selected experts to represent Australia at the ISO TC215 meetings held twice each year.

My long standing colleague Heather Grain and I were members of the ACHI education committee in 2008 and initiated the establishment of the Australian Health Informatics Education Council (AHIEC) to further develop the College's HI Educational Framework developed by the CQU research team in 2006. It was about ensuring that a coherent, comprehensive approach to quality health informatics education and training in Australia could continue, so that the health workforce is able to leverage advances in health informatics to improve health service delivery. The Australian Government funded my development of a strategic workplan 2009-10 and beyond. An extensive literature review undertaken by Heather and myself as part of that project has resulted in a comprehensive set of HI competencies that is now published at the AHIEC website.

Joan Edgecumbe, Heather Grain and I established a new private company late in 2008 to be a leading eHealth education provider. In 2010 we purchased the business of a registered training provider based in Rockhampton, Qld and became a registered training organisation ourselves delivering not only eHealth education but also training for others to become nationally recognised Trainers. The latter ensured we became very familiar with vocational competency based education principles and national protocols. This business component is now providing the cashflow that enables us to continue with our health informatics education passion.