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Medical informatics – back to the future

“Information is a message that reduces your uncertainty,” said Claude Shannon in 1948.

The Shannon Paper on Information formed one of the pillars on which Prof Marion Ball, keynote speaker at Medinfo2010, based her address to delegates in a plenary session yesterday morning.

Add to it the Working Conference in Cape Town in 1979 – 31 years ago – and the answer to the question ‘what have we failed to learn?’ – becomes quite clear, she said.

This was the first-ever IMIA working conference on hospital information systems.

She said even though there was an understanding of the importance of health informatics technology three decades ago, it still adds time to the clinician’s work. “It simply won’t help until it subtracts work,” she said, “as the most important aspect is the human factor. The patient remains at the centre of it all.”

She said the industry had been quite successful though, and that there is plenty of Health IT spending. “The money is there, but are we using it in the right way? Do we really understand the message that clinicians need useful technologies at the point of care?”

“Patient safety also comes into the equation,” she said.

“And there’s a new type of danger to patient safety – computer based errors! We are not applying our knowledge to reduce uncertainty and there are far too many preventable deaths in ICU.

“Our failure to communicate is also costing us. How many of us tell patients that eating fish once a week reduces the risk of a stroke by 22 percent, or that moderate exercise for less than two hours per week by elderly people reduces the risk of a stroke by 60 percent? Our current ‘sick care’ system must move to a health care system.

“The modern medical team is another problem. People in the various disciplines tend to operate in silos, instead of integrating their knowledge.

“Basically, we have the same issues as 31 years ago and we need to take a serious look into the future.”

Quoting Einstein, she said continuing to do the same thing and expecting different results is insanity.

“Looking into the future, we must reengineer health systems to achieve success, but remain aware that not all change requires information technology for success. Health IT also needs new innovations. We need to think out of the box. To quote Nobel Prize winner Max Plank – in the correct formulation of the question lies the answer.”



We need to think out of the box - Prof Marion Ball.

She said reengineering should be focused on patient-centered care and that we should learn from other industries – in England a pediatric surgeon applied the same approach used in the Formula One racing industry to streamline the processes in his operation room, with phenomenal results.

Saying a huge chunk of our clinical workforce is nursing – in fact, 84 percent of healthcare professionals in the USA are not physicians - Ball referred to the birth of Technology Informatics Guiding Education Reform (TIGER), for which over 1 000 nurses and nurse informaticians volunteered.

“We need to train our nurses in technology, they are knowledge workers. We need to find ways to stop adding to their workload. We need to start reinventing what needs to be done.”

Citing an example of a nurse using five pieces of equipment at the same time, each with a different password, a different display and a different message, she said Claude Shannon would turn in his grave.

“Today there is data everywhere. We have a tsunami of data and the information challenge is not going to get any better. We need to increase the cognitive window for the clinician and we need smarter point of care solutions,” she said.

Smart point of care solutions include having data ready before the clinician needs it, understanding the workflow of individual technicians, realising that context is everything, but so is speed, hiding complexity with simplicity and reducing the amount of work.

Referring to the smart room concept, she said it resulted in a 57 percent reduction in charting time and an 82 percent reduction in time to document vital signs.

She said Sir William Osler was at least 100 years ahead of his time when he said “it is much more important to know what sort of patient has a disease than what sort of disease a patient has.”

She posed three challenges to IMIA – relating genomics, proteomics and metabolomics to ‘what sort of patient has a disease’, using ‘omics-based health’ at the point of care, smartly, and delivering predictable and optimised health for all citizens of our countries.

*

Prof Marion Ball is a member of the Institute of Medicine and serves on the Board of Regents of the National Library of Medicine. She is the author/editor of 20 books and over 260 articles in the field of Health Informatics and served as IMIA President from 1992 to 1995. She was born in South Africa.

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Africa's golden boy welcoming delegates at the opening cocktail party on Sunday night.



When Australia and Kenya come together - from left Esther Munyisia and Ping Tu from Australia, Nadmi Masitsa Shiyonga from Kenya and Ning Wang, also from Australia.



Peace from South Korea - from left, Koh Young Taeg, Cho Kyung Hee and Ahn Sun Ju.



Listening to international views - Willie Rencken and Minette Barkhuysen from South Africa.



A quick lesson in interoperability during the tea break.



When East and West meet - from left, Ali Habib from Pakistan, John Wesonga from Kenya and Sarah Biizz, also from Pakistan.



South Africans were out in full force - from left, Laniana Gray, Pinky Dlamini, Lifeni Make, Jacob Poo, Joey Badenhorst, Martie Smit and Margaret Sales.



All the way from West Africa - Ghislain Kouematcholia from Cameroon, left and Amadou Koita from Mali.



Where shall I go next?



Argentina meets South Africa - from left, Luisa Whitelaw, Sithara Satiyadev from South Africa and Paula Otero and Analia Baum from Argentina.



Caught in the act! Quickly surfing the net during tea time.



Medical informatics can be fun say, from left, Mpuse Mofokeng, Gilbert Makgopa and Joseph Sandt from South Africa.

Order your photograph CD now!

A cd with congress photographs will on order at registration @ R100 per copy. Order now to have your cd available on Wednesday.

Award 'a total surprise'



Sedick Isaacs received his Honorary Fellowship from IMIA President, Prof Reinhold Haux.

Sedick Isaacs, president of IMIA's African region (HELINA - Health Informatics in Africa), was "very thrilled, and totally surprised" when IMIA's president, Prof Reinhold Haux, called his name to receive an honorary fellowship of the organisation during the opening ceremony on Sunday evening.

"When I heard him describing the award, I really thought he was going to name my good friend, Hans Pietersen of Sweden," said Isaacs. "So when he called my name, it came as a total surprise."

Interestingly, Isaacs, who previously served as the head of the Department of Medical Informatics at Cape Town's famous Groote Schuur Hospital, was involved in Africa's first bid for Medinfo - the "unsuccessful one, in Rome, when we competed against Australia."

Despite the presentation of a bid document that outlined the strength of South Africa as a destination, noted the support of provincial and national governments, and included details about things like the cost of travelling, accommodation, and even the conference venue - "A

lot of countries were sceptical about coming here because of security concerns. But I think our successful World Cup has changed all that..."

And, of course, South Africa's second bid - under the guidance of Local Organising Committee member Roy Alger - was, indeed successful, and here we are in Cape Town in 2010. So how does Isaacs feel now that Medinfo2010 is under way at last?

"It's so good," he said. "We were nervous until quite recently because even some of our own members felt that we might not have the capacity to pull it off."

"But when we saw the World Cup, we knew that this conference could succeed with the same flair and brilliance."

Isaacs recently published a book about his experiences as a political prisoner on Robben Island. 'Surviving in the Apartheid Prison - Flash Backs of an Earlier Life' - is available at the IMIA stand in exhibition hall 4.

Interoperability: Preparing Africa for the future

Jembi - a South African not-for-profit organisation that focusses on furthering computer-based healthcare solutions for the developing world, and which is funded in large part by the International Development Research Centre (IDRC) and the Rockefeller Foundation - is demonstrating its EHR (Electronic Health Record) system at Medinfo2010.

The organisation's executive director, Chris Seebregts, said that Africa is presently enjoying a window of opportunity that could allow the continent to avoid many of the medical informatics challenges facing the developed world.

This, he said, is true because the "level of computerisation of health systems is still relatively underdeveloped" in Africa - which means that health care systems can be developed to include interoperability from the ground up, "rather than trying to solve the problem once everything's been implemented."

He pointed out that the fact that Africa has embraced

cell phone technology on such a massive scale is significant in this regard.

"Because Africa had relatively low fixed-line coverage, cell phones became a revolutionary technology, enabling people to connect where they'd never been able to do so before."

This adoption of mobile phone technology, he said, has become a hotbed of innovation - and Jembi is developing methods for interoperability in healthcare by looking at ways of adopting and adapting the phenomenon.

"We feel that we can avoid the interoperability problems that a lot of the developing countries are experiencing by developing systems while simultaneously addressing the main goal - which is health care and health outcomes," he said,

Experience Jembi's 'live' interoperability model in exhibition hall 4.



(From left): Demonstrating Jembi's EHR interoperability model at the Medinfo2010 products exhibition: software developers Wayne Naidoo and Ryan Crichton, and Jembi's Rwandan project coordinator, Liz Peloso.

What should medical informatics research in future? - President



Let's prepare for a meaningful evolution - Prof Reinhold Haux.

"What are important future research fields for medical informatics?", the President of the International Medical Informatics Association, Prof Reinhold Haux asked delegates at the opening plenary yesterday morning.

"Currently medical informatics research concentrates on the organisation, application and evaluation of health information systems as well as medical knowledge representation and signal and data analysis.

"However, we should always consider what are important, original and relevant - future research fields for medical informatics? One should always consider what the aims of medical informatics are and what its driving force is. Is this progress in information processing methodology and information communications technology, benefiting society?"

"Research fields are grouped in medical informatics that contributes to good medicine and good health for the individual, good medical and health knowledge and well-organised healthcare.

"Medical informatics research fields aim to contribute to progress in the sciences, to high-quality, efficient healthcare, to quality of life and to good medicine and good health for the individual.

"It also aims for comprehensive electronic patient health records combined with appropriate concepts for representing, accessing and visualising health data and computer-enhanced decision support. This is combined with appropriate concepts for reasoning and knowledge representation. It also aims at comprehensive measurement and visualisation of the human body and formal models for better understanding the functions or workings of the human body.

"Medical informatics also aims at good medical and health knowledge with comprehensive, easily accessible medical and healthcare knowledge bases. It also calls for data mining and analysis for health reporting, health consulting and for identifying new medical knowledge. Add to this controlled medical vocabularies and their relation to models of health and disease."

Haux said well-organised health care calls for effective architectures of health information systems for patient-centered - not institution-centered - care and appropriate information management methods.

"All these research fields are related to understanding nature, properties and management of information in biological structures as well as in healthcare organisations. It is also a demonstration of effectiveness through evaluation studies of medical informatics.

"Today and in the near future health has to be considered as an integral part of life, not as disease episodes. Medical informatics is addressing this, both for health professionals and individual consumers.

"The individual is at the centre of medical informatics research, even though it can range in scale from molecules to populations. Research, education and practice may shift more and more from local to global

activities," he said.

"Research fields can be structured into various groups - good medicine and good health for the individual, good medical and health knowledge and well-organised health care.

"All these research fields relate to analysing, creating and/or extending theories, concepts, and methods, to systematic evaluation - from lab experiments to field tests - and to establishing and exploring the use of 'living labs'.

"What are the consequences? Significantly, as the boundaries between disciplines may shift as in every discipline, medical informatics needs to be successful in the competition of sciences.

"Personally I believe medical informatics is an attractive discipline and that our association will continue to play an important and meaningful role. Many things have to be done, let us not sit back and let them happen by themselves. Don't let us only react to events which induce a change, let us actively prepare for a meaningful evolution," said Haux.

Scientific programme – result of two year's work

"My work on the scientific programme for Medinfo2010 began when I was appointed by the IMIA committee at the beginning of 2008," says Prof Riccardo Bellazzi, co-chair of the IMIA Scientific Programme Committee.

"Our first step was to form our committee - which is vital because it's important to have a high level of scientists representing all the IMIA regions," he says.

He says that a new, early submissions process was instituted this year, the deadline for which was the 30th of June 2009. "Some authors took advantage of this and sent their papers in for pre-review by a group of experts - whom we call mentors - who gave suggestions before final submissions."

By the closing date - the 15th of October 2009 the committee had received more than 900 submissions and 600 papers.

"Some of them were reduced to posters, and we now have more than 350 posters that have been organised into 16 sessions or, as we call them, 'poster tours' - where poster presenters will have one minute to say a little about their topics.

"The level of papers we received was very high," he says, "but we have to remember that it's important that Medinfo gives opportunities to all countries to present work - so, together with scientific quality, we also considered the potential impact that the work may have to change health care and the way it's provided."

The review process was structured in a hierarchical way, and that each submission was read by two or



Riccardo Bellazzi, Associate Professor of Medical Informatics at the University of Pavia, in Italy

three reviewers before being re-reviewed by a scientific programme committee member.

"Finally, four 'Track Chairs' summarised the comments of the SPC members, and together we took decisions to accept or reject the submissions."

And the results? The 261 oral presentations and 350 posters have now been published in pdf and html format on the Medinfo2010 CD, and the entire proceedings of the congress will be published by IOS Press.



Members of The Conference Company's registration team at Medinfo2010 (from left): Michael Sabakaki, Ingrid Jacobs, Jacki de Beer, Sahra Heuwel, Athalia Dodgen, and Gerard Roberts

Upcoming international events

ISHEP 2010 –
Interoperability and Standards in Healthcare –
European perspective
Zagreb, Croatia
16 – 17 September 2010
www.ishep.org

HL7 24th Annual Plenary and Working Group Meeting
Cambridge, MA
3 – 8 October 2010
www.HL7.org

HIMSS Asia '10
Daegu, South Korea
26 – 28 October 2010
www.himssasiapac.org/congress10/index.aspx

eChallenges e-2010
Warsaw, Poland
27 – 29 October 2010
www.echallenges.org/e2010

HL7 UK Technical Committee & RIMBAA Joint Working Meeting
London, England
4 November 2010
www.HL7.org.uk

AMIA 2010
Washington DC, USA
13 – 17 November 2010
www.symposium2010.amia.org

HL7 January Working Group Meeting
Sydney, Australia
9 – 14 January 2011
www.HL7.org.au

MIE 2011 – Medical Informatics Europe 2011 Conference and Exhibition
Oslo, Norway
28 – 31 August 2011
www.mie2011.org

Medinfo exhibition – your one-stop shop

Medinfo2010 delegates should not miss talking to the exhibitors displaying their services and products in exhibition hall 4.

Pop in at the IOS Press stand to order your copy of the latest books on health technology and informatics, or visit the expert-24 stand to view a suite of patented authoring tools called the Virtual Expert Toolkit. World Doctor South Africa is currently in pilot testing by primary care nurses in the Western Cape, through the Department of Family Medicine and Primary Care at Stellenbosch University.

For information on Socrates Healthcare, an international provider of practice management software and healthcare informatics, go to booth 26 and to find out more about Syscare, an automated primary healthcare clinic management system, go to booths 28 and 29.

Meet a representative of BMJ, one of the world's leading providers of medical healthcare professionals, at booth 31. BMJ's journals, evidence based medicine products and learning service offer the medical community information that improves the decisions they make.

For delegates interested in tracking the life cycle of documents, the MorphoCard system offers real solutions. Go to booth 35 for more information, also on the 2010 Cardex conference, which will take place at Johannesburg's Sandton Convention Centre on 28 September. Speakers include Dominic Haazen, Lead Health Policy Specialist at the World Bank and Cecilia Woker of the South African Bureau of Standards.

iSOFT, a world leader in producing healthcare software solutions, can be found at booths 38, 40 and 41. Find

out more about iSOFT Enterprise Management and iSOFT Laboratory.

For the latest on integrated healthcare fund administration and managed care solutions – including real-time interfacing and processing of transactions – Nexus has the answers at booth 25. The company also does continuous research and development carried out by a dedicated team of over 100 full-time developers and business analysts.

If you still plan to attend the 24th Annual Plenary and Working Group Meeting of Health Level Seven International in Cambridge, MA from 3 to 8 October 2010, booth 22 is where you should go. Note, however, that HL7 is going green and in an effort to become more environmentally conscientious, HL7 meetings will be largely paperless in the future. Printed tutorials will no longer be provided on-site – instead, all materials will be e-mailed to tutorial participants in advance to load to their laptops.

HL7's January 2011 Working Group Meeting will be held in Sydney, Australia from the 9th to the 14th. January is the middle of summer in Sydney, so if you think that San Diego or Orlando are pleasant, you will be thrilled by the summer weather in Sydney.

The September 2010 HL7 newsletter – do stop to pick up your copy – also reports on the HL7 Interoperability Conference that was held in Rio de Janeiro in May and other HL7 events.

Medinfo2010 Daily News will report on more exhibitors tomorrow.



Visit booths 38, 40 and 41 to find out more about top class healthcare software solutions.

Medinfo2010: Need to Know

- Medinfo2010 will draw between 1 000 and 1 200 delegates: this compares to more than 4 000 at IMIA's biggest congress - in Vancouver in 1995 ("Which," according to Local Organising Committee vice chairperson, Brenda Faye, "was at a time when the world's economy was a lot stronger." And, she said, "It's great that we've attracted this much influence at a time when the Rand is so strong against the dollar.")
- Delegates have arrived from 75 different countries.
- The South African Youth Choir, which sang South Africa's national anthem (Nkosi Sikelel' iAfrika) at the official opening ceremony, is made up of children from around the country - many of whom are now students at one of the Western Cape Province's leading schools, Stellenberg High.
- At least 10 countries in Africa are represented at Medinfo2010.
- Collectively the Local Organising Committee has more than 260 years of medical informatics experience - and this excludes the late Dr Shaheen Khotu's 20 years, Roger Day's 15 years (he served on the committee until 2009) - and the time Scientific Committee representative Sedick Isaacs spent in political imprisonment on Robben Island.