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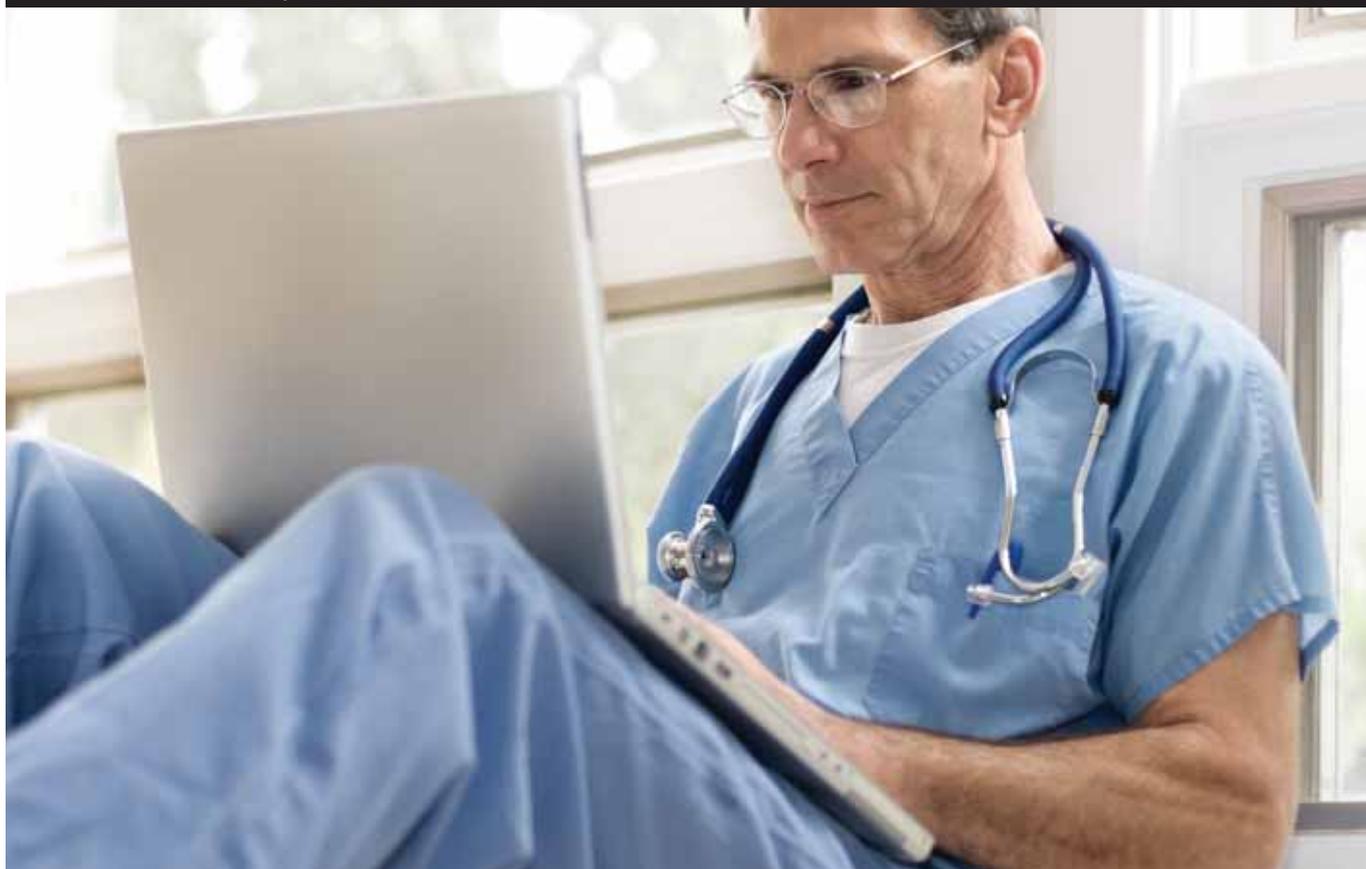
# HEALTH INFORMATICS **NOW**

**Nursing Informatics conference  
(NI2009) special**

Sensory enhanced  
health information systems

Health information  
management

Human computer  
interaction



# Changes are afoot

**Sheila Bullas, editorial board leader, HINOW; secretary, BCS Health Informatics Forum; director, iBECK.**



In this issue we celebrate the UK involvement at the worldwide nursing informatics conference, NI2009. There was a strong UK presence to show the world the excellent work being undertaken here. An impressive line-up report in this issue: Brian Layzell, Heather Strachan, Kathy Dallest, Gillian Flett, Anny Casey,

Dawn Dowding, Peter Murray and Carol Bond. BCS is always pleased to support its members who have their work accepted for presentation at this and similar events. In my view the topics discussed show the maturity that nursing informatics around the world has achieved.

Closer to home, Phil Paterson, ASSIST National Events Co-ordinator, reports on the ASSIST national conference. More than 200 delegates heard keynote presentations from Christine Connelly and Tim Straughan and participated in interactive workshops.

A subject dear to my heart is the annual conference of the Health Informatics Forum: better known as HC or the Harrogate Conference. Building on the programme of change that has been in progress over the past two years and on the success of HC2009, the event is moving to Birmingham's International Conference Centre in 2010. The dates for your diary are 27- 29 April. The change

continues, now under the chairmanship of Mike Sinclair. I encourage all those that have supported HC in the past and those that are new to health informatics and have not attended before to take a close look: it is your event and will succeed only with your enthusiastic involvement. There is a lot in it for you: hearing the latest from leading lights in health informatics, presenting your work, learning what others are doing, presenting your products and services and networking. If you would like to make your views known through this publication, we will be delighted to receive them and ensure they are passed on to the conference organising group.

HINOW provides an opportunity for you to exchange views or present your work. You might feel moved to submit an article or write to the editor. We are keen to hear from you. What do you find most interesting about HINOW and what would you like to see in future issues? Let us know at [Justin.richards@hq.bcs.org.uk](mailto:Justin.richards@hq.bcs.org.uk)

## HEALTH INFORMATICS NOW

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## HEALTH INFORMATICS NOW

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## HI NOW | CONTENTS

### 06 Sensory enhanced health information systems

The related concepts of consumer oriented and driven healthcare services, and the increasing relevance of home and mobile monitoring devices to improve personal independent living were discussed throughout the NI2009 programme.

### 08 Personal health information management systems

The topic of the NI2009 post conference was Personal Health Information Management Systems (PHIMS): Tools and Strategies for Citizen's Engagement (in their health care).

### 10 Human computer interaction

The human computer interaction stream at the recent Nursing Informatics conference (NI2009) included a look at the online managed knowledge network that shares knowledge in eHealth in Scotland.

### 12 Outcome measures and ethical competence

The human computer interaction and ethics and nursing informatics streams at NI2009 provided delegates with a new set of challenges.

### 14 Pre registration education

Carol Bond provides an overview of the pre registration education stream that ran through NI2009.

### 15 Educational informatics

A discussion based around five presentations covering educational aspects of health and nursing informatics.

### 18 Evidence based practice

A report on the strand of the NI2009 conference that focused on different ways of providing evidence to clinicians to help them make decisions at the point of nursing care.

## Member and specialist groups

### 16 BCS ASSIST 2009 conference report

Overwhelmingly positive feedback was received from delegates regarding the 2009 ASSIST National Conference, which featured a number of key speakers and a wide range of workshops.

### + 4 Industry news 19 Events diary

### Edinburgh invests £1m in telecare

Edinburgh City Council is to spend approximately £1m on telecare this year, doubling the amount it has spent in previous years. The money will enable the installation of more than 1,000 new complex telecare packages, technological upgrades and more telecare support to disability groups.

This will mean 1,500 people will be supported to live in their own homes and 700 carers will be supported in caring for relatives using telecare systems. The programme is estimated to save 3,000 hospital bed days and 3,000 care home days per year.

### Trust tracks and recovers stolen laptop

Lancashire Care NHS Foundation Trust has been able to track down and recover five stolen laptops after installing Computrace on the Trust's equipment.

The trust implemented Computrace from Absolute Software across its whole IT estate three years ago. Since then it has recovered five laptops stolen in separate incidents. As part of the Computrace service, the company provides a dedicated theft recovery team who physically retrieve the lost or stolen computers when they are allocated.

### VoIP in Nottinghamshire

Nottinghamshire Healthcare NHS Trust has announced that it has completed the implementation of a Voice over Internet Protocol (VoIP) platform from Proximity Communications.

Staff can now quickly identify who is working where, call handling is automated and maintenance is handled at a central location, all of which helps to reduce costs and improve service delivery.



## Hospital comparison sites

Patients can now compare hospitals based on indicators, from car parking to mortality rates, following the launch of a new comparison element on the NHS Choices website ([www.nhs.uk](http://www.nhs.uk)) by the Department of Health. Working in a similar way to other internet comparison websites this enables patients to use a score card to compare several different hospitals on a range of indicators.

Hospitals can also be rated on key measures, including cleanliness, waiting times and MRSA infection rates and the site also allows patients to compare clinical performance.

The Department of Health will also launch a similar service to allow patients to rate and compare GP practices, towards the end of the year.

'Right records for the right patient', a system to make it easier for clinicians to identify the correct health records for the right patient is due to be piloted by Informing Healthcare next year.

The Enterprise Master Patient Index (EMPI) will help organisations keep patient data such as name and address up-to-date and accurate. This will make searching for patients' health records faster and safer. The EMPI will be particularly beneficial for clinicians using the Welsh Clinical Portal.

The EMPI will work by linking all the records for an individual patient held across several information systems to a single 'gold standard' patient identity record. It will then ensure that any new patient registration or changes of name and address are recorded once and copied across to all the systems that need to know about them.

Key aims of the index are to:

- improve patient safety;
- support mergers and the creation of new NHS Wales health boards;
- support the implementation of the Welsh Clinical Portal.

# BCS moves to Birmingham

BCS has signalled a new era for its renowned annual health informatics event by moving it to Birmingham in 2010. HC2010, the Health Informatics Congress, will be held at the city's International Conference Centre (ICC), from 27-29 April.

The ICC was chosen because its central location and facilities are able to support BCS' long-term ambitions and plans for the event, says Mike Sinclair, the new chair of the event's organising committee.

He says: 'Health informatics professionals have an increasingly significant influence on the shape, direction and ongoing operation of services across

health and social care. This event provides a unique and powerful opportunity to bring professionals from across the UK together under one roof to learn and discuss key issues.

'Now, more than ever, it is vital for this community of professionals to get together to debate future directions and make connections.

'We want HC2010 in Birmingham to be an integral part of life for the many health informatics professionals in the UK - a "must-attend" event for those either setting the agenda or having to deliver against it.'

## Tories promise change

The Conservative party pledged to abolish the NHS national database of electronic patient records following the publication of the 'Independent Review of NHS and Social Care IT'. However, they went on to say that firms such as Google and Microsoft would be allowed to host patient controlled records accessed online.

The party have promised to renegotiate the contracts Labour signed for IT service providers to prevent future inefficiencies.

This commitment raises the prospect of potential new government becoming embroiled in legal disputes with BT and CSC, the two main IT firms that hold local service provider (LSP) contracts. In fact the Labour government has been locked in

legal dispute with Fujitsu since terminating its LSP contract in April 2008.

The Conservatives accuse the NHS National Programme for IT of being overly bureaucratic and responsible for spiralling costs and huge disruptions to the NHS. Their intention is to reform the system and focus on allowing Trusts to have a local choice of system, which they say will deliver significant cost savings.

Dr Glyn Hayes, chair of the review, said: 'The review makes clear that NHS IT will only succeed in improving patient care if information is held locally and centred on the patient.'

<http://media.ft.com/cms/bfd9c1e-85b3-11de-98de-00144feabdc0.pdf>

## World class commissioning

As part of its ongoing commissioning programme, the NHS is providing data packs on behalf of the Department of Health to support commissioners throughout the commissioning cycle, and also during the World Class Commissioning (WCC) assurance process.

This online resource brings together data from multiple sources to provide a profile of each organisation with benchmarking against national averages to help monitor trends and make comparisons.

The NHS has worked with PCTs and SHAs to improve and refresh the content

and also the technical functionality to offer a more interactive product.

Covering some 250 indicators, the 2009/10 data packs are designed to help PCTs prepare for the second round of the WCC panel assessments in early 2010.

The data is regularly refreshed, providing an essential resource for commissioners throughout the whole commissioning cycle.

To find out more go to:

[www.wave.ic.nhs.uk/Services/](http://www.wave.ic.nhs.uk/Services/)

or you can register for the data packs and receive an alert if you visit:

[www.ic.nhs.uk/commissioning](http://www.ic.nhs.uk/commissioning)

### They've got mail

Cwm Taf, North East Wales and Health Solutions Wales are the first three NHS Wales organisations to complete the move to a new secure national active directory and email service (known as NADEX).

The national directory service allows users to log on to systems and services regardless of where they access a computer, while a national email service provides a single up-to-date address book and allows health professionals to share diaries with colleagues across organisations within NHS Wales.

All NHS Wales organisations are due to move to NADEX by the end of the 2009/2010 financial year. Pilots are due to take place in North and South Wales during 2010.

### Just three numbers

NHS Direct recently commented on the consultation for a new national three-digit number to access urgent care. Nick Chapman, Chief Executive of NHS Direct, said:

'The memorable three-digit number seems likely to offer improved ease of access to care and advice over the telephone for patients and the public. NHS Direct is looking forward to working closely with the Department of Health and the rest of the NHS to develop this.'

He went on to say 'NHS Direct will be supporting the proposed pilots of the new number, as and when these are agreed.'

### New health informatics MSc

A new Masters programme in Health Informatics is being offered by YCHI at the University of Leeds' Institute of Health Sciences. The course has been developed in conjunction with NHS and industry partners.

The course, which is practical and vocational, prepares students for a career in health informatics and is aimed at new graduates, informatics professionals and those who wish to convert their skills for use within a health care setting. Study can be undertaken over one year full-time or three years part-time.

[www.ychi.leeds.ac.uk/msc](http://www.ychi.leeds.ac.uk/msc)



# Sensory enhanced HI systems

**The related concepts of consumer oriented and driven healthcare services, and the increasing relevance and sophistication of home and mobile monitoring devices to improve personal independent living were given a thorough airing throughout the NI2009 programme. Consulting Informatician, Brian Layzell, reports.**

Starting with the opening keynote lecture, a double header from Reinhold Haux and Michael Marschollek (Peter L. Reichertz Institute for Medical Informatics, University of Braunschweig Institute of Technology and Hannover Medical School, Germany) on 'Sensor-Enhanced Health Information Systems for Ambient Assisted Living: New Opportunities for Nursing' discussing consumer orientated and driven healthcare services which were decidedly in vogue at this year's conference.

Beginning with an overview of the population demographics showing that an increasing ageing population will have to be supported by a decreasing working population, with dependency ratios shifting from 9:1 (world), 5:1 (EU) currently, to 4:1 world, 2:1 (EU) by 2050, they advocated an increasing use of 'Health Enabling Technologies' (HETs) for creating sustainable conditions for self-sufficient and self-determined lifestyles, along with sensor enhanced HETs having

a major role in enabling ambient assisted living. Such devices would gradually become cheaper, smaller, more portable, even wearable. They described some sensor devices being as small as a one Euro coin!

This led naturally into a description of the parallel concept of the 'smart home' and the 'home hospital' – using sensors installed in the building to monitor activity/movement and vital signs, as well as providing alarm/alert facilities and the means for the individual to control local

setting to make the house 'work' for them, which will surely become more commonplace during the next few decades.

Professor Haux concluded by laying down a challenge to the nursing professions to the effect that it would be their responsibility to help ensure that HETs became an integral part of mainstream care provision.

The concept of the 'medical home' or 'home hospital', was also addressed by Professor David Bates (Chief, Division of General Medicine, Brigham & Women's Hospital, USA) in his keynote lecture 'Improving Patient Safety Using IT'. He argued that since people generally are willing to use portable devices, for example, mobile phones etc, they will also accept and even demand access to health information (personal health records) via mobile devices as well as expecting their health services to provide home and mobile monitoring. There is plenty of scope for widespread introduction of such facilities but he cautioned that such developments would have to conform to the rigours on standards, e.g. interoperability for data exchanges. It would, he said, be important to get the technologies and the standards right.

These two keynotes were particularly apposite since they provided a curtain lifter to several other presentations on similar topics, including my own ('The Elderly Demographic Timebomb – Sharing the Load with the Active Ageing: Can eHealth Technologies Help Defuse It?'). Other papers addressed, inter alia, research being undertaken to present a laboratory prototype home care architecture that integrates data from different sources and uses a decision support system based on the HL7 standard Arden Syntax for Medical Logical Modules, and innovations in personal health record design, coupled with home monitoring via sensors located in ordinary domestic items, and also explored the use of social networking services.

These presentations addressed the concepts of using sensors and monitoring to provide support to individual people as patients (in managing their care and treatment) but also for the 'ageing well' population, who want to subscribe to monitoring services to maintain their health and lifestyles as part of their own preventative medicine regimes, which would have economic benefits.

The topic of 'patient empowerment'

linked to that of telecare was well represented, with some 15 papers, 17 posters, one workshop, one scientific demonstration and one panel discussion. The most common elements of content being, the use of online consumer surveys/questionnaires; access to web-based health information; web-based personal health records; telecare and tele-monitoring; the legal and socio-cultural implications of, for example, remote monitoring of people. This articulation of the growing prevalence of web-based services, and the apparent recognition that, when used properly – i.e. in conjunction with professional (physical) intervention – was encouraging, as was the evidence of consumer acceptance of, and satisfaction with, these facilities.

Equally, it was good to hear about examples of people being involved in consultative processes to design new web-based information services as part of National Health Service policies, as well as on an individual care basis. This seemed to emphasise the shift towards recognition of consumer driven healthcare provision.

A significant message that came through was that of 'listening to the person' – in various ways, several presentations stressed the importance of the patient's own narrative in building an accurate record and thus ensuring better diagnosis etc. The vehicles for doing this might be: online, web-based questionnaires, or free text (structured and unstructured) input to a personal health record, which could be imported into an electronic health record, the hope being that attending health professionals will read it and use it.

In the final keynote lecture, Dr Jacob Hofdijk (President, European Federation for Medical Informatics and Special Advisor to the Ministry of Health, The Netherlands) concluded with a plea to take any opportunity to do more to break down the 'silo mentality' in health service delivery, to embrace the practices of sharing information between professionals, organisations and individuals. Now, where have we heard that before!?

He warned that with instances of chronic disease on the increase, coupled with the changing population demographics, there was now an urgency to put more emphasis on home and mobile monitoring as well as promoting good health, with better definitions, for example, care standards, which should be focused on providers, professionals and consumers.

For me, perhaps the single most significant and encouraging concept to come out of NI2009 was this: the thread (consensus) running through the programme – keynote lectures and presentations, together with posters, workshops and panel discussions, and of course the informal discussions outside of the sessions – that patients are people and should be treated not as 'patients' but as clients or consumers of health care services. Clearly the right way to go.

## NOTES ON NI2009

Nursing Informatics 2009 is the 10th such congress following previous successful congresses held in London (1982), Calgary (1985), Dublin (1988), Melbourne (1991), San Antonio, Texas (1994), Stockholm (1997), Auckland (2000) and Seoul (2006).

This year's congress was organised by the IMIA-SIG-NI in collaboration with the Finnish Nurses Association.

Participants of the event, whether they were presenters, tutorial leaders, panel members, students or just run-of-the-mill attendees, were encouraged to share their informatics experiences with their colleagues.

Those attending included a wide range of health informatics professionals, including:

- nurses;
- nurse informaticians;
- nursing and informatics educators;
- nurse managers and executives;
- nurse and informatics researchers;
- other health care and IT professionals.

The central themes for discussion during the 10th Congress were:

- health and humans in support of nursing informatics practice;
- management education and research.

These were seen to be consistent with the overall theme of nursing informatics. The congress was held at the Helsinki Exhibition and Convention Centre, Finland between 28 June and 1 July 2009.

# Personal health information management systems



**The topic of the NI2009 post conference was Personal Health Information Management Systems (PHIMS): Tools and Strategies for Citizen's Engagement (in their health care). Heather Strachan reports on this section of the conference.**

The post conference was organised into six topic areas including:

- usability questions: specifying user requirements for PHIMS 3;
- technology: technical and infrastructure requirements for PHIMS;
- practice: integrating PHIMS into clinical practice: guides for nurses;
- consumers: PHIMS - confidentiality and Safety;
- governance: PHIMS - policies that foster adoption and use;
- education: PHIMS and education: preparing nurses to practice in a wired world.

Each attendee gave an overview of their country's PHIMS status.

## Overall summary

Personal health information management systems (PHIMS) have emerged out of personal health records. Functions include: the ability to access and record health events; access to information about health, disease, treatment and services; access to services and communication changes.

There are three models of PHIMS, including stand alone, tethered and integrated. The latter are on a continuum with the tethered, receiving information from more than one provider. Tethered is

seen as the most beneficial to both healthcare provider and the person, and it is potentially possible to implement whatever health system is in operation.

Most countries do not have data on how many citizens use a PHIMS due to the different models of systems available. The USA has assessed this and the stats are 9 per cent of citizens have a PHIMS and 42 per cent believe it is a good idea. Finland is potentially the most advanced country with some aspects of PHIMS in national use.

Most countries have recognised the need for specific infrastructure requirements including unique identifiers, secure networks, interoperability standards, clinical data standards and accreditation of health systems.

Additionally, most countries appear to have subtle differences in their laws with regards to ownership and the control over records but in reality there appears to be a partnership approach to implementation that is pragmatic. Some risks appear to exist, i.e. legal status of stand alone PHIMS where a third party is guardian of data.

## Australia

A key vision of the nation Health and Hospitals Reform Commission is that 'by 2012 every Australian should be able to have a personal health record that is owned and controlled by the individual, including designating health care providers that can access the record and determine when and how the personal health record is stored, backed up and retrieved.'

To support this vision the government's National eHealth Transition Authority are working towards the deliver of a privacy blueprint, standards for secure messaging, interoperability, clinical data standards, unique patient and provider identifiers and authentication regimes.

## Brazil

Provider electronic health records (EHR) are emerging and there are several versions. However there is no policy to

develop national PHIMS in Brazil. It is worth noting that Brazilian law means that the patient owns their health record and the provider has the right to keep it and the technical responsibility is given to the institution. Some infrastructure is being developed to include the RUTE network, which integrates around 57 health care institutions.

## Finland

Finland's eHealth Road Map was developed in response to the EU's eHealth Action Plan. Its aim is 'to secure the access to information for those involved in care regardless of time or place in both the public and private sectors.' There are a number of key projects underway including the National Archive for Personal Health Data, which patients can access to supervise its use. The National SAINI project provides electronic services for all citizens and there is also a national citizen's health information portal.

## South Korea

Current PHIMS in Korea are run by different organisations including government, private and healthcare sectors. They are either web-based services or 'tethered' to a hospital record. They provide a range of functions including access to information, services and communication channels.

## New Zealand

There is currently no National PHIMS. Provider EHRs are available and the aim nationally is to support communication and connectivity via a distributed model where information resides in a number of repositories that can be shared. They already have a unique patient identifier in place and it is anticipated that the PHIMS will be 'tethered' to the EHR.

## Norway

PHIMS initiatives are mostly in an experimental or pilot stage. EHRs are widespread, particularly with GPs. A new healthcare reform, launched spring 2009, emphasises a shift from provider-centred models of care to person-centred care approaches, with people having more participation in care and health promotion, early detection and self management being a key focus.

## Slovenia

There are currently no PHIMS in Slovenia. All people carry a health card

that contains basic data about health insurance. The government are currently preparing new personal identity cards, which could in the future be used for healthcare and provide access to electronic health records.

## Sweden

PHIMS are not widespread in Sweden. Lack of infrastructure for IT security is believed to hamper development in particular, because Swedish law allows the transfer of individual health data between caregivers only with the consent of the patient. A project 'Healthcare on the web' is currently underway and intends to develop more e-services for citizens.

## Wales

A trial of My Health Online is being conducted at a number of general practices. Patients can book appointments and request repeat prescriptions online. Some patients have access to their health records. These pilots are the first stage in NHS Wales' plan to provide each person with a personal electronic health record.

## England

Patients over 16 with an email can register for a HealthSpace account. This currently gives them access to a limited set of functions, including booking hospital appointments, managing health and lifestyle, a calendar and address book for health contacts and appointments and links to health information. The next phase of the project is to develop a communication tool for email consultations with the GPs and other clinicians.

## USA

Many institutions have or are moving towards tethered personal health records. Two large health care systems with a significant user base are Kaiser Permanente and the Department of Veterans Affairs. The government has earmarked 19 billion US dollars for health information technology, including adoption of EHR.

## Switzerland

Infrastructure projects include health care for citizens and health care professionals and an architectural vision that is based on decentralised repositories and portal views for patients and professionals. A survey has revealed that citizens are in favour of EHR and wish to determine which data can be stored and who should have access to it.

## Key issues on PHIMS

- The need for governance in relation to health policy, patient engagement, finance and incentives, professional practice, legal issues and evaluation.
- Features and functionality of the PHIMS should ultimately be designed to underpin self-management of health and health improvement.
- Multiple care givers mean that there are likely to be multiple users of the PHIMS, therefore features and functions need to consider management of data remotely.
- Usability issues need to address user centered design which may be user configurable, with a dashboard of features and facilities.
- Uniformed and consistent policies for confidentiality, privacy and security are required to ensure appropriate creation, storage and transfer of private health information to support its integrity and appropriate use.
- There is a need to integrate IT into nurse education at all levels from registration to continuous professional development.
- Person-centred care and partnership based care models will be the nursing model of the future.
- There is a need to incorporate an interdisciplinary approach to the use of PHIMS.
- As people take on new roles and responsibility for their health management, nurses will need to support people developing their health literacy skills.
- There is widespread recognition of the importance of a professional, patient and healthcare organisations culture that shift the balance of care from the health service to person, family and community.
- Patients and families can be a driving force in the transition to personal health information management systems as they are increasingly becoming more knowledgeable about their particular health problems
- There will be a shift of control and empowerment to the person as knowledge shifts from clinical control to people.
- How people experience disease and symptom management should be incorporated into evidence-based practice.
- PHIMS should be viewed as a tool to underpin nursing practice and should be integrated into the care process.

# Human computer interaction

**The human computer interaction stream at the recent Nursing Informatics conference included a look at the online managed knowledge network that shares knowledge in eHealth in Scotland amongst other threads. Kathy Dallest, Heather Strachan and Gillian Flett report on what was discussed in this stream.**

This stream, human computer interaction, was a first session on the first day of the conference. The presentation 'The online managed knowledge network that shares knowledge for eHealth in NHS Scotland' (Dallest et al) had been submitted under the theme 'education' and we were initially surprised to find it in this stream. It wasn't until after the session that we understood why the scientific committee had placed it there and we'll wait until the end to share our thoughts on that.

Alina Kontio from the University of Turku, Finland, presented 'Key elements of a successful care process for patients with heart symptoms in emergency care – could an ERP system help?' (Kontio et al). This study aimed to identify successful outcomes and the flow of patients through

emergency care, and examine where an enterprise resource system (ERP) could help decision making.

They identified a number of competencies within three categories: process, personal and logistics that directly influence successful outcomes for coronary heart patients. Administrative and patient process events could be improved through the use of an ERP across different areas of the hospital. This study involved process-based analysis and an understanding of how patients, staff and information flow through the health system.

Debra Wolf, from Slippery Rock University in Pennsylvania, USA, presented the paper 'Nurses using futuristic technology in today's healthcare

setting' (Wolf et al). This study described voice assisted technology used by nurses at the bedside to improve workflow, improve patient outcomes, increase nurse job satisfaction and improve electronic health record documentation.

Nurses in this study use a lightweight headset and small waist level wireless computer unit. Care is documented verbally, in a hands-free, eyes-free way allowing for greater accuracy of records and availability of information, a decrease in care-related paperwork and improved workflow. The nurse can retrieve data from the bedside and also receive messages, which decreases the need for overhead paging. Patient safety is improved through reduction in infection because of reduced manipulation of paper





records or keyboards. An in-depth understanding of the way nurses work and their information needs are required to develop this solution.

Bruno Rosales-Saurer, from Germany presented 'Scenario based design of an ICT platform for mobile information services in ambulatory care nursing' (Rosales-Saurer et al). Greater efficiencies in health care can be gained by delivering the right information to the right people at the right times securely and safely.

This study used a 'user-centred design process' (ISO13407), which focuses on not only the information and technological requirements, but the all-important context of the intended users of the solution. Again, analysis of the processes and related information requirements were necessary to achieve understanding of the context of healthcare.

Nancy Stagers from the University of Utah, USA, presented 'Using personas and prototypes to define nurses' requirements for a novel patient monitoring display' (Koch et al). This study looked at individual preferences in relation to information displays through the use of 'personas'. Nurses in an intensive care unit make care decisions based upon the information that is presented to them on a patient monitor.

People interact with information in different ways and this study developed a number of personas to guide the development of prototypes, which allows individual customisation to achieve the best personal response and decision support and ultimately patient outcomes. Analysis of the information and care processes in the context of the ICU allowed the development of the personas.

Vesna Prijatelj from the School of Health Science Novo Mesto Slovenia presented 'From eHealth to integrated health care: theory and practice' (Prijateli and Rajkovic). This presentation described the pathway to integrated healthcare in Slovenia through transformation of health policies and the establishment of the eHealth infrastructure.

The national strategy focuses on achieving a common understanding of integration, what is it and how to achieve it. It is tackling the issue on two fronts. The first is a top-down approach addressing the business requirements and identifying necessary capability and capacity building through common understanding. The second approach, bottom up, focuses on individual patient

groups and developing a shared understanding of processes and flow that support decision making for better outcomes. Again, analysis of processes and information flows in the context of healthcare provision is crucial in delivering solutions.

## **A personal presentation**

Returning to the presentation, 'the online managed knowledge network that shares knowledge for eHealth in NHS Scotland' (Dallest et al) demonstrated the web portal [www.nmahp.scot.nhs.uk](http://www.nmahp.scot.nhs.uk), which helps clinicians to find out what is going on elsewhere and to share their experience and knowledge with colleagues. The site also gives access to the NHS Scotland e-library and over 5,000 full text journals and over 100 bibliographic databases.

A knowledge and information audit was conducted to find out what information related to what activities was required by these clinicians with a specific job role in eHealth. Process analysis revealed activities of strategic significance and identified the related information. This was crucial in order to deliver a system that was useful and useable for the clinicians. What this site and the [www.usinginfo.org](http://www.usinginfo.org) site do is to help people develop knowledge and understanding through informal collective learning.

## **In summary**

Without coming to this conference, we would not have been able to benefit from the personal contact with our fellow presenters. The challenge exists for health informatics organisations, through technological solutions, to find a way and to support faster innovation and development throughout their membership.

This session on human computer interaction highlighted the importance of user-centred design, focusing on the context and flow of information supporting decision making in healthcare delivery. This contextualisation 'grounds' technological solution developments. Nursing informatics has moved on past adapting solutions designed for other disciplines and contexts. Nurse informaticians must be able to competently select and use process oriented methodologies and tools to determine contextualised information needs in the evolving integrated health systems in which we work and live.



# Outcome measures and ethical competence

I approached the 10th International Nursing Informatics Congress with a set of personal goals, which included finding evidence of any impact on outcomes from using information and communication technologies in nursing practice and standardised terminology. The two concurrent sessions on terminology should have provided some of this evidence but, with one exception, this was not the case. As this report demonstrates, there is still too little evaluation and outcomes research in nursing informatics. Unexpectedly, some new challenges were presented in one of the plenary sessions and in the session on human computer interaction, which I will also mention.

## Outcomes research

Patient safety was perhaps the only topic in the programme where there was some concrete evidence of impact. Given the emphasis in England and Wales on safety of systems, it was surprising that not one poster or paper considered risk management of

**The human computer interaction and ethics and nursing informatics streams at the recent Nursing Informatics conference provided Anny Casey, RCN advisor on information standards, with a new set of challenges.**

healthcare applications. I did not come across any research reports where the impact on patient outcomes of using IT and/or a standardised language had been measured. A number of posters reported improvements in nursing documentation and there was one trial that used documentation of outcomes as a proxy measure to demonstrate care improvements. This trial was of an educational intervention related to clinical decision-making in which the standard terminologies were regarded as the means for describing and communicating nursing decisions (OP334 - Dr Maria Müller-Staub and colleagues from Switzerland). Discussion following this presentation suggested that improvements in quality and patient experience were the result of introducing clinical decision making, not simply implementing standardised terminology for its own sake. There was also discussion of whether existing nursing terminologies such as NANDA are better seen as tools to support decision making rather than as terminologies for use in



computer systems.

As the 2009 Cochrane review of care planning systems found, there is little evidence to demonstrate the impact of systems on nursing practice and outcomes. A UK nursing informatics research agenda could consider: the role of nursing terminologies in quality improvement; measurement of impact and outcomes from nurses' use of IT.

### **Human factors**

Several papers in the human computer interaction session addressed methods for understanding and modelling care processes so that systems could be designed to support nursing work, rather than simply to replicate documentation. Activity, process and scenario based modelling were all reviewed by different speakers and limitations of each were

discussed. Critical incident methods were reported in one study as a basis for defining optimum processes and identifying where decision support could be most beneficial. Nancy Staggers from the US described the use of 'personas' as a method for specifying user interface (UI) requirements for intensive care monitoring displays. Four behavioural profiles were developed from observational data and interviews. UI design preferences were then identified. This was an interesting approach to the 'one size may not fit all' challenge – it was a shame that the company that paid for the research then focused on the one design that was most acceptable to all. Ways of tailoring interface displays for different users still seems some way off, perhaps because of risks, but the safety aspects of UI components were not mentioned.

An encouraging 'future vision' was provided by Debra Wolf and colleagues from the US who reported on the evaluation of a voice system for communication and documentation. Nurses wore headsets, which removed the need for bleeps and allowed them to be updated with new orders as they were made. Paperless patient identification had been addressed. Proactive reminders were generated automatically from the system and communicated to the nurses. Benefits to date have included: reduced documentation time; real time, point of care documentation (voice to structured fields in the system); reduced time finding phones or colleagues to communicate; fewer interruptions to answer calls; improved adherence to practice standards. Reduced risks of infection were identified as an unexpected benefit – in this hands-free setting, nurses were touching only one device to record and communicate rather than multiple devices such as keyboard, mouse and phone.

Once again, impact on quality and outcome were assumed rather than measured – fewer interruptions, more up to date information, more real time communication and so on were said to have improved quality.

### **Ethical competence**

For me, the highlight of the Congress programme was the keynote on 'Ethics and nursing Informatics' by Professor Helena Leino-Kilpi, Director of the Finnish National Post-graduate School in Nursing Science. As a newcomer to the speciality she had searched the literature

to see whether and how ethical issues were addressed in this speciality. Her conclusion was not well: there is plenty of material on 'how to act right/well', but almost none of 'what is right/good'. There were some publications, from Levine in 1980 on the ethics of computer technology to Simpson in 2005 of 'e-ethics'. But the concept of ethical competence in health technology was not evident.

Several ethical codes were mentioned including the UK one but Dr Leino-Kilpi made the point that codes for professionals don't solve the problem. She concluded that technology can improve the realisation of ethical principles such as patient autonomy, privacy and informed consent. However, there seemed to be a lack of awareness of the moral dimensions of decisions, for example, how values could bias health technology assessment. She remarked that technology does not have values – designers and evaluators do. Questions need to be considered:

Is the process of assessment/decision making ethical and are ethical criteria included in the assessment? IMIA NI will be considering this challenge during their discussion about the Research Agenda for nursing informatics (Bakken et al 2008).

### **Information standards**

There were two panels focused on standards (I participated in both). The IMIA NI standards group gave an overview of current standards activity with a focus on standards for the content of records and messages. This was also the theme of the second panel comprised of nurses from the UK, the Netherlands and Australia in which 'detailed clinical models' were described and issues for nursing considered.

This is a huge agenda and it was clear that the major challenges for the next few years will be: international co-ordination around repositories for content standards and how to harness the expertise of the profession to provide the practice standards that must underpin the content standards. There was a clear message that the technical challenges of ensuring that competing standards interoperate was trivial compared with this latter task.

My impression was that the UK is well placed to contribute and also to lead on collaborative work to agree professional content. For example, Derek Hoy's clinical templates portal provides a platform that nurses in practice can use to work collaboratively on practice standards.



# Pre-registration education

**Dr Carol S Bond provides an overview of the pre-registration education stream running through the Nursing Informatics 2009 conference.**

My main interest in this year's NI2009 were the papers focused on education. Even though my own paper (Nursing informatics; is IT for all nurses? Bond; Lewis & Joy) was placed in the clinical workflow strand it was substantially about education.

As I had been placed as the last of six presenters in the late morning session I decided that the audience would be tired of being talked to, and kept my presentation short, focusing on the key points that nurses in practice face, one of which being that nurse educators and nursing students frequently do not see nursing informatics as being part of their clinical skill set. I allowed plenty of time to let the audience share their own experiences and views. Although a few felt that they had experience of computers and nursing being integrated, the majority had encountered the same attitude we found in our research.

This complements research carried out by the RCN, which members of their Information in Nursing forum reported. Their study concluded that eHealth should be an integral part of nursing education and not an add-on.

A paper by Dr Amy Barton and Dr Diane Skiba was about a project that also looked at nursing informatics and student's clinical experiences. Their paper was about integrating informatics into baccalaureate clinical course work with the aim of establishing a curricular thread to integrate learning content in informatics. They found that students' learned more quickly and efficiently through coursework (87.5 per cent) and in the classroom (75 per cent) than they did through clinical experience (66.7 per cent).

Jo Foster and Julianne Bryce had explored the Australian position, and from a survey of over 4,000 nurses concluded that although Australian nurses recognise the benefits of adopting more information technology in the workplace, there were also significant barriers to their use. They also identified gross deficits in the capacity of the nursing workforce to engage in the digital processing of information.

There were numerous excellent presentations about systems available, and the benefits that were to be gained from using them; however, my parting thoughts were that education has to be the bedrock of this. It doesn't matter what the potential benefits are, if nurses are not equipped to work with these systems they will never be fully recognised.

Moving on from education to one personal observation from reading the biographies of the keynote speakers, only two of the seven were nurses. Whilst not doubting the expertise and knowledge of the speakers, and not wishing to be insular, I was left wondering if the balance was right or if we should be giving more prominence to our own leaders?

# Educational informatics, web 2.0 and learning

**The stream 'Teaching methodologies 2' of this year's Nursing Informatics conference contained five presentations covering a variety of educational aspects of health and nursing informatics and of using technologies to support educational delivery. Dr Peter J. Murray discusses each of them in turn.**

Betsy Weiner, of Vanderbilt University, Nashville, USA addressed the emergence of what she termed educational informatics, starting from an outline of what she saw nursing informatics as being (and not being – she firmly sees it as far more than simply IT skills and computer literacy).

Betsy gave several examples of the use and range of technologies to support the delivery of nursing informatics education, including high fidelity simulations for learning and practising skills, and exploring the use of virtual worlds, such as Second Life, for educational simulations. Her message focused on the challenges facing nurse educators in applying the science of informatics, and not solely the educational technologies, to push the envelope in exploring how new and emerging technologies and approaches might be of benefit.

Presentations from Annikki Jauhiainen, of Savonia University of Applied Sciences, Finland and from Trond Indergaard and Berit Stjern, from Sør-Trøndelag University College, Trondheim, Norway, both described research studies into their experiences of supporting the development of clinical and learning skills in a problem-based learning curriculum.

While they both covered similar issues and relayed similar messages about the benefits of their approaches to support learning, they used differing underlying technologies. While Annikki explored the use of web-based elearning tools,

including web-based conversational applications, Trond and Berit's study was based on the use of video-conferencing technologies.

The final presenter was Juliana Brixey, from University of Kansas, USA, who addressed 'Creating experimental learning

activities using web 2.0 tools and technologies: a case study.' She compared features of new online learning environments with traditional environments, stressing the social need of connecting with others (as per Siemen's principles of connectivism), and discussed how web 2.0 tools/platforms, as well as Second Life, were used for facilitation of learning experiences (such as virtual attendance at, or participation in, conferences). Juliana's students produced an assessed reflective paper on their experiences of using Second Life as a learning environment, and there is some evidence that their anxiety in a real-life situation is reduced by being able to encounter, explore and discuss them beforehand in Second Life.

The messages emerging from this stream complemented those of several other sessions that I attended, as well as the workshop on 'Personal health records (PHR): health 2.0, virtual worlds and more' that I presented with Scott Erdley and Heather Strachan and the panel that Scott Erdley and I presented, on 'What relevance do web 2.0 applications have for nursing informatics and professional development?' The slide presentation for the panel is available at

[www.slideshare.net/drpete/nl2009-web2panel-final](http://www.slideshare.net/drpete/nl2009-web2panel-final), while those for the PHR workshop are at [www.slideshare.net/erdley](http://www.slideshare.net/erdley)

It is apparent that, in many educational institutions, we are seeing real exploration of, and research into, the use of web 2.0 tools, as opposed to some of the (perfectly valid) rhetoric we have heard previously. It is also clear, from many of the presentations, that even though we are able to utilise a far wider range of tools and technologies than previously, many of the same messages



that we have heard over the past 20-30 years remain valid. These are that nursing and health informatics, whether in educational or clinical environments, are not just about gaining the basic information technology or computing skills – although often they are still taught as if these were the most important skills.

The clear message is that those of us interested in exploring the new technologies (e.g. web 2.0 tools and virtual worlds) need to be careful that we do not appear to be simply uncritically fixated on the technologies for their own sakes, but need to ensure that we get across the messages that we are critically exploring the possibilities of their use.

Along with several long-standing colleagues, and some new ones who were dipping their toes into web 2.0 tools, I provided blog posts on many of the sessions, and experimented with Twitter to provide 'live' reporting on the event. Our blog posts can be found at [www.hi-blogs.info](http://www.hi-blogs.info) while the Twitter stream for the conference is at [www.twitter.com/ni2009](http://www.twitter.com/ni2009) and other contributors' tweets can be found by searching Twitter with the hashtag #ni2009.



## Voted a success - ASSIST 2009 National Conference

**Overwhelmingly positive feedback was received from delegates regarding the 2009 ASSIST National Conference which featured a number of key speakers and a wide range of workshops. Phil Paterson, ASSIST National Events Co-ordinator reports.**

The conference, which this year was held in The Gallery Suites at the National Exhibition Centre, Birmingham on 4 June, attracted over 200 delegates to hear Christine Connelly and Tim Straughan deliver keynote presentations, to participate in a selection of interactive workshops on topics of national importance and to network with peers, ASSIST Partners and other sponsors/exhibitors in the open exhibition area.

The event was opened by Brian Derry, Chair of the ASSIST National Council who welcomed all the participants and introduced Christine Connelly, Director General for Informatics at the Department of Health who gave an inspirational opening keynote presentation on quality informatics, the CIO's perspective.



Christine Connelly and Tim Straughan

Christine stated that the NHS is on a journey that started with the NHS Plan of 2000. The first phase was to increase investment and capacity. The second phase was to develop levers to expand choice and contestability. The third phase (defined in the Next Stage Review) is to raise the quality of health care for patients.

The culture of society has changed so it is no longer appropriate to have 'one size fits all'. The NHS has moved to provide patient choice with the boundaries of where care is delivered becoming blurred. However, quality is the organising principle captured in the Next Stage Review and it has been defined as having three elements:

- it is safe;
- the treatment is effective;
- the patient experience is good.

There is also the expectation that the service will become more productive with innovation as the link to drive improvements in quality and efficiency. The need for greater innovation should be exciting for health informatics.

Christine felt that 'information needs to be of a high quality for use by patients, staff and the public.' She went on to say 'there is the challenge to capture the data once, store it and re-use it. Information has to be delivered swiftly to people so they can innovate how they use it and use it to innovate. Information has to support change.'

Connelly felt that 'health informatics professionals should be challenging their colleagues on innovation. They need to be more confident, bolder and more assertive to drive innovation. The future is about working in teams and informatics professionals need to help teams make more use of information.'

Tim Straughan, Chief Executive of the NHS Information Centre for health and social care (NHSIC), opened the afternoon programme by highlighting the role of informatics professionals in the delivery of the Next Stage Review. He told the conference there are three key issues facing health care across the world. These are:

- raising the quality of care;
- the economic downturn and its constraining impact on health service budgets;
- using information to address the first two issues.

It is absolutely essential that the CIO is at the top table to drive innovation in both the use of proven technologies and the exploitation of the information they can provide. We have to measure to know if we are improving and this includes clinical quality, world class commissioning and payment by results and efficiency. (The first two of these areas were the subject of workshops facilitated by the Information Centre).

Tim said: 'we have got to measure the right things and measure them correctly and consistently. This will necessitate standardising the measuring.'

The vision is to have relevant, accurate and timely information. The mission is to use this to improve health care. All this will put the spotlight on data quality. The NHS IC is supporting a major programme to support local and national improvements in data quality.

Three times during the day the delegates split up to attend a workshop of their choice from the six concurrent, interactive workshops that were run on the following topics:

- clinical metrics;
- electronic document and records management;
- social care;
- Summary Care Record and HealthSpace;
- technical innovations in health care – the CIO's role in 'the hospital of the future';
- world class commissioning and its impact on informatics.

The workshops were facilitated by a combined total of 16 workshop leaders, all experts in their field. At the end of the conference plenary session a leader from each workshop gave a brief report of the top three issues arising from their workshop. A common theme arose, that had also been featured in both the keynote addresses; interoperability is a major challenge in health care – but including social care converts it into a nightmare. Add in the governance and people are tempted to park it in the 'too difficult' category. It is an issue that will have to be tackled if we are to support the improvements in care required by many patients.

Likewise in terms of technical innovation there is often a large initial cost for infrastructure, which tends to put people off; there is a need to phase this in

bite size chunks and keep a rolling programme in terms of both cost and additional benefits. This echoed part of Christine's Connelly's message about delivering projects in bite-size chunks, delivering the major elements early whilst leaving less frequently used features until later – and checking each chunk with the users to ensure it meets requirements.

Health informaticians will be needed to interpret 'indicators for quality improvement' (IQI) to enable managers to get the most benefit from them. Health informaticians should also 'push' information, with interpretation, for world class commissioning. There is a role for ASSIST to develop thinking on the sharing of information in relation to the Planning Framework developed by Tribal Group for Electronic Document Management for Health Records.

The message from the very popular summary care record workshop was that implementation of the summary care record is now a communications project, involving PR and change management. It needs to have buy-in of GPs and other clinicians. The local communications team needs to be dedicated to it for nine months and it needs a high level champion: the Chief Executive.

Finally, a recurring theme from all the presentations was 'manage the culture change.' Overall the conference was both an operational success and financial success and attracted 20 new members to BCS ASSIST. For more information:

[www.bcs.org/upload/pdf/assnljul09.pdf](http://www.bcs.org/upload/pdf/assnljul09.pdf)

## Acknowledgements

The conference could not have taken place without the support of ASSIST's national partners and other sponsors. The workshops were sponsored and facilitated by the NHS Information Centre, NHS Connecting for Health, BT with Nortel and Tribal Group. All these organisations and ASSIST national partners max20 and Fine Green Associates had stands in the exhibition area, along with BCS, BlueWare, Cloud2, Logica, Perot Systems, Tracline and UKCHIP.

### Author's note:

**This article is based on an adaptation of the conference reports by John Leach that appeared in the July 2009 issue of the ASSIST Newsletter. More details of the conference presentations are on the ASSIST web site at: [www.assist.org.uk](http://www.assist.org.uk)**



# Evidence based

## **Dawn Dowding reports on the strand of the NI2009 conference that focused on different ways of providing evidence to clinicians to help them make decisions at the point of nursing care.**

With the increasing focus on ensuring that healthcare is based on good quality research evidence, one of the challenges for the informatics community is developing strategies for helping clinicians to access and use that evidence in their care effectively.

The six papers in the session discussed varying types of technology: PDA technologies used by individual nurses, remote monitoring of patients in their own home using sensors and varying ways of providing evidence to users (e.g. through the use of 'profiles' for evidence-based information, through the provision of evidence-based reports to managers). What was common amongst them was their aim of trying to improve patient care, through better management of information available to clinicians or nurse managers.

Lynn Nagle (Canada) provided an overview of the challenges involved in providing evidence to nurses in a way that will improve patient care. She highlighted that the role of technology may be to help

nurses transform the way they practice, so that we can ensure we are doing the right thing to patients at the right time. One of the technologies discussed in the presentation was the use of a PDA to provide nurses with up-to-date evidence to inform their practice, at the point of care. However, the potential utility of these approaches to help nurses become effective information managers has yet to be realised.

Lorrie Roemer (US) discussed a system that has been introduced in Intermountain Healthcare, to help clinicians accurately calculate doses of subcutaneous insulin. The application is web-based, and uses patient specific information (such as the patient's weight) to provide specific guidance on the dose of insulin a patient should receive. This is then translated into patient specific order sheets for the guidance of patient care. The system is now widely in use across their hospital system.

Hannah Aschan (Finland) provided an overview of how a number of hospitals in the Helsinki area are using the data

provided by RAFAELA to inform nurse staffing decisions. RAFAELA is a patient classification system that uses information about patient dependency, nursing resources and what the optimum level of nursing care should be on a hospital ward. It also provides feedback to managers on whether the nursing resource is at the optimum levels for the care needs of the patients on the ward. The output from the system can then be used to make nurse staffing decisions.

Michael Marschollek (Germany) gave an overview of how data from the smart home laboratory can be used to populate the Arden decision support system. In the laboratory, data from a number of sensors is collected by the decision support system, which can then highlight when abnormal values are detected, which may indicate a cause of concern for a patient. With the increase in the number of elderly individuals who have health problems living in their own homes, it is hoped that the results of this work will provide point-of-care support for patients in their own homes.

Paula Proctor (UK) discussed a system for providing nurses with up-to-date evidence, to help inform their practice, using a user profile, which the nurses used to document their needs for evidence. Software then searches pre-approved quality databases for the evidence to support the nurse's practice, before dropping the results back in the nurse's user profile. In this way nurses have up-to-date evidence to inform their practice, based on their own identified information needs.

Finally, Judy Murphy (US) gave an overview of the Knowledge Based Nursing Initiative (KBNI) based at Aurora Healthcare, Wisconsin. The paper outlined the overall framework for the KBNI, and the way in which research evidence has been embedded within nursing care plans on the Electronic Health Record. The paper also discussed the importance of having a number of 'transformer' nurses, who were involved in translating the evidence into the electronic care plans, and who were crucial for the successful implementation of the KBNI into pilot sites.

The majority of the systems described during this session were in the piloting phase of their development. Although they appeared to have some potential benefits for helping nurses deliver evidence-based care, their eventual utility in practice still needs to be further evaluated.

## September

### ASSIST: North West Branch

17 September

*Map of medicine*

Gateway House, Piccadilly, Manchester

[www.bcs.org/assist/northwest/events](http://www.bcs.org/assist/northwest/events)

### ASSIST: Yorkshire & Northern Branch

18 September

*NHS organisations – one of a series of events aimed at demystifying the NHS*

The Cairn Hotel, Harrogate

<http://northern.assist.org.uk/Events/Current%20Events.aspx>

### BCS Health Informatics Scotland

21-22 September

*Conference on interoperability standards and patient access to records*

Scottish Health Service Centre, Edinburgh

[www.scotshi.bcs.org.uk/](http://www.scotshi.bcs.org.uk/)

### BCS PHCSG 29th Annual Conference

24 – 26 September

*Data sharing – the virtual naked patient*

Crew Hall, Cheshire

[www.phcsg.org.uk](http://www.phcsg.org.uk)

### ASSIST: London and South East Branch

29 September

*Measurement for quality – a joint conference*

BCS Office, 5 Southampton St, London

[www.bcs.org/assist/londonse/events](http://www.bcs.org/assist/londonse/events)

### Health Informatics (Northern) Group

30 September

*The NHS Haemophilia Service and the work of MDSAS*

[www.hinorth.bcs.org.uk/](http://www.hinorth.bcs.org.uk/)

## October

### ASSIST North West Branch

8 October

*Sharing information between health and social care*

Wrightington Conference Centre

[www.bcs.org/assist/northwest/events](http://www.bcs.org/assist/northwest/events)

### ASSIST: Yorkshire & Northern Branch

30 October

*Identity management*

John Charles Centre for Sport, Leeds

<http://northern.assist.org.uk/Events/Current%20Events.aspx>

## November

### ASSIST North West Branch

13 November

*Care record access at Liverpool PCT + update on Bolton SCR Pilot*

University of Liverpool

[www.bcs.org/assist/northwest/events](http://www.bcs.org/assist/northwest/events)

### ASSIST: London and South East Branch

18 November

*Looking into the future: emerging technology and its use in supporting health care data*

BCS Office, 5 Southampton St, London

[www.bcs.org/assist/londonse/events](http://www.bcs.org/assist/londonse/events)

### Health Informatics (Northern) Group

25 November

*Robotic surgery – achieving the promise*

[www.hinorth.bcs.org/uk](http://www.hinorth.bcs.org/uk)

## December

### ASSIST: Yorkshire & Northern Branch

1 December

*The great christmas debate*

John Charles Centre for Sport, Leeds

<http://northern.assist.org.uk/Events/Current%20Events.aspx>

### BCS Health Informatics Interactive Care SG

4 December

*Medicine on the edge with Surgeon Captain Peter Buxton, OBE*

BCS Office, 5 Southampton St, London

[www.hiicsg.bcs.org/events.htm](http://www.hiicsg.bcs.org/events.htm)

## January 2010

### ASSIST: Yorkshire & Northern Branch

29 January

*From HRGs to PbRs - finance in the NHS*

The Cairn Hotel, Harrogate

<http://northern.assist.org.uk/Events/Current%20Events.aspx>



ИМЕНА ГЛАВНЫХ ИНФОРМАТИЧЕСКОГО КОММУНИКАЦИОННОГО СЕКТОРА

2009  
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