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HEALTH INFORMATICS NOW

Response to the DH's Informatics Review

The balance between data
safety and clinical care

How future technology
could affect healthcare

ePrescribing's mission
to cut error rates



Safety stays on the agenda

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



In this issue we continue with some further contributions to the debates of security, privacy and patient safety. Edward James aimed to be provocative when he started his presentation at the BCS Health Informatics Forum meeting in July on the topic of data safety in clinical care: see page 8.

A research team describes a decision support tool they are developing to support sharing information in the complex domain of children's social care.

They describe how their tool can guide through the moral, ethical and legal minefield of sharing information between agencies (page14).

One of the 'clinical five' high priority applications referred to in the recent Informatics Review is ePrescribing: offering opportunities to reduce errors and improve patient safety. This was the subject of a Northern Specialist Group meeting. Tom Sharpe reports on a briefing given by Ann Slee.

Those attending HC2008 had the opportunity to listen to Ian Neild from BT talking about the future and particularly the sort of technologies we might be using in healthcare. Rather than include this exciting and innovative view in the general round up of HC in the last issue, we have saved it in order to give it the space it deserves. John Bryant has worked with Ian to produce the report on page 16.

As thoughts of summer holidays fade and mornings have that chill that announces autumn, we are in reflective mood. In our continued aim to be transparent about the activities of the Health Informatics Forum, Professor

Graham Wright, who has recently taken over as chair of the Forum, summarises his annual report on the many and varied activities that were supported and undertaken during the past year (page12).

The Forum supports members to present their work both in the UK (with the HC bursary scheme) and at important events throughout the world. In this issue Jean Roberts gives a personal perspective of the European congress, Medical Informatics Europe (MIE) – page 20. These reports highlight the fact that, throughout the world, the same issues are being tackled and that we can all learn quicker by sharing experiences.

The Forum welcomed the recent Department of Health's Informatics Review. BCSHIF, ASSIST and UKchip wrote a joint response to the Review. The general comments are reproduced on page 6 with details of where to find the report and the full response.

Closer to home, you are invited to share your experiences at HC2009 (April 2009) and the Primary Health Care Specialist Group's annual conference (October 2008): see pages 7 and 23.

HEALTH INFORMATICS NOW

is the newsletter of The British Computer Society health informatics community. It can also be viewed online at: www.bcs.org/hinow

HEALTH INFORMATICS NOW

is a quarterly publication. The deadline for contributions to the December 2008 issue is 21 October. Please send contributions to helen.boddy@hq.bcs.org.uk

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Printed in Great Britain by Inter Print, Swindon, Wiltshire.

ISSN 1752-2390. Volume three, number one.

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Incorporated by Royal Charter 1984.



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ePrescribing is scheduled for incremental delivery between now and 2010, as Ann Slee explained to the Northern Group.

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CSC and BT may share southern contracts

The contract to upgrade NHS IT systems in the South of England may end up being divided between the remaining prime contractors, BT and Computer Sciences Corporation (CSC), according to *E-Health Insider*. The three strategic health authorities reportedly have differences of opinion on the best approach and choice of supplier to replace Fujitsu. Some trusts are looking at iSoft alternatives, supplied by CSC, to replace the ageing systems, while others are considering Cerner, which would be installed by BT.

Leaders appointed on EPS

Connecting for Health has appointed two GPs as clinical director and clinical lead for its Electronic Prescription Service (EPS) as it moves towards EPS Release 2.

Dr Manpreet Pujara has been appointed clinical director and his role will focus on liaising with a range of external stakeholders including professional bodies.

Dr Tony Kaye becomes clinical lead. In addition to responsibility for engagement, he will focus on providing support to EPS internally, specifically in relation to clinical safety.

As members of the EPS GP User Group, Dr Pujara and Dr Kaye have already been working with the EPS team for over three years.

Unit trains on patient records

The University of the West of England (UWE) is to implement the Cerner Academic Education Solution (AES) to train nursing and other health staff on how to use the new electronic patient record system. The project means students at UWE will be able to use similar software to that being introduced in hospitals.



Summary record switches to explicit consent model

In the wake of advice from the Summary Care Record Advisory Group, Connecting for Health (CFH) has altered its stance on the consent model for patient records.

Under CFH's revised proposals, patients will need to give explicit consent before their Summary Care Record is accessed, replacing the implied consent model trialled at the early adopter PCTs. The latter model meant that once information had been uploaded on an implied consent basis, patient information could be accessed without the need for further consent. Research showed that, despite an intensive publicity campaign, patients in the affected PCTs had not understood all the implications.

Under the new proposals, patient information would be uploaded to the Summary Care Record with implied consent but doctors would then have to ask permission every time they access the Summary Care Record.

This approach is already used in Scotland and Wales. Individual GPs will also be able to choose whether the initial upload of information should include only details on patients' allergies and medications or other data.

The explicit consent proposals are now being discussed by key stakeholders. They will then be considered by CFH's Care Records Service Programme Board in September.

Glyn Hayes to lead review on behalf of conservatives



Dr Glyn Hayes, past chair of the BCS Health Informatics Forum, has been commissioned by the Conservative Party to lead an independent review of NHS IT policy. The review aims to inform future policy for the use of information technology in the NHS, health and social care in England.

Stephen O'Brien MP, the Conservative Shadow Health Minister, commissioned the review, decided on the team members and asked Glyn, via the BCS, to chair it. The BCS is therefore associated with the review but itself is not commissioned by the Conservative Party.

Glyn has taken on the review on the assurance that it will be independent. The findings will be published as an independent review after which the Conservative Party will decide whether to adopt its recommendations.

'The roots of the review go back to the Commons' Public Accounts Committee review of the National Programme for IT, which recommended this sort of review be conducted,' said Glyn.

'The review will not be going over the ground covered by the recent Health Informatics Review, which concentrated on the way forward for the Department of Health and Connecting for Health. Our review will look in more detail at the implications for universal patient based records to improve patient care and the longer term but substantial benefits they can bring. Our first task will be to define a clear shared vision of what the future holds for the next five to ten years.'

Another BCSHIF activist – Ian Shepherd FBCS CITP, who is chair of the BCS Primary Health Care Specialist Group – is on the review team. Others include: Gail Beer, independent consultant; Iain Carpenter, MD FRCP, clinical lead on record standards, Health Informatics Unit, Royal College of Physicians; and Professor John Williams, director, Health Informatics Unit, Royal College of Physicians.

The team has circulated an invitation for written evidence from individuals and organisations involved in health and social care. The letter has been sent to all Royal Colleges, academic units, and anyone else who has expressed an interest. Anyone can send evidence, information or opinion to evidence@healthitpolicyreview.info.

After collecting written evidence by 30 September, oral hearings will be held in October and November. A first draft is to be produced in December and the final report is to be published by the end of March 2009.

DH recruits new IT heads

The Department of Health has appointed Christine Connelly as the first chief information officer for health and Martin Bellamy as the director of programme and system delivery. They are due to take up their positions on 22 September.

Christine will focus on developing and delivering the Department's overall information strategy and integrating leadership across the NHS and associated bodies, including Connecting for Health (CFH) and the Information Centre.

Martin will lead CFH and focus on enhancing partnerships with the NHS.

The appointments follow the strategic refocusing of IT leadership as part of the Health Informatics Review into how information can be better used across the Department and NHS.

Christine has most recently been working as an independent consultant. Previously she was CIO at Cadbury Schweppes and has spent over 20 years of her career at BP. Martin has worked for the Department for Work and Pensions since 2003. His main role was as CIO of the Pension Service. Gordon Hextall is expected to continue as COO at CFH.

Finland fined for breaching patient confidentiality

The European Court of Human Rights has ordered the Finnish government to pay €34,000 for failing to protect a patient's confidential record. The court made its ruling based on Article 8 of the Convention, which guarantees every citizen 'the right to respect for his private and family life, his home and his correspondence'. The ruling could be particularly significant in setting a legal precedent at European level.

The Finnish state has been ordered to pay the patient, who was a nurse, about €14,000 in damages and €20,000 in costs. The nurse looked into who could access her records after her contract was not renewed in 1995. She had HIV. Colleagues of the nurse who were not treating her had been able to access her patient records.

N3 broadband to be migrated

NHS Scotland's N3 broadband network is being upgraded to a faster service, with a phased roll-out beginning from late summer. Migration to IPstream will be by community, starting with the community pharmacists. As some N3 connections in Scotland are nearing their contract end, N3 is upgrading to IPstream, which it says offers faster application performance, faster maintenance activity, such as software downloads/patches, and is a stepping stone for future technology development. The migration to IPstream, to be carried out remotely, allows all existing equipment (lines, routers etc.) to remain in place.

Wales' IT infrastructure strategy

Wales' Informing Healthcare has published its first information technology infrastructure strategy outlining its aims for areas including networking, server management, directory and voice services.

It considers the following infrastructure technology areas: networking services, user access devices, application delivery servers, storage messaging and collaboration services, directory services, and voice services.

BCSHIF responds to Health Informatics Review

The Department of Health (DH) published its Health Informatics Review in July. BCSHIF, ASSIST and UKchip wrote a joint response.

The DH's Health Informatics Review was commissioned to:

- assess the supply of, and demand for, information across the NHS and social care;
- ensure that the framework for the NHS Care Records Service and the Secondary Uses Service (SUS) is in line with policy;
- make sure that the governance of informatics within the NHS and the DH is clear and appropriate, and supported by the right management structure.

BCSHIF, Assist and UKchip wrote the following joint response to the DH's Review. The general comments made are reproduced below.

As a profession we welcome this report. It is presented as a relatively high level, goal-oriented set of requirements and is very accessible for such a document. As a high level report the devil may be in the detail of the implementation report to be published in the autumn and we hope that we can help by contributing towards the development and the promotion of this implementation plan.

The report is well founded on consultations with a wide range of stakeholders. We would be interested to

know if this included consultation with:

- the health ICT industry beyond local service providers;
- the Office of the Information Commissioner (re confidentiality of patient data);
- the academic group of 23 (who were vocal in relation to NPfIT).

Lack of commitment from NHS management at all levels has impeded progress in implementing informatics support for patient care. The appointment of an NHS CIO was already known to be a significant step in the right direction. The proposal to get 'credible, capable' CIOs at Trust and SHA board level is also a major step forward in getting management buy-in to health informatics.

We also feel that getting informatics involvement at an early stage of policy development will help to keep progress moving forwards with less of the feature creep which has bedeviled implementation.

The drive towards professionalism is to be applauded. The development of our profession will improve planning, design, development, delivery and ongoing use of systems.

We must move health informatics staff out of the doldrums into the mainstream and alongside other professions which

have an impact on patient care.

The statement 'Perfection being the enemy of the good' is absolutely right and we need to review all plans, processes and procedures to ensure they are focused on supporting positive patient outcomes, not intellectually perfect systems which will be ineffectual in the work place.

Emphasis on standards

We applaud the emphasis on standards and would encourage building on the current processes and not reinventing wheels with the proposed drive to an end to end standards process.

If we were to criticise, it would be that there is little recognition or emphasis on building from experience. As a profession we have extensive experience on the issues and problems of health informatics. We hope this will be used. Too much emphasis on central development sometimes ignores this fund of knowledge.

We would also like to see more emphasis on clinical systems. The clinical five described is fine as far as it goes but will not have as much impact on patient outcomes as will longer term moves to a full clinical record.

The DH report can be found at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086073.

HC2009 – ANNOUNCEMENT AND CALL FOR PARTICIPATION

THE UK'S SHOWCASE HEALTH INFORMATICS EVENT
28 - 30 APRIL 2009, HARROGATE
ORGANISED BY BCS

HC2009 will be a showcase event. You are invited to participate as a presenter, delegate, demonstrator or all three.

HC2009 will be an open forum for sharing practical experience, ideas and know-how. You are invited to share your knowledge gained through practice, research, an evaluation or a trial; organise a debate; demonstrate a skill; or introduce a new concept or technology.

Deadline for submissions is
1 December 2008.



WAYS TO PARTICIPATE

There are both new and familiar ways in which you can participate in HC2009. Submissions will be accepted from individuals, suppliers of systems and services as well as from public sector and not for profit health and care organisations. All submissions must clearly relate to one or more of the official topics – see website.

www.bcs.org/hc2009





Data safety and clinical care

The meeting began with Edward presenting a series of comments intended to promote discussion, which he has summarised in the first part of this article.

Computer security is often presented as a branch of conspiracy theory. Security threats are seen as coming from a malevolent group determined to destroy. Such threats scare and encourage the provision of money to avoid them.

The perceived threats to the security of computer data are: total destruction, less significant than formerly because of cheap back-up systems; and copying, so that the data can be used against the original producer.

However, I believe that dealing with perceived threats is not the best way forward, since security is basically a moral problem. The connection with legal issues comes only from trying to enforce a certain moral behaviour.

So the only real defence from data 'terrorists' is character reform. Organisations may claim that they

The balance between keeping patient data safe and not hampering clinicians in delivering effective care was discussed at a BCSHIF meeting in July, led by Edward James, a consultant working with the Imperial College Healthcare NHS Trust.

can keep your data safe but they are really only preventing a legal comeback.

Considering data security in the NHS, we have an extra dimension of concern. The doctors that I work with are already overstretched. The application of conventional security measures involve extra time and effort from the data users, which must be balanced against the time required to study a medical situation and make decisions concerning life and death.

Consultants are already faced with increasing restrictions in the name of security, for example in restrictions concerning using patient data at home.

In general terms, the only totally secure data store is one which no-one can access. So making data available for practical use involves accepting a certain level of data loss. I would suggest that the threat of data loss is less significant than the threat to a patient of delays in accessing the data necessary to make clinical decisions.



In the meantime, new technology makes the illicit transfer of data ever easier, and detection of illegal data storage ever more difficult. My tiny camera now has internal storage sufficient to take all the patient data records of many hospitals.

It is a trivial job to connect the camera to any hospital data network, and the time taken to steal the data is dropping fast.

New developments such as cross-border health support add another dimension to the threat of data loss. The new EU proposed directive on patients' rights to cross-border healthcare will involve the movement of patient data around EU member states, with the possibility of data leakage even beyond Europe's borders.

Discussion

Participants discussed whether it would be safer for an individual to take responsibility to store their own electronic medical data, rather than storing it on a centralised system. One advantage would be to make clear the responsibility for data loss. However, the data would still need to be backed up, so the problem would not be entirely solved.

Furthermore, the patient could be physically attacked in order to steal their data, although that risk could be mitigated by the patient storing data on a password-protected website, rather than carrying it on a portable device.

The individual ownership of data may not be practical, since much healthcare is delivered without the patient being present. The counter argument is that

other industries have ways of handling data if a person is not present. Healthcare could look at, and learn from other sectors, such as banking, rather than assuming that it has unique problems.

A disadvantage of the use of patient records remotely from the local surgery or hospital is that it becomes less certain that a particular treatment was carried out, just as the removal of £50 from a remote cash point may not have been carried out by the account owner. The remote use of electronic health records is further complicated by the fact medical notes can sometimes be interpreted in more than one way.

Edward suggested that attempts to save security checking time, such as the use of a single sign-on smartcard providing access to all NHS systems, as being adopted by many NHS Trusts, could run counter to data safety. And concerning audit trails, how much detail of user activity should be recorded? Should it include details of every record accessed, every alteration made? If so, who would be able to monitor the situation in real time?

A participant countered that current data storage methods are not robust, citing the illegibility of hand-written paper records. What is being carried out now may not be perfect, but as long as we are improving the current situation, surely that is good?

When aiming to improve the system, new risks must not be introduced, according to another participant. One of the risks of an electronic record is being able to misinterpret the context in which data was written, unless the record is designed to allow for this.

The discussion moved on to question the value of the majority of medical records. It was claimed that hospital clinicians are usually not interested in medical records more than three days old for in-patients and one year for out-patients. In any case, clinical judgements are often based on personal experience and intuition rather than calculations based on data records. Doctors are trained to start from a blank sheet when facing a patient, so they do not look at the notes straight away. Medical records may be no more than an intellectual aide-memoire for nurses and doctors.

In a similar vein, it was suggested that medical records never contain really important information. Co-operating doctors usually write letters, summarising

the important bits of information, and they are only interested in the last two letters. On the other hand, a participant countered, letters are not a perfect system – they do sometimes get put in wrong file.

It is perhaps, however, easier to lose large amounts of electronic data. To really understand the risk, it was suggested that the value of lost data needs to be calculated, in the same way as, for example, banks work out how much money they are prepared to lose in a hold-up. The NHS could decide what data loss is acceptable and pick the best way to reduce loss to that level.

It's important to understand that a theoretical breach isn't the same as an actual breach, pointed out another participant. If the risk is calculated and steps taken to reduce it, and trustworthy people are involved, a breach will probably never happen.

There are still issues to resolve on data safety, but it is important to recognise that some positive steps have already been taken, thought some participants. The NHS is introducing breach risk assessments. Although this does not stop information being lost, looking at what can go awry is a step in the right direction.

Also, one of the biggest problems – the

actions of human beings – is being addressed to some extent. Connecting for Health is teaching information governance to people on the ground in the NHS, with individual frontline users – from receptionists upwards – receiving training.

That said, a case was cited of an one organisation which had a built-in information governance process with excellent training provided, and even included in the induction programme. Yet the head of information with responsibilities for introducing information governance in the organisation had still managed to lose a laptop, on which unencrypted patient records were held.

Despite there being risks associated with electronic patient records, there are clinical benefits and therefore benefits to the health of the nation. From the health profession's point of view, one person said that, when working as a night manager, he used to hate going to the basement to the medical records store. He had to use a torch and fish amongst the spiders.

It is not possible to reach the end benefit until you know its cost, highlighted another participant. When choosing what to buy, you look at the cost, the benefit, the likelihood of something going wrong, and what discount applies. Once you know the cost and benefit, you know how to

assess the risk spectrum.

Participants agreed that data needs to be shared by people working in healthcare, as it is currently so fragmented. Transfer needs to be possible without too many restrictions. Plus, the more that the risk of losing data is talked up, the more people worry.

No one knew of any empirical work that has looked at the balance of risk versus benefit. The underlying problem is that the government seeks a black and white answer, which it simply not possible. Our brains are not designed to cope with uncertainty, and we are not prepared to accept some data will be lost. The public expects perfection. In reality, all that can be done is to work out the risk and hedge against it.

At the same time, people working in healthcare are already under extreme pressure and will struggle to take on any extra loads or restrictions associated with security. The problems cannot simply be solved with a new computer system.

'There is no "quick fix" for data security,' said Edward. 'It involves the continual re-balancing of the risk of loss against the benefits of availability. And current hospital data systems are only just beginning to provide data in a really flexible, user-friendly form.'

BCS reshapes HC for 2009

BCS is re-launching Healthcare Computing as a BCS-managed and run event, says Sheila Bullas, HC2009 programme chair.



HC2009: Shaping the Future, from 28-30 April, will replace the previous event's conference and exhibition format, with an integrated, interactive environment for health informatics suppliers and healthcare professionals. It will be linked to health-related IT developments and applications of best practice.

BCS Health Informatics Forum (BCSHIF) has run the conference at the event for its 25 years of existence, while the British Journal of Healthcare Computing & Information Management

(BJHC) previously organised the exhibition. Unfortunately, BJHC went into liquidation this July.

The 2009 event will be in a different format to previous years – there will be a mixture of demonstrations, showcases and more widespread networking opportunities. BCSHIF is looking at opening up different ways of presenting and sharing information.

The call for participation, which has already gone out, emphasises the different sorts of submissions that will be considered, such as tutorials and presentations.

Anyone who has an idea for any other formats can approach the committee with ideas. One option is for more groups to hold meetings at HC. For example the BCS HI Nursing Specialist Group already holds its AGM there.

As well as traditional academic papers

(which will still have the opportunity to be cited in other journals), we are also looking to encourage people who don't want to submit academic papers. They will need to submit an outline of a topic area, and show good practice and innovation.

In the call for participation, the list of topics to address include policy, strategy, professionalism and example projects.

Submissions must be in by 1 December. Decisions about successful submissions will be made around the end of January, and details about keynote speakers will be announced thereafter.

There will be more opportunities for commercial participation as well. Details are being finalised as we go to press.

HC2009 will, as in the past, be held at the Harrogate International Centre.

www.bcs.org/hc2009

Apply now to enter for Dame Phyllis Friend Award

The Nursing Specialist Group is seeking entries for the annual Dame Phyllis award, given in recognition of the work of nurses using information and communications technology to support care.

Dame Phyllis Friend was Matron at the Royal London Hospital between 1961 and 1971. She was heavily involved in work by the Royal London to install its own computer, the first to do so in 1964. The award results from a donation by Dame Phyllis to the Nursing Specialist Group.

There is only one award made each year. Along with a citation, the prize winner also receives a cheque for £250 and this year we are delighted to announce that the prize winner will also receive a laptop courtesy of Viglen.

In addition, the paper will be published by BCS and the author offered the

opportunity to present their work at the group's next conference.

The award is open specifically for new authors to help them to share information and communication technology developments in their care area. A dedicated panel undertakes the review of all entries and gives constructive feedback to all entries.

All that is required to enter is that you are a member of the Nursing Specialist Group and submit a paper of up to 2,500 words, not including a bibliography.

The deadline for submissions for the current award is 31 January 2009.



For more information and to apply for the award, see:

www.nursing.bcs.org/dpfaward.htm

READ ABOUT PAST EXPERIENCE TO HELP CURRENT THINKING



UK HEALTH COMPUTING

Edited by GLYN HAYES, DENISE BARNETT

Technology that works for patients and staff has been the guiding principle of developing and deploying IT and computing in the UK health sector. Hayes and Barnett's detailed history of this process draws upon the experiences of those involved, whilst referencing many published documents of the time. The result is a fascinating and thought-provoking glimpse into the world of health computing, which holds lessons for future generations.

Published: April 2008
ISBN: 978-1-902505-99-2

£29.95 648pp

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 BCS

Another year full of activity



Introduction by BCSHIF chair: Professor Graham Wright FBICS CITP

It is a great honour for me to write this as the new chair of BCSHIF, having taken over the role in October 2007.

The Forum continues to organise excellent activities and events, in particular the HC annual conference in Harrogate which celebrated its 25th anniversary in April this year. Looking forward, HC2009 will be a solely BCS event, showcasing the best in health informatics.

Both the Primary Health Care Specialist Group and BCS ASSIST held successful annual conferences, each attracting high profile speakers from their particular health informatics area, as well as good delegate numbers and commercial sponsors.

With the NHS implementing the world's largest IT system procurement outside of the military, the members of the Forum are engaged in many aspects of this mammoth project. The BCS Health Informatics Specialist Groups (HISGs) and BCS ASSIST continue to run successful meetings where they have the opportunity to inform members and generate discussion on this very expansive topic.

In addition, the Forum and HISGs have published a substantial textbook, UK Health Computing, (Eds Glyn Hayes and Denise Barnett), a peer reviewed journal and *Health Informatics Now*, a BCS newsletter.

The past year has seen changes within BCSHIF, changes which are not the result of the new

Each year, BCSHIF produces a report describing its initiatives and activities over the year. Below is the introduction and a summary of the latest report (May 2007 - 30 April 2008), which can be found in full on the BCSHIF website.

chairmanship but rather a transition which has been guided in the past by Dr Glyn Hayes who continues to guide me as my mentor and valuable friend. I am pleased to say that his health has improved and that he is active again in BCSHIF taking the lead in the political area.

A new leader needs to take the best of all when trying to steer change and the work undertaken by Glyn and others has made a major difference to the ability to progress. I am also indebted to vice chair Ian Herbert who stepped in to cover Glyn's duties during his illness.

The restructuring of BCSHIF started some four years ago and the Forum voted recently to accept a new structure which will bring the HISGs under the umbrella of BCSHIF solely. Up to now the HISGs have been responsible to the BCS Specialist Groups Executive Committee (SGEC), both financially and for governance. As BCSHIF has always had representatives from all of the groups, it was felt that the restructuring would bring the groups together and place the governance and financial accountability within a single line of accountability to the BCS Trustees.

A second part of the restructuring is the refocusing of the forum into an outward facing strategic panel and a business group which will consist of representatives from all the HISGs, ASSIST (a member group) and major projects of BCSHIF. The overall management of the forum will be via the management group consisting of the senior officers and co-opted members of those two groups. A full paper is available on request.



BCSHIF initiatives

HC2008

HC celebrated its 25th anniversary with a change of format: 10 individual conferences were held over three days. Delegates could either attend a complete conference of their choice or move between sessions.

UK Health Computing: Recollections and Reflections

Edited by Glyn Hayes and Denise Barnett, this book was published in April, aimed at researchers and future generations of health informaticians who wish to understand and avoid the mistakes of the past.

Thought Leadership Debate – Transforming Services

BCSHIF hosted its third Thought Leadership Debate in February 2008.

BCSHIF meetings

Open forum meetings are held quarterly in BCS London, for anyone who works in, or is interested in, health informatics.

- October 2007: Public health: private data? As moves accelerate towards the nationwide sharing of records, four speakers looked at different aspects of making sure that private data stays that way.

- January 2008: Five speakers gave presentations on several topics, including HI benchmarking and accreditation, and an update from Prof Tony Solomonides, one of the NHS23 (the academics who called for the National Programme for IT to be halted for a review).

HIF hosted meetings

- October 2007: IHE cross enterprise document and image sharing in UK healthcare workshop;
- 15 October: Integrating the Healthcare Enterprise (IHE) event;
- 30 April: Patient safety through ePrescribing: a round table discussion in conjunction with *E-Health Insider* on patient safety through ePrescribing. The outcome will be worked into a position paper on ePrescribing.

IHE – 9 April 2008, Oxford

The sharing clinical documents and integrating workflow: practical solutions event took place during a connectathon, which is a week long testing arena where suppliers prove that their systems can communicate with users and with each others' systems.

Responses/consultations

BCSHIF has commented on:

- the NHS CFH development of a clinical portal, and the common user interface;
- the DH proposal for knowledge source accreditation;
- the draft Gibbs Report; the Information Accreditation Scheme: How to contribute to the development of the standard;
- the National Audit Office study on the National Programme for IT in the NHS;
- the Information Commissioner consultation on sharing records (in conjunction with the BCS collective response).

BCSHIF abroad

Through the Forum, BCS is recognised internationally as the UK health informatics body. It appoints UK representatives to the Councils of the International Medical Informatics Association (IMIA) and the European Federation of Medical Informatics (EFMI).

International Medical Informatics Association

Prof Graham Wright is the BCS

representative to IMIA and Dr Peter Murray is vice president for Working and Specialist Interest Groups, and interim vice president for strategic planning implementation. BCS members also hold positions as chairs of working groups, including Jean Roberts (health informatics for development), Graham Wright (open source health informatics), and Sheila Teasdale (primary care HI), while Paula Procter is UK representative to the Nursing Informatics Special Interest Group.

A delegation of 28 health people from the UK were able to participate at medinfo2007 (organised by IMIA), with the support of the BCS Health Informatics Forum, presenting papers or posters, chairing workshops, or exhibiting.

European Federation of Medical Informatics

Dr Helen Betts is the BCS representative to EFMI. The annual EFMI special topic conference on open source and health care in Europe is due to be held on 9-11 September 2008 at the BCS offices in London.

Other activities

The HISGs have continued to organise group activities. See full annual report.

NHS Connecting for Health and Department of Health

BCSHIF continues to work closely with Connecting for Health (CFH), as well as the Department of Health (DH). It is usual for key figures from both organisations to field high profile speakers at BCSHIF's annual conference (HC), as well as offer speakers at smaller local events.

External liaisons

BCSHIF has regular contact with various organisations – see website.

HI courses

The Forum has been involved in the working group looking at accrediting health informatics courses in universities. Some members have also been involved in creating the NHS IG Toolkit syllabus, working with the BCS programme manager Carol Hulm.

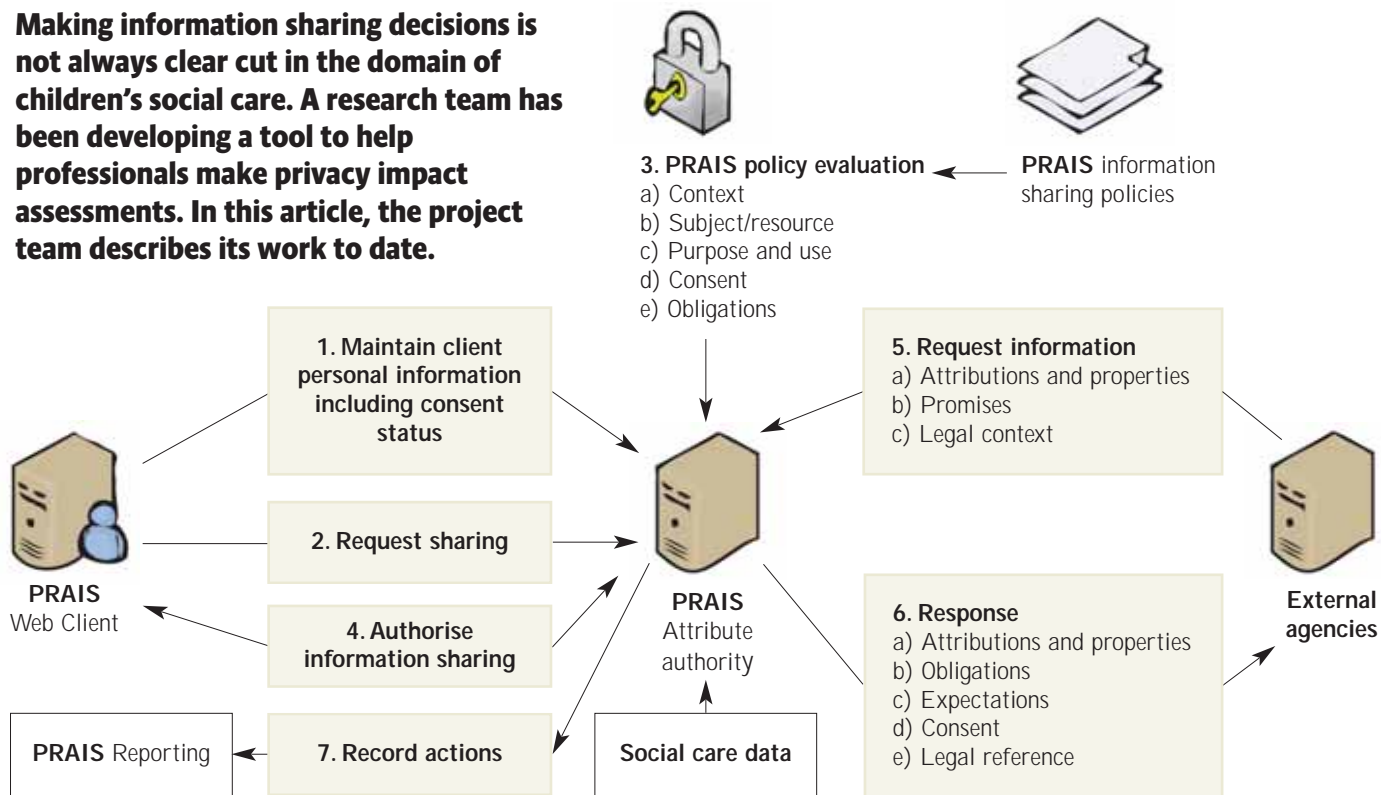
Publications

BCSHIF members have also written and contributed to various publications.

For full report, see www.bcsdif.org

Tool to aid privacy decisions

Making information sharing decisions is not always clear cut in the domain of children’s social care. A research team has been developing a tool to help professionals make privacy impact assessments. In this article, the project team describes its work to date.



UK government is promoting multi-agency information sharing as a key component of new work practices for those providing services to children and families. In support of this activity government has produced best practice guidelines and most local authorities have developed their own data sharing agreements and manuals. Despite the amount of information available, staff do not always feel confident to share what they know and it is clear that the process of information sharing in the domain of children’s social care is far from clear-cut and, at the very least, more training and education is needed.

More generally, information sharing by organisations and government departments, facilitated by new computer systems, is increasing apace. The key challenge for engineers is to ‘design for privacy’ from the start and, in recognition of this, governments around the world are developing their own variation of the privacy impact assessment (PIA).

The main objective of performing a PIA is to gain an understanding of the

impact which a new process, system or technology may have upon the personal privacy of individuals. Fundamentally the PIA should ensure that the risks to privacy are mitigated and that data is not inaccurate or out-of-date, excessive or used in unacceptable or unexpected ways beyond the control of data subjects.

All these elements are essential but the PIA process is not directly applicable to the situation where a practitioner needs to share information on an ad hoc basis. There is a need for a privacy impact assessment tool which can be used to address privacy implications dynamically at the point of sharing.

PRAIS

The aim of our research was to develop a prototype decision support tool for context-sensitive, privacy-aware information sharing in the domain of children’s social care. PIA principles have been used to guide the development of PRAIS, so called because it provides privacy impact Analysis for Information Sharing. Whilst it is not intended that PRAIS will ever make

decisions on behalf of properly trained personnel, it will assist practitioners in making privacy-aware decisions where required.

The PRAIS information sharing process is illustrated in the diagram above. PRAIS sits between the practitioner and the social care data store and mediates all information sharing actions. The privacy policy interpreted by PRAIS is based upon PIA principles, the local data sharing agreement as it pertains to the social care agency, and relevant information sharing guidelines. Information sharing is based on a ‘pull’ model; this allows the owner of the information to retain liability for the data and to audit each use.

1. The practitioner uses the computer system to create and maintain all personal information about clients.

2. Using PRAIS, a practitioner requests information sharing with an external agency for a specific purpose.

3. PRAIS evaluates the practitioner’s request. First it retrieves the policy associated with the information sharing purpose and evaluates the rules

associated with it.

4. PRAIS presents the user with a short on-screen report containing recommendations relating to the information sharing decision. At this point the practitioner may accept or reject these recommendations. If information sharing is authorised then the system sends the intended recipients a message indicating that they may retrieve data from the source.

5. In due course the target agencies request the shared information.

6. The PRAIS system responds with a set of attributes and their properties.

7. Every PRAIS transaction is logged. The system can be configured to notify staff with responsibility for monitoring information sharing with alarms and exceptions.

The PRAIS prototype demonstrates how PRAIS could be used in a social worker's daily routine to share information electronically. This may not necessarily be its primary purpose as information is often shared in multi-agency meetings or over the telephone. To support this type of scenario PRAIS can be used by practitioners to explore privacy implications where information will be shared verbally. PRAIS could also be used as a training tool to help professionals learn experientially about the issues in managing personal information.

Future work

In the immediate future we will be working towards securing a partner in a UK social services department with whom we can develop an operational version of PRAIS and evaluate its efficacy in a realistic environment.

In the longer term our vision is broader: we envisage that PRAIS will help both policy makers and decision makers to address, not only the legal, but the moral and ethical issues involved with information sharing. PRAIS will improve the timeliness and the quality of data sharing and help staff to manage the negative impacts of information sharing where these occur.

Conclusion

Much of the information sharing in social care can be described as ad hoc and workers are expected to interpret written guidance to ensure that proper care is taken with personal information. It is our belief that the privacy implications of this type of information sharing can at least be partially evaluated by computer.



To date we have developed an innovative prototype and our next step is to implement a set of representative scenarios using a policy engine to demonstrate the feasibility of the PRAIS vision. This initial work should be seen in context as part of a much broader picture in which PRAIS will form an integral part of the day-to-day business process of information sharing.

Eventually, PRAIS will operate as part of a risk assessment framework evaluating the predictability of particular sharing outcomes using mechanisms which are generic, yet flexible enough, to be applied to a wide range of industry sectors such as finance, education and healthcare.

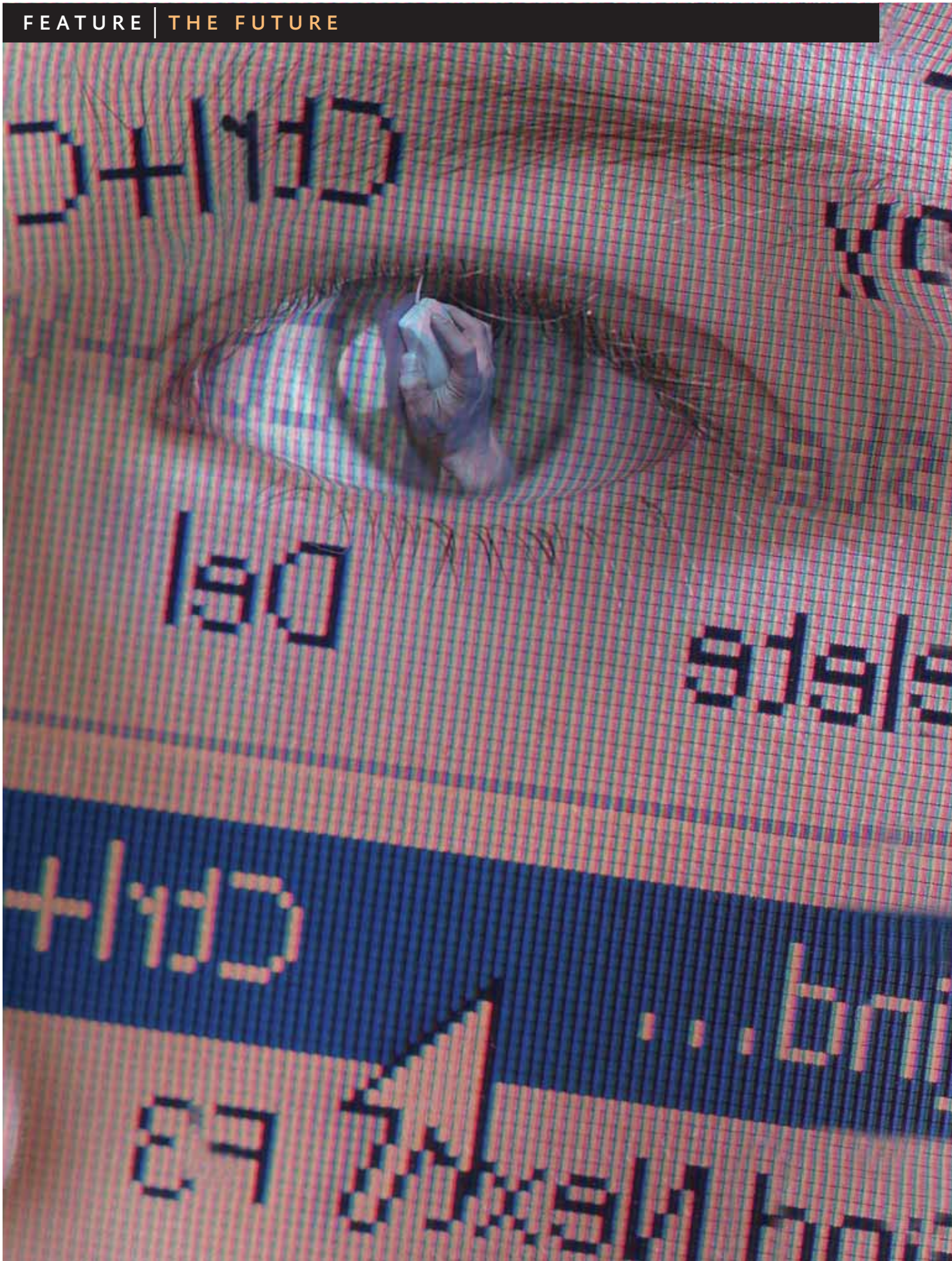
Further information can be found on the project web pages:
www.cs.ucl.ac.uk/staff/r.harbird/prais

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Hang on tight to the information revolution

Delegates at the HC2008 conference were given an 'invitation to the future' by Ian Neild from the group chief technology office of BT. This is a summary of the presentation which focused on how technology is impacting us. The dates and numbers are more indicative than precise values but the aim is to encourage individuals to generate thoughts on how future developments could affect their business. The article is written by John Bryant, a Fellow of the Centre for Health Informatics Research and Development, and Ian Neild, a futurologist at BT.

For all the changes in technology, we find that humans still want to do the same things and so history is a useful place to see how we haven't changed that much.

In terms of tools, if all of humankind's achievements were put into one hour then the first 59 minutes were all in the Stone Age. Our opposable thumbs meant that we could actually grasp the technology and we bent the world around us (usually by bashing it with what we held in our hands). As humankind evolved, we used keyboards and mice, which required the use of fingers over thumbs.

Today, many of us modern humans are finding that our thumbs are still key as we use them not to bash a flint, but to speed up our texts on mobile devices.

To set the future in the context of the present, consider some of the issues that the NHS has:

- We are living longer than ever before.
- The NHS is unlikely to eradicate the diseases being fought today and is constantly finding new things that can be treated.
- The cost of capital equipment is increasing along with the consequent requirement for more trained personnel.
- New procedures and new mandates are appearing every few months.

These issues alone are enough to show that there are big problems ahead. Most of the world is ageing with current exception of India. The numbers alone do not mean much but when visualised over time, we can see how the population demographics for countries are changing. We are entering a time where, for the first time, there will be more older people than younger people. The impact that this will have will be far reaching as this isn't just a UK health problem. The gapminder website (www.gapminder.org) can be used to show various trends in healthcare and would be useful to anyone who has to make decisions about the future.

This is important for the IT industry since, as we get older, our needs for IT and informatics change. It is very likely that we will need more assistive care and there isn't enough money or people to do this in

the way we have done previously. We are going to need a lot more IT systems and robotics if we are to maintain the lifestyle we expect as we get older. A lot of this will be down to information systems and how knowledge is applied to share limited resources as fairly as possible.

The growth in knowledge

In the 1800s, a single person could have known a lot about many subjects. It was possible to be an expert in many fields, as each field wasn't that deep and a lot of science was still unknown. Advances were made but there weren't that many. Most people still worked in agriculture and so were involved in feeding the rest of the population.

Gradually, people started to know more about each subject and more subjects were discovered. As fewer people were involved in feeding the rest of us, more time could be spent doing new work. Knowledge sharing, books, royal societies, etc. encouraged the spread of knowledge.

By the 1900s, people were becoming specialised – starting to know a lot more about much smaller subsets. Today, people are becoming highly specialised, and tend to know so much, and in such depth, that any one person knows absolutely everything there is to know about virtually nothing (their subset of knowledge is very narrow).

The amount of information being created every day is more than any one human brain can ever actually take in and soon that will be the case for the amount of information created every hour. So we're in a position now that, whilst we may be getting smarter, at the same time we are actually getting dumber, knowing less about the whole state.

This tends to lead to silo creation amongst experts as their specialisms take them down narrow paths. The number of experts in a particular field falls because everyone is becoming very specialised and the number of companies in any one field drops. This is quite dangerous as a single conference can concentrate most of the world's experts in a certain area.

If some disaster were to strike we may lose a whole field of expertise in an instant. The lifetime of being an expert shortens, as continued developments mean we can soon be out of touch as the latest

research relegates our own knowledge to second place.

We have seen a knowledge inversion in many fields. The more senior among us were taught 'just in case' education, we were given good broad understandings in most things; increasingly, just in time, or just after learning is becoming the norm. As we are about to go and do something, we may have to brush up on some new technique or process, downloading the manuals or videos of just how this is done.

In the home, much of the IT is now used not by the parents but by the children. The computers may have child protection systems in place and, if the

to offer the information that may be of interest as well. The system acts to give us the benefit of a million other people without us ever knowing who they are. It is us who are now driving the content – we have become the content provider of the internet. The internet is now the first point of call for people looking for information for informatics, for healthcare, for generally everything. What is worrying is:

- the blind faith that some people have in these sites, considering the anonymity of the content's creators;
- which generation may be most affected by this.

In the home, much of the IT is now used not by the parents but by the children. The computers may have child protection systems in place and, if the parents are lucky, the children may give them the password.

parents are lucky, the children may give them the password. The parents are in an impossible situation where the children often have more free time and a seemingly inexhaustible supply of playground knowledge.

With many technologies and ideas changing so quickly, what should we be teaching and how should we be teaching it? IT and the internet are certainly changing how we tackle this and, in reality, the teaching of how to learn may become more important than the subject itself.

The developing internet

In 1996, the web was very static. Basically, some paper had moved onto the web, the search engines even had categories where you could start to select the information and narrow down the search; connection was mainly at work or via a dial-up modem.

Just 12 years later, the web has become a lot more media rich and more dynamic. It is so dynamic that, perhaps, much of the web doesn't exist – only apparently existing when you click on a hyperlink. It is when you do this that the appropriate web page and the content are created for you, and as you keep clicking, so the next content is formed for you and you alone. The next person to click that hyperlink will get something totally different but, if the system determines that people have similar interests, it may start

Towards the future

The convergence of multiple technologies is leading to many new opportunities. For example, researchers have already made holographic sensors – meaning that images or text can appear or disappear depending on the presence of a variety of molecules.

This means that real-time sensor coatings can be put on packaging or even windows to detect the presence of bacteria. A carton of milk may not only have a sell by date printed on it but also a holographic sensor that shows if the milk is off, irrespective of the date, since the temperature of the milk is just as important as the time.

These sensors may even be put into contact lenses to check our tears. This technology may be useful for diabetics checking their blood/sugar ratio to alert them if a problem is detected. For the user, an image that only they can see could appear to tell them they need insulin or sugar.

Micro rocket engines, about the size of a stack of coins, have already been made that, pound for pound, have more thrust than shuttle booster engines. The next generation of portable devices may have one inside to run it. Rather than putting batteries into the next generation of devices, we may be refilling with gas.

You can have transparent concrete where fibre optic cables have been

embedded into concrete, which allows some light to pass through it. Some of these have even been made into displays, so imagine a pavement that lights up where you walk or where you need to be heading.

These are just a few advances being made and it is easy to start thinking about some of the changes and new opportunities that may come with them.

Another development is that cheap flexible displays are getting closer to manufacture. It can be frustrating to know all this information is out there but not be able to display it. The displays of mobile phones are not always ideal to view images, but printable electronics and flexible screens that can be embedded into clothing are here.

Electronic ink and bi-stable displays exist that only use power when the state of the information changes. At the moment, they are used in niche applications, or are just in research laboratories, but soon they will become commercially viable.

Imagine programmable wallpaper giving very large, very high definition displays showing all the information necessary or acting as windows to different places or times. Micro projectors exist today, small battery powered projectors using light emitting diodes can be bought off the shelf, but the next generation mobile phones will have these built into them.

People have linked mini projectors to infrared video cameras. These make it possible to project the invisible infrared images back onto the surface, so that we can see the invisible images (see the VeinViewer video on www.bloggingnext.com).

If the camera could detect heat, we would be able to see heat as well as colour. In doing this, we start to be able to enhance what we can see and how we visualise data.

Computer generated graphics, or sensory graphics, are now being linked with the real world. This starts getting interesting as real and virtual worlds start to be overlaid. 'Duality' is possible – real and virtual people, real and virtual places. Real people in virtual places, virtual people in real places. Second lives and real lives can start to be brought together and away from computer screens.

This has impacts in many fields but education and learning is an important one. By combining what is real and what can be projected, we can show people an



increasingly complex series of actions. If the cameras are able to adapt to what they are seeing then, as the user takes action, so the images can change.

The early examples are simply how to change a light bulb or which spanner to use on which bolt but they may end up being able to do vastly more complicated procedures. The ability to beam an expert to look over your shoulder and show you how to do something sounds like science fiction but we have already made the first steps.

Haptic controls allow feedback between IT and the user to make the experience more lifelike. They are useful training and experience tools. With PerioSim, a haptics-based periodontal simulator (see www.evl.uic.edu/core.php?mod=8&type=1&indi=97) a student can simulate the use of a dental probe. They can prod the teeth and this patient doesn't feel anything. With the software, they can look into the tooth and attempt different techniques without a patient ever having to open their mouth.

Imagine, as the students progress, they can be set homework, for example a root canal operation. The haptic displays give them feedback about what is actually going on and a 'score' could be given based on the success of the operation and the discomfort of the patient. As a patient, I could upload scans of my teeth onto a website and offer it out to the world's dentists to see how they would fix my problem. I may get a range of quotes back, along with rating scores, for me to decide just who I should let operate on my teeth, and as these are haptic controls they could even do the surgery remotely if

I was at a suitably equipped surgery.

Software such as disect (www.disectsystems.com/) is now available that allows surgeons and students to take data files and see inside a patient's body in varying detail from different angles in ways that were unheard of a few years ago. Printable electronics are allowing electronics to go into different applications, for example, smart pill packets (www.cypak.com).

When a pill is taken from the packet, the time and date is recorded and a buzzer alerts the patient to a question, such as 'did you sleep well last night?' A series of buttons on the packet lets the user answer yes or no, and, if no, to answer how many times they woke up. This data is then made available to the GP when they scan the empty packet.

Finding out exactly when and how the pills were taken, plus the patient's responses, provides the NHS with lots of information about drug taking. Since it is often the case that the patient does not take medication correctly, as well as potentially being dangerous for the patient, this wastes NHS money.

The physical size of digital cameras has decreased astonishingly. Cameras and bio sensors can now be put into places previously impossible. Technology can be implanted to deliver drugs to the right place at the right time and to micro dosing areas. Robotic surgery is possible; in 2006, the first solely robotic procedure was carried out. A robot carried out the surgery and the humans watched it.

The impact of this is that simple routine surgery should become cheaper and quicker, allowing more time for complicated procedures to be done by human surgeons. There may be a time, though, when the most intricate procedures may have to be done by machine.

Thinking about the future

The new technologies that have been described will bring new innovations into the world. Also, new people coming into the world tend to do different things. Consider the technologies that were being discussed, just ten years ago, at HC98. Think about the next 10 years – it won't look anything like the last 10 years. It will look like the last 50 years as the world speeds up.

The pervasive introduction of all this technology raises the question of how to help people to help themselves, to take

responsibility for exercising, for getting information, or for taking action. It turns out that people are actually doing this themselves. For example, there is an elderly care home in America where the residents are using games machines. The latest games machines have moved away from complicated controllers to using the actual body movements that would be required in real life.

They converted a room into a virtual bowling alley and they throw virtual bowling balls down the lane and have a lot of fun. Different care homes are linked up so it isn't just a game amongst the residents of one home but against a series of homes; maybe they could even have a world series? The latest interface to these games machines uses a balance board, which further encourages body movement to progress in the game and it generates a real body workout. This sort of thing may soon be part of a home care regime.

Closing thoughts

So, who survives in this new future world? Charles Darwin wrote that it wasn't the strongest, not the most intelligent but the most responsive to change.

The information revolution has only just started. If you think the last five years have been difficult, it's going to get a lot worse. We usually underestimate the impact, the time it will take and we often fail to spot the final uses of new technology. We tend to ridicule the whole idea of an information revolution but whilst the mobile phone was once thought of as a toy for rich people, it is now a default accessory for most people.

BT's 21st century network (21CN) is its next big step in this revolution. A software development kit will enable customers to design their own applications to run on the network. This is very innovative thinking; the old mindset would have been to keep people away from the network, but it is the very nature of the future needs and requirements of tomorrow's user, which necessitates its use.

In summary, the world is still speeding up. Change is the only constant. There is a need for organisations to understand, not just their own business, but also their customers' business – because that's what drives their organisation's needs. Customer power has never been greater.

View the BT Technology Timeline 2006-2051 at: www.btplc.com/Innovation/News/timeline/TechnologyTimeline.pdf

MIE2008 highlights exploitation of research

My overall view of the congress was one of consolidation, but with a plethora of interesting statistics and performance measures liberally sprinkled throughout the event.

The co-badging of the MIE event with the national IT society Vitalis' event was interesting and synergistic, especially in terms of exhibition coverage, even though some exhibitors did not have their literature in any other language than Swedish.

BCSHIF and MIE2009 (Sarajevo) had a drop zone for literature on the exhibition stand of the Swedish Federation for Medical Informatics, the host society.

Opening ceremony

Stig Kaer Andersen gave a preamble to the conference theme – eHealth beyond the horizon – get IT there! by outlining criteria that were relevant the world over: an aging population,

From gaming's use for doctors to technology to support older people at home, MIE2009 covered a wide range of topics. Jean Roberts, senior lecturer at the University of Central Lancashire and a member of the BCSHIF strategic panel, gives a taster by describing the sessions that she attended.

increasing expense of technologies and increased demands brought about by wider mobility. He talked about a 'roadmap for future health services' with vital questions to be answered – what form of health service is sustainable long term? How can technology help to facilitate optimisation of services?

The event consisted of 133 oral papers, chosen from 360 (267 of which were full scientific format), ie a 50 per cent acceptance rate. There were also 13 workshops, four panels and 66 posters.

Jacob Hofdijk, incoming president of EFMI, paid tribute to George Mihalas, the outgoing president. He introduced three plenary speakers from very different perspectives – gaming, commercial services and public health.

The first keynote paper by Ben Sawyer reflected on the ways that the gaming community could help doctors with the complexity of their consultation processes. For example having 20-30 icons on the



unnecessary lab tests by 30 per cent and that using e-based clinical pathways can save lives.

Sir Muir Gray, informative as ever, started by quoting William Gibson: 'The future is here, it is just not evenly distributed.' For example the NHS in England has reorganised 21 times in his career. Waste is 'any activity that does not contribute to the end product'. Things we do not know can be classified in two states: 'uncertain uncertainty' (that no one knows what they do not know about) and 'certain uncertainty' (no one knows).

He challenged us to think about the ethics of developing things in the developed world which could be construed as taking resources from underdeveloped / poor countries. Taking patients' preferences as important, he proposed that there would be networked health communities (such as a national epilepsy service) by 2013. In a wide-ranging talk he stated that '5 per cent of the overall population is better educated than the clinicians'. He suggested that clinicians need systematic reviews to support clinical practice overall.

In looking at eco-issues, he projected that by 2013 [computer] server farms will use more energy than flying and that we must consider how the health community can take steps to go 'green'.

The second plenary session was from Yunkao KWANKAM of the World Health Organisation with a strong focus on development issues. He described the WHO framework for our domain as:

- accelerated development;
- to foster health security;
- to strengthen the health system;
- to harness research information and evidence;
- to enhance partnerships;
- to improve performance.

He indicated a current focus on application to health in Africa and women. He showcased the HINARI project which provided access to health research for free from a publishers' consortium which gives access to 4,200 journals and saves US\$3 million per year per organisation. Using Baumol's Law of 'cost disease' he stated that it is not possible to substitute capital for labour in the health domain (that is, not just throw money at developing health) so we need to take steps to make the workforce more effective – by using technologies.

Apparently, 57 countries (still) need to provide the minimum critical health workforce and therefore need to capitalise on e-learning to develop their professionals. In conclusion he suggested that €1 invested in eHealth is estimated to bring about an increase in the population of 1 disability-adjusted life per year saved.

Diabetes was a recurring topic

Diabetes as a clinical condition was the theme of choice for a number of presentations. For example Arsand stated that the 194 million people with diabetes now will become 330 million by 2025. He discussed how everyday technologies and presentation styles are being trialed to report test results, using mobile phone messages and lifestyle monitoring through refined step counters. Burkow and colleagues looked at an 'easy to use and affordable home-based personal eHealth system' for chronic disease management based on open source software. He indicated that Norway spends 10 billion Kroner per annum on diabetes care and that they were looking to harness self-management to improve clinical efficacy (see www.nrk.no/programmer/tv/puls/5772621.html).

Joanne Callen and colleagues from Australia had analysed the differences in doctors' and nurses' assessments of computerised culture and their views about computerised order entry systems, which made for an interesting paper containing some indicators that could be pertinent to systems uptake in the UK.

Ilias Iakovidis gave an entertaining presentation as usual – which started with the conclusions in case he pushed out too many figures and people left before the end. He did present copious figures which can only be absorbed from the downloadable slides (www.mie2008.org).

He made distinctions between innovation and intervention, saying that the roadmap of innovation should be different to that of research and development. Real-life problems need multidisciplinary scrutiny and participation, not something that appears to always happen (yet) in practice (reference Callen et al). He recognised the need for 'crazy individuals' to be nurtured within the broad church of eHealth / HI and also stressed the place for RCT methodologies and specialists.

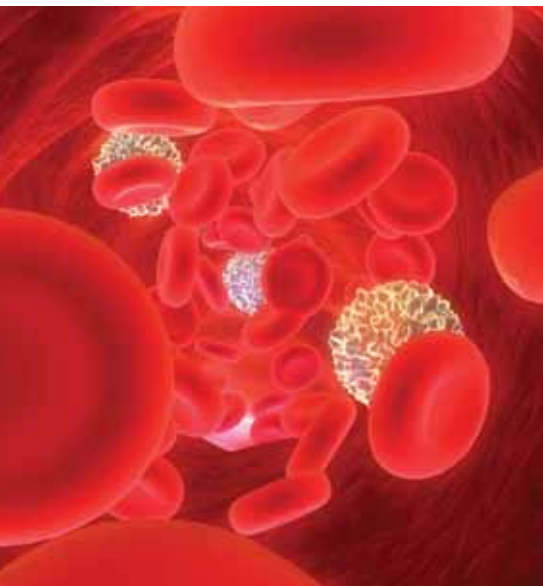
He made an excellent case for HI underpinning everything and encouraged specialists to go out and disseminate their

desktop and interacting with a patient with English as a second language can be a daunting situation. He suggested that some display material in healthcare 'lacks design impact and is anti-engaging', suggesting that consideration of 'exertainment' (exercise) and 'rehabitainment' (rehabilitation) using gaming techniques could be very useful.

Medical informatics saves lives, according to the AGFA speaker. In his statistics he claimed that 60 per cent of deaths are from chronic disease, one in five serious medical errors in hospital can be attributed to information limitations and that medication-related deaths are three times the national total for automobile accidents in a year. He said that medical informatics can decrease

findings through clinical meetings, with industry partners and to medical groups.

He announced that from 2008 the European Commission will be looking to projects that develop a 'full picture of health status', including exploration of confounding and contributing factors like



environmental protection and lifestyle self-management. He highlighted key areas for 2008 onwards as including predictive medicine, further interoperability of electronic health records and support for telemedicine advancement. For more details, see:

www.bioinfomed.isciii.es

www.symbiomatics.org

http://ec.europa.eu/information_society/events/ict/2008/index_en.htm

He reinforced the view that we as professionals in HI have a responsibility for the part we play in health. His talk should encourage synergistic working between all the professions in the health domain. He presented, at a high level, many of the same points that I made in 'Recognising eHealth as part of a cohesive professional community' (MIE2008).

A feature of this MIE was its subsidiarity alongside other events relevant to the HI domain. The final day of MIE saw a plenary (reasonably attended even at 8.15 am) from Heather Grain, a leader in standards development in Australia.

Taking a consumer perspective, she challenged the audience to consider how patient-specific, non-clinical elements should be documented and how, rather than just listing the pills and potions that the patient was taking, to incorporate what else was not contra-indicated.

Confirming Iakovidis' point about the need for multidisciplinary, the Ascendio survey – reported in a workshop on the last morning led by Saranto, Ehrenberg and Thoroddsen – demonstrated that even among the relatively small numbers in the HI community who respond to surveys, there is still a large variety of coding schemes and terminologies in use.

It should be noted that survey invitations themselves do not necessarily reach a representative sample of those active in the field. There is a lot still to do to facilitate comparability, consistency, systems interworking and data mobility. Bakhshi-Raiez from the Netherlands ably demonstrated some of the challenges that exist when cross-mapping APACHE-IV with SNOMED-CT, using the intensive care environment to highlight the complexities and potential pitfalls. Cornet, asking whether SNOMED CT relationships qualify, suggested the need for escape routes to be planned in to the ontologies in order to meet certain clinical circumstances.

Verbal entry of data in sterile areas was explored (Nagy et al, Czech Republic), a presentation which also led us to consider the role of informatics in identifying major disaster victims from electronic dental records.

Exercise monitoring

A very interesting presentation entitled 'cyber-Marathon increasing physical activity using health-enabling technologies' from Pliischke et al, delivered by Wolf, looked at technologies to support the monitoring of exercise.

It considered three layers of technologies (defining the domain goals for use, the logical tools including e-records, and the physical tools which included proprietary 'sensor watches' that are already in the market (see www.cybermarathon.de). I have long thought health and lifestyle management convergence is the next challenging area (after health and social welfare) and it is reassuring to know that the concepts are already being addressed – let's hope that exploitation gets diffused both internationally and across disciplines where vital signs play an important part of care.

The smart homes session presented papers with little of the expected audience participation. Various environments generated and supported from academic developments across the USA were

described to support the concept of 'aging in place' (frequently called older persons independent living in the UK).

The idea of 'density maps', where cost is expressed as technology, plus customisation, plus maintenance, is one which should be considered for use on a wider basis.

The importance of establishing a satisfactory level of privacy when the technology is pervasive or ubiquitous (Wednesday workshop: Demiris and Marschollek) and also the need to balance privacy against accuracy (Tuesday panel on sustainable, semantically interoperable and trustworthy solutions, Blobel et al) gave food for thought. Overall technological, organisational, ethical and policy challenges remain across the area of independent living.

The challenges raised by 'in-body' sensors, which are swallowed and then provide monitoring data, added to the debate – it was a pity there was no time to explore further but www.plri.de gives more data.

The closing ceremony included the handover to the next event, MIE2009 in Sarajevo. Sadly many people had left before that session. A message to following local organising committees is to make more of the prize awards to young scientists in order to encourage succession and to consider how to add 'theatre' to the handover, a difficult mode for senior academics to switch into, especially after tackling all the operational challenges of the conference management

What key factors will I take away from the event overall? There is more consolidation going on now. Reporting exploitation is an increasing element in scientific programmes. Demonstrating the importance of 'concept to community' is the way that our research will be recognised by the market and not just by our peers.

In addition, the fortuitous collaboration of non-EU players into a European-focused event is to be welcomed and comparative analysis is valuable and should be formally encouraged.

Gaming theories and concepts are becoming legitimate in scientific developments and operational use, and we should widen our domain to include those innovative areas more. I also personally must not assume that a location nearer the Arctic than my home necessitates additional layers of clothing throughout the year – the weather was beautiful.



Mind the gap

Following the Primary Health Care Specialist Group's summer conference, the group is now preparing for its autumn annual conference. Jill Riley, administrator for the group, describes both events.

The theme of the BCS Primary Health Care Specialist Group (PHCSG)'s Annual Conference will be 'Mind the Gap – maintaining the continuity of care'.

The conference will consider how far the goals of creating integrated health and social care systems have been achieved; contrast the differing approaches of England, Wales, Scotland and Northern Ireland; determine what can be learnt from the experiences gained to date; and assess the 'gaps' in information and knowledge representation that remain.

It is to be held on 16-18 October 2008 at Eynsham Hall in Oxfordshire. The call for participation is at: www.phcsg.org/main/PHCSGCallforPapers2008.doc It includes information on submissions for

the John Perry Prize, awarded to those who have made an outstanding contribution to primary care computing.

Online booking and the programme will be available soon. For further information, contact Jill Riley on 01905 727461 or email jill@phcsg.org

Summer conference

The BCS PHCSG Summer Conference was held on 1 and 2 July at Chesford Grange. The event looked at opportunities to share information with a wide variety of people, with a view to improving the ability to deliver better care.

It explored issues relating to safety, privacy, security, confidentiality and accessibility, both within and outside the

NHS; and the latest developments in the National Programme for IT.

Feedback from delegates and exhibitors has been extremely positive and all seemed to gain much from the event. Copies of conference presentations (where permission has been given) are available to view on line at:

www.phcsg.org/main/Chesford2008prog.php

Click on the presentation title to view that presentation (some presentations may take some time to load) and on the speaker name to view their biography.

Further information on the summer conference and forthcoming events is available on the PHCSG website at www.phcsg.org



ePrescribing to cut error rates

Where electronic systems have been tried in prescribing medication, they have dramatically cut error rates. ePrescribing is scheduled for incremental delivery between now and 2010. Ann Slee gave a briefing on this work to the BCS HI Northern Specialist Group, as reported by Tom Sharpe, based on a meeting report by Phil Paterson.

The recently published Health Informatics Review has highlighted successes within the National Programme for IT (NPfIT), such as the National Network (N3) and the Picture Archiving and Communications System (PACS). It goes on to identify a need for further development in information systems to provide better, safer care. The five key elements for secondary care identified by stakeholders and summarised in the Review (the clinical five) were: Patient Administration System (PAS) integration;

order communications and diagnostics reporting; letters with coding including discharge summaries; scheduling (for beds, tests, theatres etc.); and ePrescribing.

In contrast to electronic transfer of prescriptions, which will do away with the need for patients to carry paper prescriptions to a pharmacy for dispensing, electronic prescribing makes use of IT to assist in all of the processes involved in delivering medication to the patient, including the prescribing process itself. Because ePrescribing is already

well-established in primary care, the ePrescribing work stream within NPfIT is focused on secondary care. As the clinical lead for ePrescribing, as well as a clinical pharmacist with many years' experience, Ann Slee was ideally placed to give a briefing on this work.

Why ePrescribing?

Medication errors account for 20 per cent of all iatrogenic disease (i.e. that resulting from medical treatment) in the UK. Around 850,000 patients suffer an adverse event in UK hospitals annually, 80 per cent of which are due to prescribing errors. The annual cost to the NHS is £2 billion. A major US study of 4,000 patients has shown that more than half of medication errors happen at the prescribing stage and about a third at the stage of administering the drug to the

patient. Compared with a traditional, handwritten prescription, an electronic prescription offers:

- risk reduction, in terms of improved legibility, accessibility, speed of communication and ability to perform audits;
- clinical guidance supported by rules;
- cost-saving by formulary management;
- decision support embedded into care pathways.

Unfortunately ePrescribing is difficult to implement. As well as being intrinsically complicated, it generates a need for training on a massive scale – perhaps around 5,000 staff would need to be brought up to speed in a typical hospital trust. It also depends on the existence of an extensive IT infrastructure to make it accessible to clinicians at the point of care. Most critically, it will not succeed without clinical acceptance and involvement. Although it offers an opportunity to make prescribing easier as well as safer, ePrescribing involves fairly fundamental changes in work practices, and these must be brought about in a subtle way without making clinicians feel that they are being regimented. They must feel that ePrescribing supports their practice and is of clinical benefit if it is to be accepted. As with all IT, the system itself must not dictate working practice.

Results can be dramatic. The inclusion of information systems to support prescribing in the Wirral hospitals saw the error rate for paediatric prescribing for paediatric specialists fall from 26 per cent to 4 per cent, and the rate for non-paediatric specialists drop from an alarming 76 per cent to a more reassuring 6.5 per cent. The system was greeted with widespread approval by clinical staff.

ePrescribing: the present

The ePrescribing programme within NPFIT has progressed at a furious pace. In 2004 Lord Warner made an announcement to bring forward oncology ePrescribing to 2006, but the timescale for development is extremely challenging. However interim systems were identified with oncology specialists as being available to meet short- to medium-term need. This led to funding being made available for cancer networks to bid for, following which ePrescribing is now being introduced into several networks.

This work highlighted that a functional

specification was required for ePrescribing to clarify the content of the original output based specification (OBS). Work on this functional specification began in 2006. A series of workshops in late spring, attended by nearly 500 people from 115 organisations, was followed by a major consultation exercise, re-drafting and final publication in January 2007. This is now being used to inform the development of the local service provider (LSP) solutions. ePrescribing is scheduled for incremental delivery in releases 2, 3 and 4 of Lorenzo, between now and 2010.

ePrescribing: the future

ePrescribing will face a raft of challenges as it develops, many of which are concerned with the need to work with existing and develop future standards and frameworks. These include:

- Reporting – an initial framework has been produced and published.
- The dictionary of medicines and devices (dm+d) – it does not fully support secondary care dose based prescribing at present; there are some important issues that are currently being addressed.
- Auto-identification – bar coding of medicines is an important safety measure that is showing benefit in terms of risk reduction in the US. Full use requires harmonisation with dm+d, work towards which has already started. Additionally work has commenced to code medicines manufactured within the NHS. Details of the auto-id strategy can be found in 'Coding for Success' on the DH website.
- Risk reduction – a consultation on hazard framework guidance has been completed and is due for publication later this year.
- User interface standards will be important in ensuring that current problems with handwritten prescriptions are not inadvertently duplicated on screen – guidance has been issued through the common user interface (CUI) programme. Research has been commissioned to identify whether TALLman will reduce the likelihood of selection error for medicines – the results are due next year.
- Standards – medicine related standards work will be going through the Information Standards Board.
- Learning from experience – work has been commissioned to study

implementations with varying degrees of success to ensure that lessons learnt are made available to the NHS, e.g. local examples that may be included are Wirral Hospitals and Hope Hospital, Salford.

- A series of demonstrations of existing ePrescribing systems – these are planned and NHS staff will be asked to score systems.

Discussion

Some interesting scenarios were suggested in questions to the speaker. What if a patient arrives unconscious at a hospital, with some prescription drugs on them which either had no identification or had information printed in a foreign language? This isn't just a technology question, but it can be addressed in part by the existence of SNOMED, which is an international standard, and by systems like TICTAC which help with visual identification of drugs. It may be that a patient admitted as an emergency to secondary care is already receiving medication for a chronic condition which is then left untreated. There are a number of issues like this around joined-up care and also with integration with other developing services like HealthSpace.

There is some evidence that ePrescribing will introduce new types of error. It is true that ePrescribing reduces the probability of a wrong dose, but does not at present guarantee that the medication given is clinically appropriate. However, ePrescribing systems are not intended to take away clinical judgement.

The message is that, although ePrescribing is not easy to deliver and there are issues to be resolved, it is clear that the investment of time and money will be amply repaid by the benefits that it will bring to us all in the future.

ONLINE | NOW

Health Informatics Review

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086073

High Quality Care for all - NHS Next Stage Review Final Report

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825

Book of the month

UK Health Computing: Recollections and Reflections

Edited by Glyn Haynes and Denise Barnett

BCS

ISBN: 978-1-902505-99-2

£29.95

Rating: 10/10



The editors have collected a wealth of information about the history of health computing in the UK. The book's concept is an important one – to capture the knowledge and experience that is often lost when health informaticians leave or retire from the industry. By documenting the recollections of BCS members who were present during the introduction and expansion of information systems in the health service, and by presenting their reflections and conclusions, the lessons learned over the last 50 years are preserved to make sure that present-day professionals can see how the health computing environment evolved.

This collection covers an extremely wide range of subjects, from the earliest introduction of fragmented health informatics systems in the 1960s through to today.

The chapters delineate a collection of 29 individual areas of expertise, presented in a consistent format that shows the high quality of editing. Each area is supported by detailed references to historical published documents.

Recurring themes in the book show the influence of the government and the contribution of the members of the BCS health informatics groups.

In summary, this book is a treasure trove of historical information provided by the people who were there at the time, making it a vital research resource, both for historians and for future informatics professionals. For anyone interested in this field, this book is an excellent read.

James Poxon MBCS CITP

Electronic Business

Geoffrey Sampson

BCS

ISBN: 978-1-902505-89-3

£24.95

Rating: 10/10



This book aims to introduce computing students to the link between computing and business to show how important IT systems are in improving profitability in today's marketplace.

By steering away from detailed technological descriptions and focusing instead on computing and business concepts, this book is very accessible and informative to anyone at any level of IT or business knowledge. The text is punctuated by a great many relevant and topical examples, such as a detailed examination of Amazon, the revenue opportunities of Massively Multiplayer Online Games, the potential of web 2.0, and a discussion around the open source debate, all presented in an understandable, commercial context.

With 14 chapters this book covers a very wide range of topics, but the quality of writing ensures that the overall subject of electronic business is covered very comprehensively. There are many references to other papers and textbooks which underpin the academic nature of this book. This adds weight to each of the chapters and provides some interesting insights, especially when discussing topics such as the difficulties in managing and interpreting the floods of data captured by store cards.

The book is extremely well written and presented in the first person in a congenial style. The book will be of interest to a much wider audience than a purely academic textbook would be.

For anyone looking to understand the importance of IT to business, whether from a historical or contemporary perspective, this book would be an ideal read and I thoroughly recommend it.

James Poxon MBCS CITP

The Principles of Project Management

Meri Williams

Sitepoint

ISBN: 9-780-98028-586-4

£27.99

Rating: 8/10



This book is a useful and practical tool for those professionals facing the responsibility of directing a project, usually in their own field of competence. As the target audience is not intended to be professional project managers, the language and the style are clear and direct and the approach is pragmatic.

The author herself is an IT professional, making the book especially useful for those working in IT, as many of the examples are IT-related projects. The principles, methodologies and tools that are presented can be easily applied on every kind of project.

The book consists of five chapters, a preface, three appendixes and a glossary of project management related terms.

The preface gives a brief presentation

of the book, and introduces the book website and its facilities (for instance downloadable 'cheat sheets' providing quick references to the key information presented by the book, errata and updates, a forum, and newsletters).

Chapter one defines project management while the second chapter focuses on the phase before the initiating stage of the project life cycle. The third covers the three phases of the project life cycle that form a loop: planning, executing and controlling.

The fourth chapter deals with those aspects that help a project run smoothly: communication and collaboration, error recovery, and managing changes.

The last chapter deals with the last phase of the project life cycle: closing.

Written in a rather colloquial but well structured style, in plain language, complete with practical hints, the book is a useful and easy-to-use guide for professionals of different areas, facing the challenge of managing a project.

Mihai Caramihai

September

Northern Specialist Group

16 September, 7.00pm to 8.15pm
(preceded by buffet from 6.15pm)

Clinical interfaces

Speaker: Dr Mike Bainbridge
Manchester Conference Centre

www.hinorth.bcs.org.uk

ASSIST North West Branch

23 September, 2.30pm to 4.30pm
(preceded by coffee/tea/biscuits from 2.00pm)

CBS developing world class commissioning tools

Speaker: Paul Davies, CBS, plus introduction by Mick Dolan,
programme director, Ashton, Wigan & Leigh PCT
Wrightington Conference Centre, Wigan

www.bcs.org/assist/northwest

October

BCS Health Informatics Forum

7 October, 1.00pm (12.00pm for lunch) – 4pm

The importance of professional development (How BCS can help)

To secure your place email christine.mayes@hq.bcs.org.uk, giving
name, organisation and special requirements (diet, access, etc)

www.bcshif.org

ASSIST South West Branch

8 October, 10.30am to 3.30pm
(coffee from 10 am, buffet lunch included)

Benchmarking in health informatics

Holiday Inn, Taunton

www.bcs.org/assist/southwest

Primary Health Care Specialist Group

16-18 October

Annual Conference 2008

Mind the Gap – maintaining the continuity of care

Eynsham Hall, Oxford

www.phcsg.org.uk

December

Northern Specialist Group

10 December, 7.00pm to 8.15pm (preceded by buffet from 6.15pm)

The Summary Care Record

Speaker: David Sellars, Bolton PCT & NHS North West
Manchester Conference Centre

www.hinorth.bcs.org.uk

January 2009

BCS Health Informatics Forum

27 January 2009, afternoon

Topic to be confirmed

www.bcshif.org

March

BCS Health Informatics Forum

17 March 2009, afternoon

Topic to be confirmed

www.bcshif.org

April

HC2009

28-30 April 2009

Shaping the Future

Deadline for submissions is 1 December 2008

Harrogate International Centre, North Yorkshire

www.bcs.org/hc2009

June

BCS Health Informatics Forum

16 June 2009, afternoon

Topic to be confirmed

www.bcshif.org

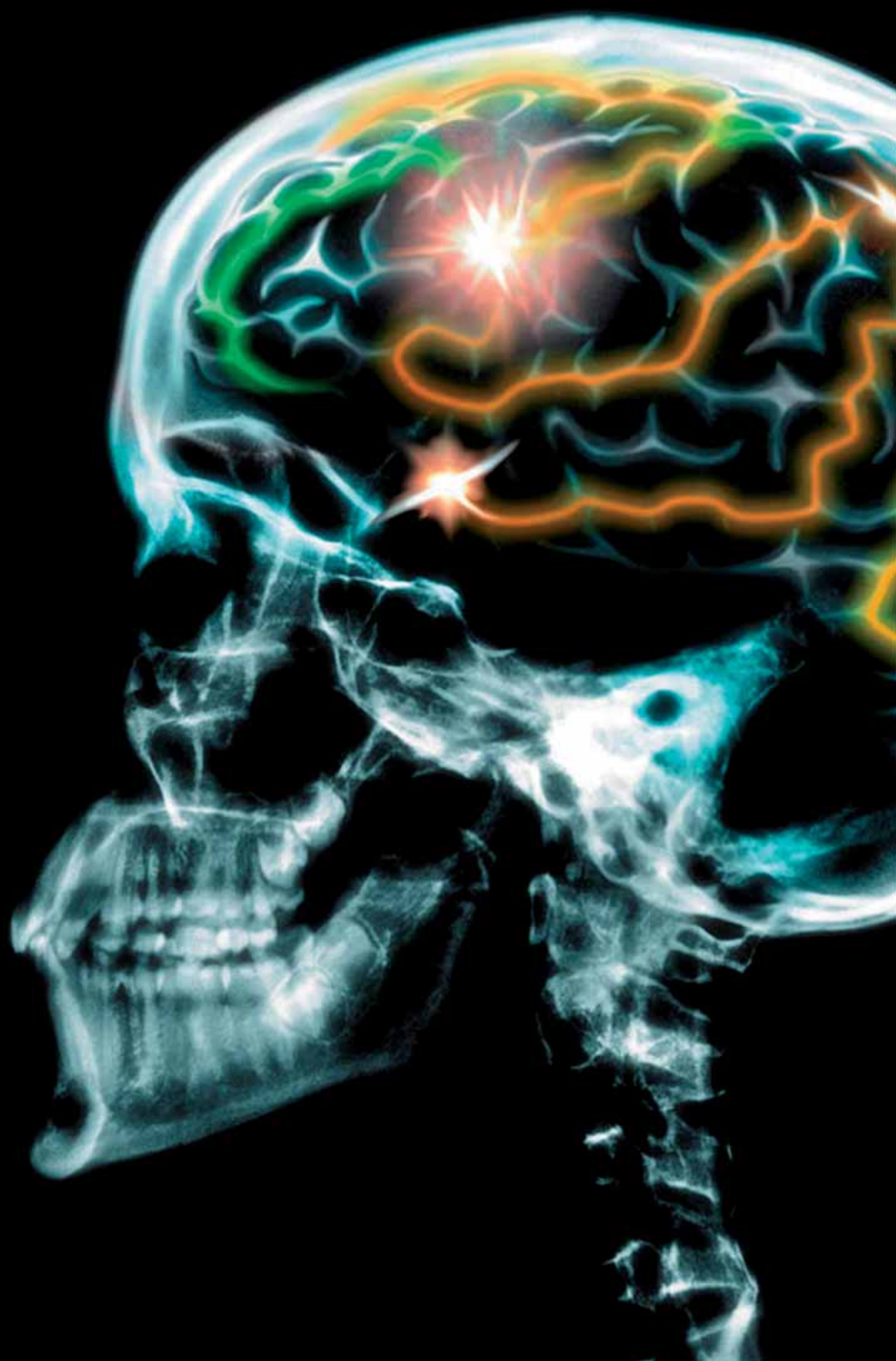
October

BCS Health Informatics Forum

13 October 2009, afternoon

Topic to be confirmed

www.bcshif.org



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