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Dear Dr Green

Study on the impact of information and communication technology on health and healthcare: call for evidence

Thank you for your invitation to submit comments for the Royal Society's study on the impact of information and communication technology on health and healthcare. Please find below our responses to your specific questions:

Identifying relevant future technological developments

1. What relevant technology trends are likely to impact on health and healthcare in the next ten to fifteen years?

The BMA believes that the development of integrated centralised health record systems in all four nations will have the largest impact on health and healthcare in the next ten to fifteen years.

We note that your study "will not investigate the technological aspects of national identity cards or the current electronic patient record". However, focusing on the non-technological aspects of these initiatives, you might like to look at our briefing on identity cards (available at www.bma.org.uk/ap.nsf/Content/Identitycardsbill?OpenDocument&Highlight=2,identity,cards) and the BMA's recent policy statement on integrated centralised health record systems (available at www.bma.org.uk/ap.nsf/Content/ARM05Confidentiality).

Other relevant technological trends that are likely to impact on health and healthcare include:

- Wireless technology including bluetooth, WiFi, mobile telephones, text messaging
- Diagnostic tools, for example, clinical decision support systems
- Self diagnostic programmes, for example as used by NHS Direct
- Research tools, for example, the National Electronic Library for Health (NELH - www.nelh.nhs.uk/)
- Monitoring tools, for example, remote monitoring of patients in their own home
- Smart cards to hold health information
- The continued use of the internet by patients and clinicians
- Satellite TV and email
- Telemedicine
- Hand writing recognition

- Speech recognition
- In view of the speed of technological development other future, yet unknown, developments

The Society might find it useful to look at the BMA publications - *Consulting in the modern world* (BMA General Practitioners Committee, February 2001 - please find a copy attached), and *Making IT Work for Hospital Juniors: supporting working practices and the training within the new contract and the EWTD* (BMA Junior Doctors, May 2003 – available at www.bma.org.uk/ap.nsf/Content/itworking2003/$file/it.pdf).

Assessing the potential positive and negative impacts of relevant future technological developments

2 What areas in the provision of health and healthcare could be positively or negatively affected by these developments?

It is difficult to predict with certainty the positive and negative affects of these developments, but to suggest a potential few:

Positive

- Clinically:
  - Timely access to relevant health information to deliver informed, safe and effective health care
  - Diagnostic tools to reduce error, for example by flagging up drug interactions
  - Use of IT based treatment, especially in psychologically based disorders
  - Manipulation of data, for example, Picture Archiving and Communications Systems (PACS)
  - Greater communication through virtual communications
  - Potential reduction in working time spent – trying to find records, trying to find relevant information in records, for example
  - Easier access to data for research purposes and clearer protocols for patient consent and anonymisation processes where necessary
  - Easier access to training tools
  - The opportunity to benchmark and develop service quality by seeking and using patient feedback. This will also inform appraisal and CHI audit, whilst routing both positive comments and complaints into different domains
  - Telemedicine
    - Community hospitals are conducting reviews of fracture cases from A&E
    - In Scotland consultations are taking place between mainland specialists and island doctors to improve patient care
    - In Dundee specialists are providing remote assistance to paramedics in suspected cases of Myocardial Infarction
    - The combined effects of robotics, artificial intelligence and internet communication. This could become important in teaching and in supporting remote communities, as well as disseminating techniques much faster for example to third world countries
    - Further information on telemedicine is available in the BMA Board of Science report 'Healthcare in a rural setting' http://www.bma.org.uk/ap.nsf/Content/healthcarerural/$file/rural.pdf

- For the patient:

- Increasing responsibility of patients for their own health and health information, which will enhance their input and decision making capabilities
- Empowerment and increased autonomy for patients

Negative

- Clinically:
  - Too much reliance on technology to the detriment of the more human and narrative aspects of health care
  - Potential increase in working time spent – initially, whilst learning how to navigate and use electronic systems
  - Confusion over the responsibilities and roles of various health care providers in the delivery of care to patients, particularly with the fragmentation of care, for example, walk-in centres, out of hours consortiums, list based care
  - Actual and perceived threats to confidentiality, for example, viruses and hackers
  - Increase in clinical errors due to inaccuracies amplifying through joined up information systems, and contextual misunderstandings of information charted and accessed in different clinical settings
  - Information overload
  - Transfer of infection through the use of equipment, for example PALMS, whilst attending multiple patients
  - Alienating technologically illiterate patients
  - Alienating technologically illiterate clinicians
  - Decrease in competition and innovation as single systems start to dominate the health care market
  - Non availability of information in the event of systems failure

3 What actions should be undertaken now to maximise positive impacts, or to prevent or minimise adverse effects?

Clinician and patient involvement at every stage of development is essential in the development of any new technology to ensure it is fit for purpose, and is being developed for the end users and no other agenda. Other actions include:

- Adopting incremental approaches and pilots to the role out of new technologies
- Continual assessments, risk management and evaluations of the technologies
- Sufficient and continual training and education of technology users to suit various learning styles
- Sustained and sufficient funding at a national, regional and local level

Evaluating the wider implications of relevant future technological developments

4 Do you have any concerns associated with the generation, release and subsequent use of personal data?

The BMA has concerns that there could be risks with any new technology and that patient information will not be processed legitimately taking into account doctors' professional duty of confidentiality; statute, for example the Data Protection Act 1998 and the Human Rights Act 1998; and common law, for example, Stephens v Avery [1988] 2 All ER 477; Attorney-General v Guardian Newspapers (No.2): Same V The Observer Ltd & Ors: Same v The Times Newspapers Ltd & Anor [1988] 3 All ER 545. (See - BMA. *Medical Ethics Today: The BMA's handbook of ethics and law* (2nd ed). London, BMA, 2004, chapter 5; and BMA,

Confidentiality & disclosure of health information, London: BMA, 1999 for a more detailed overview.)

There are particular concerns with the sharing of patient information outside of the health service, for example, to other government agencies, employers, and insurance companies. In addition, there are concerns that guarantees made now, about how data are shared via new technologies, continue to be upheld in the future.

Some argue that "personal information" also includes information about doctors themselves (although not under the definition of "personal information" in the Data Protection Act 1998). This is something that the Society might want to consider in the study. The BMA passed a resolution along this theme at its 2005 Annual Representatives Meeting which states:

> "That whilst welcoming the Freedom of Information Act, this Meeting is gravely concerned that information about individual consultant's performance provided by Trusts will, in general, be based upon invalidated, inaccurate and misleading HES data with the potential to result in unjustified pillorying of clinicians. This meeting stresses that Trusts should collect clinical data that accurately reflects the performance of the healthcare team and not just of the surgeon concerned. We call upon the Government to:
>
> (i) Inform the public that HES data is not clinical data;
> (ii) Ensure that trusts fund sufficient supported consultant time for clinical audit, including validation of current HES data;
> (iii) Make immediate investment in the rapid development of national, risk adjusted, clinical databases similar to that of the Society of Cardiothoracic Surgeons for all clinical specialties."

5 What medico-legal and ethical issues merit consideration when introducing new technologies, such as the responsibilities, processes and liabilities for decision making?

Many of the usual ethical considerations need to be assessed with respect to new technologies, for example, confidentiality, and in/capacitated patient consent and refusal. In addition new technologies might raise further opportunities and issues, for example:

- Audit trails
- Ownership and control of data. For example, who is the "data controller" under the Data Protection Act 1998
- The roles and responsibilities of multiple users, for example, who has overarching responsibility for care and accuracy of data
- Liability in terms of who owns and controls data
- Routes for redress if there are complaints about a new system but no clear ownership

6 What regulations or other mechanisms (including standards) would facilitate the responsible development of relevant technologies?

- An external and independent authority with statutory weighting to monitor and take responsibility for new technologies
- Guarantees that when interoperable systems are developed, uniform standards are adopted developed from the highest standard
- Risk assessments

7 What infrastructure would be required to allow any new technologies to be used effectively?

- A readily accessible support system to advise and provide solutions to users when problems occur
- A secure, reliable, high speed and high capacity infrastructure
- User groups

8 What are the most likely promoters and barriers to the take up of new ICT devices and systems?

Acceptance by clinicians of new ICT devices and systems are crucial to their success. Acceptance is most likely to be achieved if there is sufficient clinician involvement in the development of any device/system; clinicians' concerns are addressed in advance and the benefits of any device or system to patient care and clinical practise are proven and publicised; clinicians' trust that confidentiality and privacy will be maintained, and there is sufficient funding, support and training.

The converse of these pointers would act as barriers to the take up of any new ICT devices and systems.

9 What education and training would need to accompany the introduction of any technologies, and who would need to be involved?

Education and training packages would need to be multi-faceted to account for different clinical settings and different learning styles. For example, a mix of:

- Group, one-to-one and self-directed training opportunities. For example, in the latter case, online training or CD-ROMs
- Training within the health care setting and outside the health care setting (time protected in both cases)
- Training as part of more general medical/nursing/physiotherapy training
- Identifiable local experts and champions of any new system to give ad hoc advice

There also needs to be recognition that the technological development cycle is getting shorter and consequently there may be 3 cycles in a clinician's career. It is therefore necessary to ensure that those senior in their career are trained in new technologies and time is taken out of service delivery for this purpose.

10 How are professional roles and responsibilities likely to be affected by the increasing use of ICT?

As mentioned above there might be some effect on how roles and responsibilities are perceived, for example who would have overarching responsibility for an integrated health care record to act on information and ensure it was correct and up-to-date. However, technology should not be the determining factor in how professional roles and responsibilities are meted out, but instead should support how professional roles and responsibilities are changing and are being agreed within the more general changes in working practice due to the changes in how health care is being delivered.

11 How can the development of technologies that meet patients' and informal carers' needs and are practically useable be best facilitated?

Through the involvement of clinicians and patients in their development.

12 What are the potential impacts of the costs of any of these new technologies?

Any cost potentially takes funding away from other areas of health care, therefore, any new technology should clearly provide benefits.

If funding is not made available or is too little this will hinder the development of new technologies, and prevent its implementation.

13 What are the implications of the international use of future technological developments, such as global use of health data, variability of ICT-enabled support, and interoperability?

International implications include:

- Potentially larger, and uniformly organised, data pools for research. However, this might also have implications for confidentiality and security of data as international confidentiality and privacy standards and legislation are not in place
- Greater interoperability might allow greater choice for patients as health tourism evolves
- Language barriers can be broken by appropriate use of single codes with meanings translated to many languages

I hope these comments are helpful.

Yours sincerely

Professor Vivienne Nathanson
Director of Professional Activities