OPERATING WITHIN A DIGITAL NHS?
A survey of surgical opinion towards a ‘paperless’ NHS

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FOREWORD

Issues in Professional Practice (IIPP) is an occasional series of booklets published by the Association of Surgeons of Great Britain and Ireland to offer guidance on a wide range of areas which impact on the daily professional lives of surgeons. Some topics focus on clinical issues, some cover management and service delivery, whilst others feature broader aspects of surgical working life such as education, leadership and the law.

This latest IIPP booklet on Operating within a digital NHS? A survey of surgical opinion towards a ‘paperless’ NHS is a natural extension of the Association’s endeavours, over the past few years, to move towards a culture of sustainability within surgery, with both environmental and efficiency benefits. This has led to all ASGBI publications being available electronically, and in the delivery - in Harrogate in 2014 - of a virtually ‘paperless’ International Surgical Congress. This booklet represents the results of a survey of ASGBI members, into awareness of the UK Secretary of State for Health’s ambitions for the NHS to be paperless by 2018, and puts forward a number of recommendations arising from the surgeon feedback received.

The Association of Surgeons of Great Britain and Ireland, in common with many of the other surgical specialty associations and societies, is proud to represent members across the four devolved UK home nations, England, Scotland, Wales and Northern Ireland, as well as the Republic of Ireland. However, it would have been impractical, in a small publication of this size, to cross-reference the complexities of evolving a paperless NHS. Thus, this Issues in Professional Practice booklet attempts to provide an overview of surgical perception with regard to the current direction of travel, and is, therefore, by necessity, Anglo-centric. This is not, in any way, intended to marginalise Fellows in the other nations, rather a pragmatic approach to ensuring brevity of detail, and it is hoped that the guiding principles can be extrapolated across the wider NHS.

The Association hopes that this publication, and others in the series (all accessible at: www.asgbi.org.uk/publications), will provide concise advice and guidance on major current issues, and grow into a helpful and accessible resource to support your professional practice.

Suggestions for any potential topics for future booklets in the Issues in Professional Practice series would be welcome.

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About ASGBI

Founded in 1920, the Association of Surgeons of Great Britain and Ireland (ASGBI) is the SAC-defined Surgical Specialty Association for General Surgery. ASGBI is also the umbrella organisation for the general surgical sub-specialty associations and societies, such as breast, coloproctology, upper GI, endocrine and transplantation. The Presidents of the representative bodies for these sub-specialties, and those of a number of other such special interest groupings, sit as full members of the ASGBI National Advisory Council. As such, ASGBI is the only organisation which covers General Surgery and all its sub-specialties throughout the UK and Ireland [1].

Support from Cerner

The research for this report, and support with its drafting, has been carried out by MHP Health, funded by an unrestricted grant provided by Cerner Ltd. However, the views expressed in the report and full editorial control rest solely with ASGBI, who are grateful for the support of Cerner with this project.

Cerner is the world’s largest information and technology company focussed solely on health. Cerner has more than 25 years’ experience working with the NHS, producing software that delivers real benefits to the operational and clinical performance of healthcare providers.
Purpose of the Survey

On 16th January 2013, the Secretary of State for Health, the Rt Hon Jeremy Hunt MP, stated the ambition for the NHS to be paperless by 2018. Mr Hunt indicated in his speech that technology would “give doctors and nurses the time and space to deliver” core NHS values, and also save a significant amount of money. Mr Hunt hailed the example of Denmark, where people can access their health records online, and Sweden, where a large number of prescriptions are transferred from a prescriber to a pharmacy online. Significant challenges, such as the need for adequate finance, were acknowledged, and allusions to both the air industry and banking industry were made.

On the same day, PriceWaterhouseCooper (PwC) published their Government-commissioned review of the potential benefits which better use of information and technology might bring to the NHS. Based on a review of additional actions - in relation to IT - that could be taken by NHS organisations, and examples of best practice from other countries or industry sectors, PwC sought to estimate the benefits that could be delivered to the NHS. The report found that £4.4 billion could be saved over ten years across the health and social care system with the greater introduction of technology. PwC recommended the implementation of new technologies such as electronic prescribing, and the wider sharing of information for the benefit of clinicians and commissioners, as illustrated in Figure 1 below:

<table>
<thead>
<tr>
<th>Key finding one: theme one</th>
<th>Key finding one: theme two</th>
<th>Key finding two</th>
<th>Key finding three</th>
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<tbody>
<tr>
<td>Implementation of ePrescribing - potential saving of c.£270 million</td>
<td>Better use of acute operational performance information to enable commissioners to achieve savings - potential savings of c.£860 million</td>
<td>Four potential actions were found regarding improving the quality and use of information - however no quantification of benefits was attempted</td>
<td>The Digital First report, building on Innovation Health and Wealth, identified potential savings of £2,700 million</td>
</tr>
<tr>
<td>Driving the better use of information to aid post-operative care of patients - potential savings unquantified</td>
<td>Use of digital portals or similar solutions to spread complete and accurate clinical data - potential savings of c.£560 million</td>
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Figure 1: £4.4 billion of potential savings identified by PwC
NHS England is pursuing the ‘paperless NHS’ agenda through a number of policies aimed at increasing the use of digital technology in the health service. *Safer Hospitals, Safer Wards*, published in July 2013, outlines NHS England’s aim for a “fully integrated digital patient record” by 2018 [5]. This is supported by a £500m central *Safer Hospitals, Safer Wards Technology Fund*, open to NHS Trusts, which match the money to ensure the “rapid progression to digital records” [6]. The document makes it clear that it expects local organisations and partnerships to make the key investments and changes required, and emphasises the need for clinicians to be at the heart of the changes which take place.

“We between the NHS and social care, there must be total commitment to ensuring that interaction is paperless, and that, with a patient’s consent, their full medical history can follow them around the system seamlessly.”

Rt Hon Jeremy Hunt MP, Secretary of State for Health (16th January 2013) [7]

We are now more than one year on from the Secretary of State’s statement of ambition for a paperless NHS by 2018, and six months on from the publication of *Safer Hospitals, Safer Wards*. It is still not entirely clear what the paperless NHS will look like and what impact it will have on the various clinical specialties which operate within it. It is hoped that the forthcoming publication of the Health and Social Care Information Centre’s IT strategy in 2015, and the equivalent strategy from NHS England in 2014, will offer some clarity.

Figure 2: Surgery in figures [8]
As can be seen in *Figure 2*, surgery and surgical care play a significant role within the NHS, with 4.6 million surgical procedures undertaken in England each year. Considering the significant emphasis placed on the paperless agenda by the Secretary of State and NHS England, it is perhaps surprising that little research has been done on the understanding of the agenda amongst front-line clinicians, and those within particular specialties, such as General Surgery. To this end, ASGBI has produced this *Issues in Professional Practice* booklet.

The research undertaken for this report has the following aims:

- To measure the level of understanding amongst surgeons of the paperless NHS agenda.
- To seek to understand if the paperless agenda is supported and, if so, how strongly by the surgical community.
- To identify the potential benefits of a paperless NHS in the eyes of surgeons.
- To identify the potential barriers to a paperless NHS in the eyes of surgeons.
- To produce a number of recommendations for policy makers in the light of the above findings.
Methodology

The research for this report was undertaken in two parts. First, a survey was hosted online in the summer of 2013, to which members of ASGBI were invited to respond. The survey consisted of four questions, some of which were multiple-choice, and some of which left opportunities for comment. Questions were all related to the paperless NHS agenda, and focused on awareness, as well as the opportunities and challenges perceived in relation to the agenda. In total, 231 surgeons took part in the survey. Respondents were also asked if they would be willing to take part in a brief follow-up telephone interview.

As part of the online survey, fifteen surgeons were asked if they would be willing to participate in a follow-up interview, with ten surgeons accepting the invitation. These fifteen surgeons were chosen to reflect the balance of answers given in the survey, with some indicating they saw great opportunity, and others were more aware of challenges present within the paperless agenda.

It should be noted that the interviews were conducted on the understanding that quotes and information provided would be used anonymously within this report, and not attributed to individual surgeons. This allowed for a more open exchange of ideas, opinions and experiences.

The ten interviews took place in November and December 2013, and consisted of surgeons answering pre-scripted questions, which were drafted in order to provide both balance and consistency to the interviews. A full copy of both the interview script used, and the questions from the online survey can be found in Appendix 2 and Appendix 3.
Surgical awareness and understanding of the paperless agenda

The first question asked in the online survey of ASGBI members was whether respondents were aware of the Government’s commitment to make the NHS ‘paperless’ by 2018. As outlined in Figure 3, 57% of respondents were not aware of the commitment, whereas 43% were.

Figure 3: Before taking part in this survey, were you aware of the Government’s commitment to make the NHS ‘paperless’ by 2018?

A significant proportion of surgeons were unaware of the Secretary of State’s ambition. If the paperless agenda is to be a success within surgery, as well as the wider NHS, more will have to be done to raise awareness of the agenda amongst healthcare professionals to promote front-line clinical leadership. Specifically, more will need to be done to raise awareness within surgery and surgical specialties. That 57% of surgeons were unaware of the commitment is of some concern, and steps to address this may help engender support for Trusts which are looking to effectively digitise their operations.

RECOMMENDATION 1:
The National Director for Patients and Information should task each National Clinical Director in NHS England with outlining a vision document for the implementation of the paperless NHS agenda in their specialty. This should include an initial assessment of benefits, examples in practice, with metrics to measure progress towards achieving their stated goals.
Clinical buy-in

Although the surgeons interviewed were broadly positive towards the agenda overall, each surgeon interviewed differed in their enthusiasm for the agenda, with some describing a paperless NHS as “essential”, one warning that there is not “too much advantage in expanding” the current system, and another stating that they support a paperless NHS “to a considerable extent...with some caveats”.

When asked about the perceived value of a paperless NHS, 56% of surgeons indicated that they believed a paperless NHS will improve the quality and efficiency of care provided by surgeons. These findings are shown in Figure 4.

Figure 4: Do you believe a paperless NHS will improve the quality and efficiency of care provided by surgeons?

While this finding shows that the majority of clinicians surveyed understand and appreciate the benefits which paperless technologies can bring, it also demonstrates that a significant proportion (44%) do not believe a paperless NHS will improve the quality and efficiency of care. This reflects a lack of understanding of the potential benefits of paperless or ‘paperlite’ working amongst a large number of clinicians, such as facilitating the collection and reporting of data for clinical audits, or a more significant contribution to disease-specific national registries.

The Public Accounts Committee has indicated that, for the paperless agenda to succeed, lessons must be learned from the challenges presented in the implementation of the National Programme for IT (NPfIT) [9]. One of those challenges was a perceived lack of clinical buy-in, which underlines how
important it is that NHS leaders ensure the required clinical support is garnered amongst surgical specialties to drive forward the agenda at the front line [10]. Figure 5 demonstrates why it is important to achieve clinical support for IT programmes.

Figure 5: The need for clinical involvement in IT [11]

That 44% of surgeons are not convinced of the benefits of paperless technologies is particularly surprising, given that surgeons are often already involved in the gathering and use of clinical data, as shown in Figure 6.
Regular publication, since June 2013, of performance data by nine surgical specialties including adult cardiac surgery, vascular surgery and urological surgery.

Regular contributions to national registries, such as the National Vascular Registry.

Over the last 20 years, the Royal College of Surgeons of England, via their Research Fellowship Scheme, has supported £25 million of clinical research and the development of new operative techniques.

Participation in, and production of, a number of clinical audits, including participation in the 37 national clinical audits being undertaken in 2014.

**Figure 6: Examples of ongoing data-friendly surgical practices** [12 to 15]

**RECOMMENDATION 2:**
Both forthcoming technology strategies from NHS England and Health and Social Care Information Centre (HSCIC) should outline plans for a work programme to undertake research and analysis to assess the patient benefit and cost-effectiveness of paperless solutions. NHS Trusts should be encouraged to submit their own evaluations to inform this agenda.

When asked about what a paperless NHS might actually look like in reality, the views of the ten surgeons interviewed could be split into two broad categories. Some saw a paperless NHS as a system literally having no paper whatsoever, and others, as demonstrated in **Figure 7**, saw a paperless NHS in reality being ‘paperlite’ in its operation. A ‘paperlite’ system would have paper still in use at specific times, such as during ward rounds, and that information would be digitised at a later point.

**“A desire not to have any written records anymore”**  
**“Totally paperless probably not totally practical, but certainly paper light”**  
**“A drive to limit the use of paper-based communications”**

**Figure 7: Surgeons’ opinions when asked what the term ‘paperless NHS’ meant to them**
In order to help establish and maintain clinical buy-in to the paperless NHS agenda, clinicians must be provided with clearer definitions and direction as to what the paperless NHS means. This opportunity exists with NHS England, via the Informatics Services Commissioning Group, and the Health and Social Care Information Centre (HSCIC) publishing their forthcoming technology strategies in 2014 and 2015. It is naturally important that clinicians, Trusts, and NHS leaders are all working towards the same goal in order to deliver against this ambition [16, 17].

![Pie chart showing 59% Yes and 41% No to the question: Have you come across areas where the effective use of data and information has delivered improvements in surgical outcomes?]

**Figure 8**: Have you come across areas where the effective use of data and information has delivered improvements in surgical outcomes?

**Figure 8** shows the result of another question, demonstrating that 59% of surgeons indicated that they had already come across areas where the effective use of data and information had already delivered improvements in surgical outcomes. This would seem to suggest that 3% of respondents had already seen data and information playing a significant role in improving the quality of care, but did not think a more paperless system would deliver better, more up-to-date data and information. More clear communication from NHS leaders, demonstrating and linking the role of data and a paperless system, may help to increase support for the paperless agenda.

**RECOMMENDATION 3:**

The HSCIC should encourage Trusts to submit examples of where paperless solutions are delivering against the 14 workstreams in the QIPP programme. These case studies should be shared, to encourage clinical buy-in to the paperless agenda.
Exploring the opportunities

Paperless technologies have afforded significant opportunities to other industries. The transformation which paperless technologies have led in both the banking and the aerospace industries is remarkable, with one in four people using online banking every day as of 2011 [18], and 7% of airline sales made on a mobile in 2012 [19]. It is expected that, by 2017, 50% of online direct sales will be made on a mobile device [20]. In the case of the banking industry, this is true despite initial, and in some cases ongoing, concerns about confidentiality [21]. Both the quantitative and qualitative research undertaken in advance of this report indicates that surgeons feel paperless technologies have a significant opportunity to affect the healthcare sector to a similar degree.

Potential opportunities most often identified within the research include:

• More efficient collection of data for clinical audits.
• Easier access to patient notes across the care pathway.
• Access to information in emergencies.
• Support in clinical decision making.
• The ability to monitor in real time.
• The avoidance of repetition for patients.
• The varied potential benefits of ePrescribing.
• The ability to more easily measure and challenge clinical practice.

Each of these will be explored in more detail below.

Greater collection of data for clinical audits

One of the benefits of paperless technologies is that data gathering will become much easier on a large scale. For example, if patients’ notes are created and updated electronically across care settings, including surgery, extraction to national or regional databases could theoretically happen instantaneously. One interviewee described it as “much, much easier” to conduct clinical audits from data collected electronically, and indicated that same-day data was often available, which might take months to become available in an older system.

Examples of such registries include the National Vascular Registry and the National Cancer Intelligence Network, and improvements to such national registries, provided by high quality data made available by paperless technologies, are significant in furthering the quality of research output, and ultimately in saving lives and curing disease [22, 23].
Easier access to patient notes across the care pathway

Easy access to the most up-to-date data is vital for front-line clinicians. The potential for paperless technology to ease access to such data was referenced by the vast majority of clinicians interviewed. The “ridiculous amount of time” taken to obtain notes from primary, or other care settings, was cited as a current danger for surgical practice, and the potential to have an integrated patient record was described as “a fantastic move”. Another surgeon highlighted the opportunity for discharge records to be shared with GPs, pharmacists and other relevant specialists, via clinical portals [24], as an opportunity to improve collaboration between physicians, and ensure that patients’ records are complete. With more complete records, there is less chance for error in any part of the care pathway.

Avoiding repetition and ease of communication

Easier access to patient records should also have the added benefit of saving patients from having to repeat information a number of times to various different doctors in different specialties. National Voices, a health and social care coalition which seeks to strengthen the voice of patients, has set out ten tests for the government’s information strategy, based on changes they state patients wish to see. Many of the ten tests revolve around good, clear, information, including [25]:

• That patients’ notes will not be lost.
• That all information about conditions and treatment is given to patients.
• That it is easy – regardless of disability – to communicate with health and care services.
• That patients are offered support to use information.

If these priorities are acted upon, and if the power of digital technology is harnessed fully, there is potential to save both clinical and patient time, and to ensure patients do not have to restate potentially sensitive or overwhelming information. The avoidance of such repetition for patients can significantly improve the patient experience. Information could be shared more easily, both amongst clinicians and between clinicians and respective patients.

“It’s about collecting data just once … there should be a lot of time saving involved”

Enhanced patient safety

Paperless and integrated records have significant potential to improve patient safety levels. Patients’ allergies can be flagged
easily, even if a patient presents in an unconscious state, and this will help clinicians across the care spectrum. Similarly, a more up-to-date list of medicines which a patient has been prescribed will assist multidisciplinary teams.

Another surgeon explained that electronic patient records would increase patient safety levels by offering doctors prompts. Specifically, an example was given of reminding surgeons that bone density scans need to be offered to certain patients, and any patients overdue for a scan could be automatically flagged to the relevant clinician. Advances in patient safety are one of many positive opportunities which a paperless NHS might offer.

“It’s crucial to know your activity ... your proportion of outcomes, your failure rate, your positive rate.”

Surgical opinion on the opportunity offered by greater access to data

Electronic prescribing
One technology which garnered high praise from the surgeons interviewed was that of electronic prescribing. The benefits of electronic prescribing listed include the reduction of mistakes, legible and instant transfer of information to pharmacies, and fewer pharmacological interventions. The impact and benefits of electronic prescribing has been clearly demonstrated, as can be seen in Figure 9. In this case study, pharmacist interventions were recorded on a 16-bed cardiology ward, for a seven-week period, six months before the introduction of electronic prescribing, and were also recorded for the same ward over a seven-week period, six months after the introduction of electronic prescribing.

- 8% drop in missing or incorrect patient details.
- 4% drop in incomplete allergy information.
- 4% drop in non-legal prescriptions.
- 2% drop in transcription errors.
- No legibility issues registered.
- 5% drop in dose changes.

Figure 9: Impact of the introduction of electronic prescribing

One specific example of the power of electronic prescribing offered by a surgeon, is that in the use of metronidazole, computers would flag that dosages twice a day are as effective as three times a day, except in the case of c difficile. This simple prompt changed prescribing habits for the better, and
saved money without affecting patient care. Evidently, electronic prescribing offers an opportunity for significant improvement within the acute care setting, and reductions in errors will allow for better patient care, long-term financial gains, and clinical time less often wasted in correcting or clarifying prescriptions.

**CASE STUDY: A PAPERLESS PRIVATE PRACTICE**

One of the surgeon’s interviewed indicated that his private practice was entirely paperless, with notes and dictation both undertaken digitally. Benefits to this approach listed by the interviewee included:

- Saving clinical time.
- Allowing remote working when reviewing patient notes or undertaking paperwork.
- The availability of data at any time, at any point in the world.
- The ability to more easily share notes with other healthcare professionals.
- Automatically copying in patients on correspondence with other healthcare professionals.

Whilst it is naturally easier to become paperless in a smaller, private practice, this case study highlights some of the potential benefits the NHS can expect to receive in adopting more paperless technologies.

**Challenging clinical practice**

Over half of interviewees indicated that more data availability would help to both challenge clinical practice and monitor one’s own progress. Whilst this can be done under a paper system, a paperless system may offer the following opportunities:

- The ability to highlight potential areas of improvement more quickly and more accurately.
- As one surgeon stated, it is “crucial to know your own activity … your proportion of outcomes, your failure rate”.
- More data would enable surgeons to challenge physicians who order too many tests, or those who order too few.
- Data may offer surgeons the chance to not only improve their own performance, but to better monitor the outcomes of their trainees and peers, which would ultimately benefit patients.
Other digital technologies
Almost all surgeons interviewed indicated that Picture Archiving and Communications Systems (PACS), used for receiving various results, for example radiology results, have significantly improved surgical care. One surgeon described paperless technology systems in radiology as a “huge advance” and another stated that one would “not dream” of going back to a paper system in reference to PACS.

Other electronic systems have the potential to have a similar impact to electronic prescribing; namely improving patient safety and care, whilst potentially saving resources. Advances in electronic monitoring systems have enabled certain risk factors to be identified more easily, and flagged to clinicians promptly thereafter. This was described by a surgeon as being about systematic ways to look at deterioration, and looking to introduce technologies that can measure vital signs and abnormalities. Obvious examples of such systems already exist, such as heart monitors, but as technology improves, so do the number of vital signs that can be measured, in turn, offering further opportunities for improvements in patient care.

Given the clear consensus amongst surgeons regarding the potential clinical benefits which a paperless NHS might offer, we recommend that NHS Trusts should set out specific milestones, as outlined below:

RECOMMENDATION 4:
NHS Trusts should set out specific milestones, such as the introduction of electronic prescribing, to reach in the interim years prior to 2018. These milestones should be published in annual reports and quality accounts and developed in partnership with healthcare professionals.
Assessing the challenges

With any project or ambition as far reaching as the plans for a paperless NHS by 2018, there are likely to be varying challenges to its delivery. In the initial quantitative survey, surgeons were asked what, of a number of listed options, were the challenges for the implementation of a paperless NHS. Surgeons were able to tick as many options as they wished and also to choose the ‘other’ category and list further potential barriers. The results are given in Figure 10.

![Figure 10: What do you believe are the barriers to achieving a paperless NHS within surgery (tick all that apply)?](image)

The most common answers given under the ‘other’ category were as follows:

- Concerns regarding the quality of computer hardware currently available to surgeons was identified as an issue by 17% of respondents. This was described as a “fundamental problem” by one surgeon who indicated that significant investment in portable technologies, such as tablets, was needed to overcome this barrier. Investment in such portable technologies might also help allay the fears of another interviewee, who emphasised that technology must be able to “keep tempo” with a ward round.

- The potential time taken to enter data was identified by 7% of respondents.

- The lack of certain skills – such as fast and accurate typing abilities – among both clinicians and support staff was referenced on a number of occasions.

- The level of work involved in completing such a transition by 2018 was mentioned on a number of occasions.
Overcoming financial barriers

Financial concerns were the most frequent ‘barrier’ picked by respondents in the quantitative survey. NHS England appears to have acknowledged this issue, with the creation of the **Safer Hospitals, Safer Wards Technology Fund**, which is worth over £500 million, launched in May 2013, and available to NHS Trusts and Foundation Trusts [28]. The £100 million **Nursing Technology Fund** was also created, announced by the Prime Minister in October 2012 [29]. Despite this, it was revealed that only £114 million of the first tranche of money was allocated by NHS England [30]. Concerns were also raised regarding the time available for NHS Trusts to bid for finance from the Nursing Technology Fund [31]. Whilst it is encouraging that NHS England is taking steps to overcome the potential finance barrier to a paperless NHS, it is essential that the procedures put in place to administer such technology funds are adequate, and Trusts are given support and time in applying for extra funding. Furthermore, strategic guidance for providers on how best to realise the benefits of technology and the creation of shareable patient records would ensure local and national investment in technology delivers optimal value in the long term.

“Driving up the digital maturity of the NHS will not happen overnight.”

NHS England

**Safer Hospitals, Safer Wards**

Overcoming the problems outlined will not necessarily be easy, but will be essential for the paperless agenda to succeed. As outlined above, money is already being made available to help overcome potential financial barriers, but it is also essential that NHS leaders make the case that technology can save the NHS money in the longer term, and alleviate pressures on services [32]. Persuading provider boards of this will be crucial in securing investment in paperless technologies, and driving the wider paperless agenda forward. As shown in **Figure 11**, however, this is a significant task.

Recent polling by the **Health Service Journal** has outlined that 91% of 419 health IT professionals believe that senior managers’ “lack of knowledge and experience about the clinical and cost benefits of improved IT systems is hindering progress” towards a paperless NHS [33].

**Figure 11: Polling figures from the Health Service Journal on the paperless NHS agenda**
RECOMMENDATION 5:
Within their forthcoming technology strategy, NHS England should outline plans as to how to financially support the paperless agenda in future. The roll-out of the Nursing Technology Fund and the Safer Hospitals, Safer Wards Technology Fund should be administered to give Trusts appropriate time to pitch for funding, and allocated in a way which is transparent and clear.

Defeating cultural inertia
When interviewed, more than one surgeon added that currently, systems are not clinically orientated. Surgeons also highlighted that “there is an element of fear” regarding information technology systems in the NHS, which is perhaps partly due to the challenges faced in implementing the National Programme for IT (NPfIT). The NPfIT did not feature as frequently in either the qualitative or quantitative research as might have been expected, despite the significant media coverage which the programme has received in recent years. Evidently, whilst recognising that there have been some mistakes made in the past, clinicians do not see this as a reason to forgo the drive towards a paperless NHS, but instead think lessons should be learned for the future.
National Programme for IT:
Key findings from the National Audit Office [34] and the Public Accounts Committee [35] reports from May 2011 and July 2011 respectively

National Audit Office:
• The creation of both Summary Care Records and Detailed Care Records was delayed.
• Due to problems implementing care records systems, the number of systems delivered fell below numbers expected, despite no change in contract values.
• Progress against plans to develop an electronic patient record for each patient has fallen far below expectations.
• The reduction in delivery was not matched by a reduction in costs.

Public Accounts Committee (PAC):
• The Department of Health (DH) has been unable to deliver its original aim of a fully integrated care records system, following limited progress since 2002.
• There was substantial reduction in how many NHS bodies received new systems, but not a proportional reduction in costs.
• The DH was unable to show what had been achieved for the £2.7 billion spent by the summer of 2010.
• There was concern around the lack of risk managements of security issues.
• The PAC felt that the nature of the leadership of the programme resulted in poor accountability for project performance.
• It was believed that NHS Trusts do not have enough information about the potential future costs involved in taking over responsibility for care records systems from 2015-16.
• The DH failed to provide timely and reliable information to enable Parliament to scrutinise the project.
• The DH indicated that they need to think about a transitional body for future management of elements of the programme.
In order to address concerns about past mistakes, clinical systems, and the barrier of cultural inertia identified in our quantitative research, NHS England should recommend that each NHS Trust or Foundation Trust has a member on their board responsible for the paperless agenda. Such officers would not only help to explain the potential benefits of a paperless system to more hesitant board members, but would also help to focus clinical support. This is something which the CCIO Leaders Network has long advocated, and their campaign has received support from a number of professional organisations, including [36]:

- Royal College of Midwives
- Royal College of Psychiatrists
- Royal College of Paediatric and Child Health
- Royal College of Radiologists
- Royal College of Anaesthetics
- Royal College of Nursing
- Royal College of Surgeons of England
- Royal College of Physicians

**RECOMMENDATION 6:**
All NHS Trusts should appoint an individual clinician to their board with responsibility for the paperless agenda.

**Confidentiality concerns**
Some concerns have been raised over the collection of patient data, most recently seen by opposition to the Care.data Programme. These concerns have centred on the potential for patient data to be accessed by non-NHS organisations, particularly data which are not anonymised, and used for non-medical purposes [37].

Research charities have already rallied to support Care.data, and may help NHS leaders to allay fears regarding confidentiality [38]. Such fears cannot be ignored, but a clear demonstration of the opportunities which a paperless NHS brings with it will help to persuade many that the benefits outweigh the risks. As one surgeon stated, if clinicians (and others) “could see what was in it for them” then it might be the case that a paperless NHS is delivered much more quickly than otherwise.

**RECOMMENDATION 7:**
NHS England should work with research organisations and professional organisations to demonstrate the benefits of collecting clinical data, and put in place appropriate measures to ensure patient confidentiality is protected.
Summary of Recommendations

Introduction
The research for this report has demonstrated that there is a spectrum of both understanding and support for the paperless agenda. Just under half (43%) of surgeons were aware of the 2018 commitment, and there was no clear agreement on what the term meant. Despite this, over half of ASGBI respondents believe that a paperless NHS will improve the quality and efficiency of care provided by surgeons, and 59% of surgeons have already seen examples of where the effective use of data and information has delivered improvements in surgical outcomes.

RECOMMENDATION 1:
The National Director for Patients and Information should task each National Clinical Director in NHS England with outlining a vision document for the implementation of the paperless NHS agenda in their specialty. This should include an initial assessment of benefits, examples in practice, with metrics to measure progress towards achieving their stated goals.

RECOMMENDATION 2:
Both forthcoming technology strategies from NHS England and Health and Social Care Information Centre (HSCIC) should outline plans for a work programme to undertake research and analysis to assess the patient benefit and cost-effectiveness of paperless solutions. NHS Trusts should be encouraged to submit their own evaluations to inform this agenda.

• The importance of clinical leadership being engaged with this agenda was emphasised by both the qualitative and quantitative research. It is also crucial to increase the general awareness of the agenda amongst surgeons and wider clinical staff.

RECOMMENDATION 3:
The HSCIC should encourage Trusts to submit examples of where paperless solutions are delivering against the 14 workstreams in the QIPP programme. These case studies should be shared to encourage clinical buy-in to the paperless agenda.

• The opportunities for improvements to clinical care are evident, with surgeons highlighting a number of different areas for potential implementation of paperless systems. Naturally, this will not happen in one leap, and the gradual introduction of technologies prior to 2018 is important.
**RECOMMENDATION 4:**
NHS Trusts should set out specific milestones, such as the introduction of electronic prescribing, to reach in the interim years prior to 2018. These milestones should be published in annual reports and quality accounts and developed in partnership with healthcare professionals.

- Some steps have already been taken to overcome the listed concerns, such as the implementation of two technology funds. These have both had teething problems, but have potential to greatly expedite the uptake of new technologies across the NHS.

**RECOMMENDATION 5:**
Within their forthcoming technology strategy, NHS England should outline plans as to how to financially support the paperless agenda in future. The roll-out of the Nursing Technology Fund and the Safer Wards Safer Hospitals Technology Fund should be administered to give Trusts appropriate time to pitch for funding, and allocated in a way which is transparent and clear.

- The ongoing CCIO campaign aims to increase the number of clinical advocates for digital technologies, which will help to push the whole agenda forward, particularly within Trusts. It is crucial not to ignore confidentiality concerns, but instead to find a way to alleviate the fears of clinicians and the public where possible, and explain that there are systems in place to ensure strict rules around confidentiality are adhered to.

**RECOMMENDATION 6:**
All NHS Trusts should appoint an individual clinician to their board with responsibility for the paperless agenda.

**RECOMMENDATION 7:**
NHS England should work with research organisations and professional organisations to demonstrate the benefits of collecting clinical data, and put in place appropriate measures to ensure patient confidentiality is protected.
APPENDIX 1
Paperless working and ASGBI

Since holding a one-day Consensus Conference on sustainable and ‘green’ surgery in November 2011 [39], the Association of Surgeons of Great Britain and Ireland has made concerted efforts to become paperless wherever possible. This can be seen in the approach to the delivery of the ASGBI International Surgical Congress, as well as in changes to the *JASGBI*, the Association’s quarterly journal, and the portfolio of other publications.

**International Surgical Congress**

The Association’s 2014 International Surgical Congress was almost entirely paperless in nature. This was driven partly as a result of ASGBI’s desire to be ‘green’, but also as this was recognised as a broader sensible direction of travel.

An ‘app’ was developed specifically for the Congress, which allowed attendees to:

- Plan their own personal itinerary, maximising their experience of the Congress.
- Avoid delays at Registration, thus saving time and potential stress.
- Retain the contact details of fellow Delegates and commercial exhibitors by exchanging electronic business cards, helping facilitate networking.
- Access the full range of Poster Presentations and Scientific Abstracts during, and after, the Congress, ensuring that information can be shared more widely and easily.

For those who did not own an electronic device, a tablet was available to rent for the duration of the Congress.

Some benefits of this approach can be seen in *Figure 12*. 
BENEFITS OF A PAPERLESS CONGRESS

SUSTAINABILITY:
• No paper, or trimmed paper waste.
• No restrictions on the length of documents (programmes, booklets, etc).
• No printing ink, solvents, wire staples, gloss lamination or printing plates.
• No hard-copy, pre-production, proofs.
• No postage costs or associated environmental footprint.
• No envelopes (with plastic address windows).
• No bulk delivery transportation (no diesel fuel or carbon emissions).
• No costly ‘Delegate Bags’ (or transportation thereof).
• No left-over copies or bags to be recycled or disposed of.

BUT ALSO:
• A better user-experience for Delegates.
• Embedded sound or movie clips (educational, clinical or promotional).
• Embedded hyper-links for access to references or source materials.
• Scale-able text/font size for each reader’s individual preference.

PLUS:
• No three-week print deadline in advance of the event.
• No over-ordering of publication quantities “just in case”.
• No running out of Congress Programmes for fee-paying Delegates.
• No storage – resulting in more registration space.
• No mess or clutter, and a ‘cleaner’ visual impact to the event.

AND FINALLY:
• The Congress Programme is always up-to-date.
• Instantaneous alterations can be made to programme timings, if required.
• Targeted media and messaging to each delegate.
• Delegates have the ability to vote or ask questions ‘online’.
• All Poster Presentations are accessible by all of the delegates, all of the time.

Figure 12: Summary of benefits of a paperless Congress
Journal of the Association of Surgeons of Great Britain and Ireland

As well as hosting a paperless Congress, the ASGBI has recently made their quarterly journal, the *JASGBI*, paperless. The e-publication can be downloaded on the ASGBI app and can also be read on a normal web-browser. The new format, utilising interactive ‘page-turner’ technology, has a number of benefits, including saving resources and the ability to directly link to other relevant material online.

Additionally, a similar range of advantages as those listed above in *Figure 12* have been delivered through the move to online only publishing.

Issues in Professional Practice

Fittingly, this document, *Operating within a Digital NHS? A survey of surgical opinion towards a ‘paperless’ NHS* will also be distributed entirely without the use of paper. The Association hopes that other professional membership organisations will also consider electronic publication of reports in future, which is more environmentally friendly and can save both money and time.
Appendix 2: Questions from the online survey

1. Before taking part in this survey, were you aware of the Government’s commitment to make the NHS ‘paperless’ by 2018?

Options for respondents:
• Yes
• No

2. What do you believe are the barriers to achieving a paperless NHS within surgery (tick all that apply)?

Options for respondents:
• Concerns over patient confidentiality
• Cultural inertia
• Duplication of paper records
• Financial implications
• Lack of clinical buy in
• Organisational and reporting structures
• Quality of clinical data
• None
• Other (please specify)

3. Do you believe a paperless NHS will improve the quality and efficiency of care provided by surgeons?

If yes/no, why?

4. Have you come across areas where the effective use of data and information has delivered improvements in surgical outcomes?

If yes, please provide details.

5. Would you be willing to participate in a short telephone interview (maximum 20 minutes) to discuss and explore these issues in more detail?

If yes, please provide contact details and we will be in touch shortly to arrange a convenient time.
## Appendix 3:
### Script used for telephone interview

<table>
<thead>
<tr>
<th>Main question</th>
<th>Prompt/sub-question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic</strong></td>
<td></td>
</tr>
<tr>
<td>1. How long have you been practising as a surgeon?</td>
<td></td>
</tr>
<tr>
<td>2. What is your specialty?</td>
<td></td>
</tr>
<tr>
<td>3. Which region of the UK do you work in?</td>
<td>- Which hospital(s) do you work in?</td>
</tr>
<tr>
<td><strong>The paperless NHS agenda</strong></td>
<td></td>
</tr>
<tr>
<td>4. How much do you come across digital technology (for instance, through the use of health IT solutions and data gathering) in your day-to-day role?</td>
<td>- What systems do you use?</td>
</tr>
<tr>
<td>5. What is your understanding of the term ‘paperless NHS?’</td>
<td>- See bracket below question</td>
</tr>
</tbody>
</table>

[At this point, it will be explained that for the purposes of this interview, the paperless NHS refers to three things: electronic data capture, use of data in primary purposes (e.g. prescribing), and the use of that data for secondary purposes (e.g. clinical audits).]

6. What do you perceive as the value of expanding the use of informatics and data collection in the NHS? | - Clinical audits - Scientific research - New technologies (e.g. ePrescribing) |

7. In response to the survey you said the following [question to be tailored to individual]... were barriers to achieving a paperless NHS. Can you expand further? | - Answers from survey - What can be done to overcome these barriers?
8. What role do you see informatics playing in supporting patient care?

- Sharing of clinical data and patient records? Enabling choice and informed decision-making?

9. What role do you see the greater collection and accessibility of data playing in helping clinicians in their roles?

- Providing a more integrated experience of care?

10. What are the three things you think need to happen for the paperless agenda to succeed?

- Better evidence of benefits

<table>
<thead>
<tr>
<th>Broad examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Interviewees asked question 11 or 12 depending on their response based on response to survey question 4]</td>
</tr>
</tbody>
</table>

11. In response to the survey you said you had come across examples where informatics had improved care. Can you expand on this further?

- What factors do you believe have influenced the decisions in your hospital?

12. In response to the survey you said you had not come across examples where informatics had improved care. Why do you think this is in your area?

- Further monetary investment
- Better training for clinical staff
- More local ‘buy in’ amongst clinical and non-clinical staff
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