



NHS-HE Forum

NHS-HE Connectivity Project

Web 2.0 and Social Media in Education and Research

Natalie Lafferty

eLearning Lead, University of Dundee, College of Medicine, Dentistry, Nursing and Midwifery

NHS-HE Connectivity Best Practice Working Group of the NHS-HE Forum

May 2013

<https://community.ja.net/groups/nhs-he-forum-connectivity-project>

EXECUTIVE SUMMARY

Technology and the World Wide Web are having a transformative impact on society as they underpin communication and business systems, information management and the delivery of teaching and learning. There are high levels of technology adoption and engagement across society with increasing use of Web 2.0 tools such as social media and networking sites to access information and connect with others. The Department of Health's new digital strategy¹ acknowledges this growing role of technology and aims to give staff "the knowledge, skills, permission and confidence to embrace digital opportunities to deliver better health, better care and better value for all". Whilst individuals have an increasing expectation and desire to engage with open web technologies in their professional lives permission to embrace digital opportunities in the NHS is typically heavily restricted due to the associated risks of using such technologies. These restrictions are becoming a growing source of frustration for many, particularly those who are involved both in the NHS and higher education (HE).

This paper produced for the NHS – HE Forum Connectivity Best Practice Working Group² highlights the emerging benefits of Web 2.0 technologies and, whilst taking account of potential risks, outlines some recommendations concerning their access. The information in this document may be particularly helpful for both NHS and University staff involved in formulating local learning development agreements.

As the new digital strategy begins to be implemented and as growing numbers of staff use their personal mobile devices to access online tools in the workplace, it seems timely for NHS organisations to consider reviewing their social media policies, to amend these to incorporate examples of good practice and identify local early adopters who can role model the benefits these technologies may bring to education and research. There is also potential for universities and the NHS to develop and share case studies of good and innovative practice in the use of Web 2.0 technologies and emerging areas including cloud computing. Such an approach could help to maximise the benefits that these technologies may afford whilst minimising potential associated risks and support the expectation for engagement in digital opportunities in NHS locations.

It is hoped this document will prove helpful to various groups within the NHS as they seek to raise issues around the accessibility of web-based technologies. Whilst colleagues in universities may find it useful to help demonstrate the range of technologies that could be included in toolkits to support teaching, learning and research and support dialogue with their partner NHS organisations, particularly those such as teaching hospitals with significant numbers of clinical attachment students.

¹ Department of Health Digital Strategy - <http://digitalhealth.dh.gov.uk/digital-strategy/>

² NHS – HE Forum Connectivity Best Practice Working Group - <https://community.ja.net/groups/nhs-he-forum-connectivity-project/article/nhs-he-connectivity-best-practice-working-group>

INTRODUCTION

The use of technology has become ever more pervasive over the past decade, particularly in relation to information management and in facilitating communication, networking and collaboration. Improvements in communication and the accessibility of information have in part been driven by the emergence of Web 2.0 technologies (also referred to as the read, write web) that enable individuals not only to consume content but also to participate in the creation, sharing and remixing of information. Social media tools such as blogs, wikis, media sharing and social networking sites have done away with the need for individuals to know how to code and supported increased web accessibility and usability and ultimately growing engagement with technology. These tools are also being adopted in education and healthcare where they are supporting innovation and engagement with stakeholders. There are, however, also some risks associated with using these new technologies that are particularly pertinent in the healthcare setting. As a result access to these tools and websites is often restricted and for those healthcare professionals in NHS settings and for those involved in teaching and for students on NHS clinical attachments this can prove both limiting and frustrating.

This paper

- provides an overview of how Web 2.0 technologies are being used to support teaching, learning and research in higher education
- highlights some of the risks associated with the use of social media in relation to NHS staff and to propose that training could raise awareness of these risks as well the potential benefits
- details common problems with NHS IT hardware and software faced by staff with a role in higher education and
- concludes with a summary overview of common Web 2.0 and social media tools and their potential benefits, risks and suggested recommendations for access.

WEB 2.0 AND SOCIAL MEDIA IN HIGHER EDUCATION

The use of technology has become ubiquitous in healthcare professions education and higher education as a whole as students today learn in a digitally connected world. Students can access resources 24/7 via institutional virtual learning environments and online libraries providing access to e-books and e-journals. They can also access open educational resources (OERs) and open courseware made freely available by increasing numbers of institutions through content repositories such as Jorum and services such as iTunes-U. Students can interact with experts and professionals in their field of study via social media tools and enroll on massive open online courses (MOOCs) run by other institutions. Mobile and handheld devices, including smartphones and tablets such as the iPad, are also facilitating collaboration and making on the go access to online content ever easier. Web 2.0 technologies and tools have also made it easy for individuals to create, share and remix content using tools such as blogs, wikis and social media sites such as YouTube, Vimeo and Flickr. Students are also increasingly creating content via these channels to support peer learning. These tools are increasingly supporting self-directed and independent learning and the development of new communities, collectives and networks of interest and learning. In addition engagement with Web 2.0 technologies is helping to develop skills associated with 21st century learning and employability skills, which in turn can support lifelong learning.

Traditionally if a healthcare professional student or practitioner was looking for information and wanting to keep up to date they would visit the library or ask a colleague. In today's connected world individuals can post a question on Twitter or blog and get feedback from their personal learning network. They can follow an endless number of journals by subscribing to RSS feeds to keep up to date and access journals online. Using Web 2.0 tools like Twitter and content curation tools, such as blogs, social bookmarking and social referencing tools, information and resources can easily be shared and disseminated. Those involved in teaching are discovering a wealth of resources online and using blogging tools and curation tools to mash-up and weave them into their own teaching narratives to meet local learning and curriculum objectives. Embed codes allow teachers to easily reuse video, images, documents and presentations from social media channels, whilst other online tools, such as screencasting sites, support the rapid development of learning resources, learner support and feedback. Those not involved in creating or remixing content may still wish to view and refer students to sites and resources developed by other healthcare professionals and organisations as they see the potential they have to support learning across the continuum of education and training. The content being developed with these technologies is now being labeled free open access medical education (FOAMed) and internationally growing numbers of healthcare professionals are tagging their content with this tag and identifying themselves as part of this global movement.

Although there is both growing awareness of, and interest in using, these technologies and open access educational resources amongst healthcare professions educators, not all are able to access them in NHS settings. In some regions staff may be able to access them once they confirm they are being accessed for work purposes, whilst in others they are blocked completely. It is hoped that NHS Trusts and Boards may review their policies and guidelines on access to Web 2.0 technologies and consider their growing role in teaching and learning and how their access and use may be incorporated into learning development agreements.

WEB 2.0 AND SOCIAL MEDIA IN RESEARCH

Research is similarly benefiting from the application of technology and once again social media is playing a role in this as researchers use technology to communicate their findings and publications. Links to and reviews of research are being shared via Twitter, blogs, Facebook and Google+ making information increasingly accessible. Social media is also helping to facilitate increased opportunities for international collaboration, tools such as Skype and Google Hangouts are supporting just-in-time communication and working and the development of collaborative grant funding applications. Researchers are reporting that Web 2.0 tools are increasing the profile of their research and raising their awareness of others working in similar fields both in the UK and overseas³.

In times of financial constraint where funding to attend conferences is limited social media are also enabling virtual attendance and participation in conferences. Many conferences now support video streaming of plenary sessions and Twitter back channels broadcast conference presentations allowing virtual delegates to participate and engage in the conference discussion and pose questions to keynote speakers. Videos of keynotes and plenary talks may also be uploaded to YouTube or Vimeo whilst PowerPoint presentations may be uploaded to Slideshare or Google Drive or Google Sites and viewable to a wider

³ If you build it, will they come? How researchers perceive and use web 2.0. A Research Information Network report. July 2010 <http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/use-and-relevance-web-20-researchers>

audience there. Delegates also blog their conference experiences, again widening the discussion beyond those who physically attended.

Researchers are also connecting via social reference management tools. Sites such as CiteULike, Mendeley, Zotero and Colwiz all support groups and different levels of collaboration. Group collections can be followed via RSS feeds pushing information to individuals rather than them having to constantly check for what's new. Most journals now support sharing buttons allowing individual readers to share an article to a reference tool, social bookmarking tool, Twitter, Google+, LinkedIn, Facebook etc.

For NHS teaching and research staff with a University PC access to social media tools that can bring value added value and benefits to their day to day work is not generally problem. However, for NHS staff with a higher education role in a health professions school or college that only have access to an NHS PC access to these tools is generally problematic.

WEB 2.0 AND SOCIAL MEDIA AND THE NHS

The NHS has recognised the potential social media brings to communicating with patients, staff and other stakeholders and the business benefits that social networking tools can bring⁴. Many NHS Trusts and Boards now have Facebook pages and Twitter accounts where they push and broadcast news and information on services and invite feedback and dialogue with the public. Some also have channels on video sharing sites such as YouTube. Whilst the NHS recognises the benefits of these sites there is also a caution in its approach to social media as there are also potential risks in using social media tools including

- breach of patient confidentiality
- breach of copyright
- cyberbullying
- lapses in professionalism.

These risks are very real and a Guardian Healthcare freedom of information request to 25 of the biggest NHS Trusts in England revealed 72 separate incidents across 16 trusts involving staff inappropriately using social media between 2008 and October 2011⁵. Given the potential for misuse many NHS Trusts and Boards have developed local social media guidelines and policies. These documents typically highlight the role social media tools can play in engaging with patients and communities, particularly those who have been difficult to connect with in more traditional communication channels. They also outline guidelines for the safe use of social media tools alerting staff to their responsibilities including not to divulge confidential patient and organisational information and the need to respect others including patients, colleagues and their employer. Furthermore as previously mentioned many NHS organisations also limit and or restrict access to many social media and Web 2.0 technology websites.

Some of the issues relating to the misuse of social media also touch on issues of professionalism and fitness to practice and this has led to professional organisations and

⁴ The power and the perils of using social networking tools in the NHS. NHS Faculty of Health Informatics 2008.

⁵ Trusts reveal staff abuse of social media. Guardian Healthcare Network, Sade Laja, 09/11/2011 <http://bit.ly/uk3LCC>

regulators publishing guidance on the use of social media. These guidelines place responsibility on individual practitioners and they echo the risks identified in many of the NHS policies. In 'Using social media: practical and ethical guidance for doctors and medical students'⁶, the British Medical Association focuses on the ethical responsibilities of using social media relating to patient confidentiality, appropriate discussions of clinical practice and patients and highlights the blurring of professional and private boundaries. These guidelines are aimed at both qualified professionals as well as students and refer to the relevant professional guidance on professional conduct and practice.

Early Adopters

Whilst in the past the adoption of technologies in the NHS has largely been the result of organisational implementation, the growth in the use of Web 2.0 technologies and social media tools has emerged from the grass roots. Early adopters of social media have identified their application to everyday working and are using these tools to support lifelong learning, to more effectively manage information and connect with others. Online communities of practice are emerging across the healthcare professions offering mutual support and advice in the use of social media. Access to these tools during the working day can however be problematic as often access is restricted from an NHS PC. Some staff are able to work around this by bringing in their own devices but this is not possible for all and is a growing source of frustration particularly for those involved in teaching in the NHS. The recent NHS Employers briefing on HR and social media in the NHS states⁷:

"A policy of 'no social media use at work' could affect an individual's level of engagement with the organisation if it separates them from professional contacts. Similarly, a policy of open access to social media could increase their feeling of membership of an organisation by allowing them a space in which to ask questions and discuss issues."

There is potential for the NHS to engage with these early adopters as mentors and trainers, as many of these individuals are aware of the risks and pitfalls of using social media. They are able to address areas of concern from personal experience and to caution colleagues whilst also highlighting the benefits brought to their own work and practice. Indeed some of these early adopters, such as #WeNurses⁸ are already sharing their experience and offering support to their professional colleagues. The involvement of such groups and a consistent approach across NHS organisations to the use of and access to social media and Web 2.0 technologies would be welcome. All NHS staff are required to complete training on information governance and perhaps similarly there should be mandatory training on the use of social media to raise possible issues but also to model good practice and highlight responsibilities. It would also help to reinforce existing legislation, protocols guidelines and policies for example in relation to copyright and the reuse of clinical recordings. There is still a lack of awareness of copyright issues and training could helpfully highlight how content, including images, may be reused under Creative Commons licenses. Attention could also be drawn to the GMC's guidelines on making and using clinical recordings of patients⁹.

⁶ BMA – Using social media: practical and ethical guidance for doctors and medical students. <http://bit.ly/KoTIBW>

⁷ NHS Employers Briefing 87 – HR and social media in the NHS: An essential guide for HR directors and managers January 2013 - <http://www.nhsemployers.org/Aboutus/latest-news/Pages/HRandsocialmediaintheNHS-newbriefingpublished.aspx>

⁸ #WeNurses – Connecting, driving and supporting the nursing community - <http://www.wenurses.co.uk/>

⁹ GMC Making and using visual and audio recordings of patients – April 2011 - http://www.gmc-uk.org/guidance/ethical_guidance/making_audiovisual.asp

Bring your own device (BYOD)

With increasing numbers of staff bringing their own devices (BYOD) into the work place there is a sense of the genie being out of the bottle and the notion of a blanket ban on social media increasingly difficult to enforce. This is a view already voiced by the Nursing and Midwifery Council¹⁰:

“We do not advocate blanket bans on nurses, midwives or students joining or using social networking sites, and employers and educators should not suggest that this is our position. Even if such bans could be imposed on workplace or university computer networks, personal computers and mobile devices offer easy access. Blanket bans are likely therefore to be both unenforceable and counter-productive. We support the responsible use of social networking sites by nurses, midwives and students.”

A number of NHS Trusts and Boards have acknowledged the reality of this situation and are actively exploring and piloting BYOD into the NHS workplace and working with higher education to provide eduroam wireless connectivity to support teaching in NHS locations. Similarly here, these early adopters can help to share good and best practice in the implementation of such initiatives, including device management and security. It is hoped that case studies from the NHS-HE Connectivity Best Practice Working Group can help NHS organisations review their approaches to access to social media and Web 2.0 technologies and highlight approaches which support access whilst addressing the risks.

OTHER CONSIDERATIONS

THE NHS Standard Operating Environment (SOE) Desktop

Whilst lack of access to social media sites is a source of frustration for many NHS staff involved with teaching and research there are also other issues relating to the standard NHS PC desktop and operating environment that impact on their work. There are well known issues with web browsers as the NHS has been slow to upgrade from Internet Explorer (IE) 6. Many NHS organisations have now made the move to IE 7 or 8 but issues still remain and Google web apps stopped supporting IE8 from 15 November 2012¹¹. Many new web technologies are being launched to run in Google Chrome, Mozilla Firefox and Safari, and developing for IE is either further down the roadmap or not on the map at all. In light of this and other issues that staff have in viewing resources on their NHS PCs it would prove helpful to consider a recommended specification desktop and hardware for those with teaching responsibilities. The following list includes suggestions based on issues experienced by NHS staff teaching undergraduate students:

- PCs to have both video and audio cards to support viewing and hearing of video and audio content, with access to a headphone socket. These features are also in growing demand to support the creation of learning content.

In relation to software access is required to

- a secure modern browser – consideration to be given to installing Chrome or Firefox on the SOE and/or raising awareness of portable versions of these browsers.

¹⁰ Nursing and Midwifery Council – Social networking sites – updated June 2012 - <http://www.nmc-uk.org/Nurses-and-midwives/Advice-by-topic/A/Advice/Social-networking-sites/>

¹¹ Supporting modern browsers: Internet Explorer 8 support discontinued – 14/09/2012 - <http://googleappsupdates.blogspot.co.uk/2012/09/supporting-modern-browsers-internet.html>

- media players – the SOE should include standard media players (Windows Media Player, Quicktime, Flash player etc) so that educational content can be viewed and used in teaching and training.
- Adobe Reader – some staff still report that they cannot view PDF documents in the work place, clinical guidelines and NHS communications cannot therefore be read.
- the latest version of Java – a number of Universities are supporting students and staff access to remote desktops in NHS locations to solve the issues detailed above. A Citrix solution has been employed by many, however access can be problematic due to old versions of Java on NHS SOEs. Consequently the benefits of significant investment in these technologies do not reach their potential.

National whitelist of education and resource websites

Finally there are issues with accessing educational and resource websites. Doctors have reported that sites, which support clinical decision making such as UptoDate have been blocked by NHS Boards and Trusts and that the NHS ePortfolio required to be completed by doctors in training and on the Foundation Programme has similarly been blocked.

The SHaLL Information Management and Technology Group has created and regularly updates a white list¹² of educational web sites and knowledge resources that should be accessible within the NHS. Requests for additions may be submitted to the group.

Universities may similarly develop local whitelists of their own services including libraries, virtual learning environments etc and share these with relevant NHS IT departments to ensure staff and students can access these URLs.

¹² SHaLL SIMTG List of knowledge resource URLs which should not be blocked - <http://www.libraryservices.nhs.uk/forlibrarystaff/information/technology.html>

OVERVIEW OF WEB 2.0 and SOCIAL MEDIA TOOLS

1. Social media sites

1.1 Video sharing sites

Examples include: YouTube; YouTube.edu; Vimeo; BlipTV

Teaching and training resources are increasingly being shared on social media sites as many organisations, institutions and individuals use these sites to host their video resources. These videos can be viewed directly on these sites but can also be embedded on any web page and are common features on blogs and wikis.

Potential users include:

- Staff involved in teaching
- Students on NHS clinical attachments
- Staff engaged with postgraduate study, CPD and staff development
- Management/admin staff to view recordings of policy seminars etc

Benefits	<ul style="list-style-type: none"> • Free access to growing library of video resources • Channels include NHS, universities, medical charities, health organisations • Content can support <ul style="list-style-type: none"> ○ Undergraduate teaching ○ Postgraduate and lifelong learning ○ Staff development eg IT training ○ Patient education and health promotion • Videos can be reused by embedding in other webpages, PowerPoint etc • Easy way to share resources with staff and patients
Risks	<ul style="list-style-type: none"> • Bandwidth – video sharing sites are typically blocked in NHS locations due to concerns about bandwidth and the effects on delivering clinical services such as PACS • Only one click away from a video of ‘a dog on a skateboard’ • Potential distraction • Staff could upload content which breaches copyright or patient confidentiality • Negative comments could be posted on uploaded videos • If access is available to all staff this could be open to abuse, however these channels are available and accessible via smartphones
Recommendations	<ul style="list-style-type: none"> • Work with Learning and Development staff to identify useful and relevant content. As a default the education stream of YouTube should be accessible • If bandwidth proves to be a problem for the use of any video content, there should be an area where NHS staff can access this material at work, for instance a library, teaching or IT room. • Where staff wish to use these channels to share video resources raise awareness of GMC and JISC guidelines concerning reuse of clinical recordings and copyright legislation • Uploading of content should be allowed when authorised by Learning and Development staff
Access	<p>Viewing – PARTIAL ACCESS – Access should be made available on PCs in named locations eg IT training suites, libraries, teaching rooms and to individuals with teaching roles.</p> <p>Uploading – PARTIAL ACCESS – authorised named individuals</p>

1.2 Presentation sharing sites

Examples include: Slideshare, Prezi, Slidrocket, Google Drive, Haiku Deck

Increasingly conferences and meetings post PowerPoint slides on presentation sharing sites such as Slideshare to support sharing with delegates and the wider community. Here presentations can be viewed and downloaded directly from Slideshare but can also commonly be embedded on other web pages such as blogs. There is also growing interest in other presentation tools such as Prezi, Slidrocket and Haiku Deck, which also support online viewing and mobile accessibility.

Potential users include:

- Staff involved in teaching
- Students on NHS clinical attachments
- Staff engaged with postgraduate, study CPD, and staff development
- Staff engaged in research to access conference presentations
- Management/admin staff to access presentations from policy seminars etc

Benefits	<ul style="list-style-type: none"> • Free access to growing library of presentations • Channels include NHS, universities, medical charities, health organisations • Content can support <ul style="list-style-type: none"> ○ Undergraduate teaching ○ Postgraduate and lifelong learning ○ Staff development eg IT training ○ Patient education and health promotion ○ Dissemination of research • Presentations can be reused by embedding in other webpages • Easy way to share resources with staff and patients • Increases accessibility of conference presentations of relevance to education, research, management, leadership etc
Risks	<ul style="list-style-type: none"> • Staff could upload presentations which breach copyright • Presentations may include patient identifiable data and breach data protection • Presentations could include commercially sensitive material
Recommendations	<ul style="list-style-type: none"> • Uploading of content should be allowed when authorised by learning and development staff • Staff development on copyright & IPR, reuse of clinical images and sharing data
Access	<p>Viewing – FULL ACCESS (Universal access for all staff to view presentations)</p> <p>Uploading – Organisations may wish to consider a policy for uploading content to presentation sharing sites and restrict upload access.</p> <p>It should be noted that Prezi and Haiku Deck presentations can be created on mobile devices.</p>

1.3 Image sharing sites

Examples include: Flickr, Picassa

Photo sharing sites are a rich source of images that can be reused under Creative Commons licences. Images can be downloaded and reused in presentations and publications where appropriate attribution is provided. Some academic and research conferences also share poster presentations on sites such as Flickr to support the wider dissemination of these communications.

Potential users include:

- Staff involved in teaching and learning
- Students creating presentations on clinical attachments
- Staff who deliver presentations in a variety of different contexts
- Staff engaged in research to access conference posters
- Staff involved in developing publications, handbooks, training resources etc.

Benefits	<ul style="list-style-type: none"> • Free access to growing library of images • Creative commons licences support reuse of images • Images can be used in a variety of presentations and resources that support <ul style="list-style-type: none"> ○ Undergraduate education ○ Postgraduate education and lifelong learning ○ Staff development ○ Patient education and health promotion ○ A variety of publications, leaflets, booklets etc
Risks	<ul style="list-style-type: none"> • Staff may download and use images that are copyrighted and not available for reuse or have been not been shared by the rights holder • Staff may upload images which they do not own the right of or that may be images with person identifiable data • Staff wasting time on non-work matters
Recommendations	<ul style="list-style-type: none"> • Uploading of images should be allowed when authorised by learning and development staff • Staff development on copyright & IPR, reuse of clinical images • Staff development on how to search for reusable images • Restrictions on who is able to upload images
Access	<p>Viewing – PARTIAL ACCESS –</p> <ul style="list-style-type: none"> • Staff involved in teaching, training and research should have access to these sites. • Accessible from computers in NHS libraries <p>Uploading – Organisations may wish to consider a policy for uploading content to photo sharing sites and restrict upload access.</p> <p>It should be noted that images can be uploaded and downloaded on mobile devices.</p>

2.0 iTunes / iTunesU

iTunes is a free application that helps to organise music, podcasts, iBooks and apps from the Apple store. Content can be viewed and listened to on a PC or Mac and on hand held devices such as iPhones, iPads and iPods. Many universities are now distributing recordings of lectures, podcasts, videos and iBooks to students via iTunes-U as are publishers such as the BMJ. There are also growing numbers of health related apps that can be downloaded from the iTunes App store, eg NICE BNF app, SIGN guidelines, local prescribing guides etc. Key issues include accessing iTunes on an NHS desktops and wifi connectivity supporting updating of apps in the NHS environment.

Potential users include:

- Staff involved in teaching
- Students on NHS clinical attachments
- Staff engaged with postgraduate study, CPD and staff development
- Management training
- Clinical staff, pharmacists
- Patients and wider public

Benefits	<ul style="list-style-type: none"> • Access to both free and paid for content including lectures, podcasts, videos, apps, iBooks • Channels include NHS, universities, medical charities, health organisations • Content can support <ul style="list-style-type: none"> ○ Undergraduate teaching ○ Postgraduate and lifelong learning ○ Staff development eg IT training, management ○ Patient education and health promotion • A channel for the NHS to distribute <ul style="list-style-type: none"> ○ information to patients ○ training to staff ○ local policies & protocols to staff
Risks	<ul style="list-style-type: none"> • Anyone with an Apple ID can upload content to iTunes and individuals could potentially post up content which breaches copyright
Recommendations	<ul style="list-style-type: none"> • Uploading of content should be allowed when authorised by learning and development staff • Access should be made available on PCs in named locations eg IT training suites, libraries, teaching rooms
Access	<p>Viewing – PARTIAL ACCESS –</p> <ul style="list-style-type: none"> • Staff involved in teaching, training and research could benefit from access to iTunes as videos could be used to support teaching activities and also incorporated into local teaching resources • Accessible from computers in NHS libraries and teaching rooms • Wifi access to support downloading and updating of medical apps <p>Uploading – Restricted to learning and development teams uploading to official institutional channels.</p>

3.0 Blogging tools

Blogging tools such as Wordpress, Blogger, Typepad and Tumblr offer an easy way to set up a website and have become particularly popular in education. Individuals can subscribe to RSS feeds from these sites to keep up to date with new posts and information updates or subscribe by email.

Wiki tools such as PB Works and Wiki Spaces may also serve similar functions as blogging tools and support information sharing around specific subject areas and disciplines.

Potential users include:

- All staff may gain benefits from viewing blog sites relating to their area of work
- Staff involved in teaching and training may wish to use blogging tools to support their teaching
- Students may wish to access blogs to support their learning
- GPs and clinical departments may wish to use blogs to communicate and deliver information to their patients
- Supporting internal communication within different staff groups

Benefits	<ul style="list-style-type: none"> • Simple way to set up a website that can be regularly updated with news and topics of interest for specific user communities – eg librarians can run a blog which keeps staff updated on new services, tips for searching the literature, new guidelines etc • Can be used to support education and training across a whole range of disciplines • Helpful tool to support communication with patients and the public • Video content from YouTube and presentations from Slideshare etc can be easily embedded • Useful for short term projects to communicate details of meetings, outcome of meetings etc • Commenting features support community engagement • Ability to embed widgets and bring in RSS feeds from other sites allow sites to become information hubs • Can auto-post content to other channels such as Twitter, Facebook • Versatility • Blogs are proving a popular platform to support the delivery of free open access medical education #FOAMed, examples include #gasclass and #ecgclass • Can be used to create learning portfolios
Risks	<ul style="list-style-type: none"> • Posting of copyright material • Publishing content which is unprofessional or breaches patient confidentiality • No quality controls on opinions or information posted, reliability may be questionable (however other online material already accessible may also be questionable)
Recommendations	<ul style="list-style-type: none"> • Staff development on copyright & IPR and Creative Commons • Local hosting of Wordpress and LDAP integration for closed sites • Staff development around issues of digital professionalism and digital identity • Increasing awareness of local NHS social media policies and guidelines from GMC, NMC etc • Development of good practice guidelines on the use of blogging platforms and responsible blogging, showcasing good examples
Access	<p>Viewing – FULL ACCESS</p> <p>Authoring – PARTIAL ACCESS</p> <p>It should however be noted that individuals can post to and comment on blogs from mobile devices.</p>

4.0 Social networking tools

Sites here include Facebook, Twitter, Google+, LinkedIn. Some universities are also using NING and Yammer to create closed and open course groups to support collaboration and discussion amongst course participants.

Potential users include:

- Staff involved in teaching and training
- GPs and clinical departments who may wish to share information with patients
- Staff involved in supporting other staff eg Librarians
- Staff wishing to professionally connect and communicate with others across other NHS Trusts and Boards and other institutions

Benefits	<ul style="list-style-type: none"> • Facebook can play a helpful role in communicating with patients and the public. Many NHS Trusts & Boards have Facebook pages. • Twitter too can be used to broadcast announcements to the public. It can also be a useful tool to support professional networking and is increasingly supporting discussion across a range of communities of practice around hashtags such as #wenurses, #nhssm, #gasclass, #ukmeded • LinkedIn also supports professional networking, with helpful discussion boards and special interest groups. • Specialist discussions may contain useful information and ideas and give access to new stakeholders • Trends and innovative practice can be identified early and exploited to bring business improvement • Open access to experts in other locations within the UK and internationally
Risks	<ul style="list-style-type: none"> • Staff wasting time on non-work topics • Posting of inappropriate content eg patient identifiable information • Bullying and harassment
Recommendations	<ul style="list-style-type: none"> • Staff development around issues of digital professionalism and digital identity • Increasing awareness of local NHS social media policies and guidelines from professional bodies eg GMC and NMC • Development of good practice guidelines and acceptable use policy • Exploring the use of Yammer to support internal networking • Partial access might be provided in named location where access is freely available eg libraries or IT rooms
Access	<p>Viewing – FULL ACCESS for work purposes</p> <ul style="list-style-type: none"> • Acceptable use policies could be developed and weekly allowances could be put in place • Access for teachers, researchers, librarians students to support teaching, learning, research activity and collaborative working • Full access to LinkedIn <p>It should be noted that staff and students can access social networking sites on their smartphones via mobile networks whether blocked on NHS networks or not.</p>

5.0 Social bookmarking tools

Social bookmarking tools such as Delicious, Diigo and Zootool allow individuals to save and access bookmarks via any web browser. These can be shared with colleagues and others via email and RSS feed subscriptions.

Potential users include:

- Staff involved in teaching and training
- Students to support information management
- GPs and clinical departments may wish to use social bookmarking to share useful websites with patient
- Any staff member may wish to use this to help manage their bookmarks

Benefits	<ul style="list-style-type: none">• Ability to build up shareable and searchable collections of online content• Could be used across many disciplines – clinical, management, policy, IT etc• Subscribe by email or RSS to new links added by users• Network with other professionals and subscribe to their bookmarks• Build collections of weblinks which can support patients, students or colleagues
Risks	<ul style="list-style-type: none">• Staff wasting time on non-work topics
Recommendations	<ul style="list-style-type: none">• Staff development on using social bookmarking
Access	Viewing – FULL ACCESS

6.0 Rapid learning asset development tools

Screencasts and podcasts can be helpful tools to support staff development. Tools such as Audioboo and Screenr are free web-based tools, which can support the rapid development and sharing of these resources.

Potential users include:

- Staff involved in teaching and training
- GPs and clinical departments who may wish to share information with patients
- Staff involved in supporting other staff eg librarians, training teams

Benefits	<ul style="list-style-type: none"> • Support the development of just-in-time resources which can support <ul style="list-style-type: none"> ○ teaching ○ training ○ staff development ○ patient education
Risks	<ul style="list-style-type: none"> • Posting of inappropriate content, which may breach copyright or patient confidentiality
Recommendations	<ul style="list-style-type: none"> • Staff development on learning resource development • Staff development around issues of digital professionalism and reuse of clinical recordings • Increasing awareness of local NHS social media policies • Development of good practice guidelines on content development • Make available on PCs in named locations, eg libraries, teaching rooms.
Access	<p>PARTIAL ACCESS for</p> <ul style="list-style-type: none"> • staff involved in teaching and training to support learning resource development • librarians <p>It should also be noted that mobile devices increasingly support the creation of learning resources with growing numbers of apps for screencasting, video, presentations etc.</p>

7.0 Collaborative working

Tools that support collaborative working include Google Drive, Microsoft 365 and wikis. File storage sites such as Dropbox and SugarSync also support file sharing.

With growing numbers of universities moving their email services to the cloud and subscribing to Microsoft 365 and Google Mail and Google apps access to these services for students and staff involved in teaching across the healthcare professions will become a growing issue. Many students on placements in NHS locations are unable to access University email whilst in the NHS which makes it difficult for them to keep in touch with their host institution.

Potential users include:

- Staff involved in collaborative working eg collaborative research projects
- Students to support group working
- Staff involved in collaborative projects with colleagues outwith their own institution
- Staff involved in teaching and learning liaising with University colleagues in the development of learning resources

Benefits	<ul style="list-style-type: none"> • Tools such as Google Drive facilitate collaborative authoring of documents where authors, contributors and reviewers are distributed across multiple locations and institutions. They may be particularly helpful when developing funding proposals, writing research papers etc. • Google Hangouts and Skype support virtual meetings, desktop sharing and Google Drive allows synchronous editing of documents. This can help reduce travel costs and carbon emissions • With limitations on file size of email attachments file sharing sites such as DropBox and Sugar Sync support sharing of project documents. This can be particularly helpful to support the development of online learning resources for example when video content is being edited and being shared back and forth between a University elearning team and a subject matter expert based in the NHS.
Risks	<ul style="list-style-type: none"> • Sharing of sensitive and/or inappropriate content and information • Leakage and fragmentation of institutional content and information, which may have implications in relation to data protection and responses to freedom of information requests.
Recommendations	<ul style="list-style-type: none"> • Access could be provided to staff or departments upon request to ensure good practice and information security issues are understood and followed • NHS organisations should work with HE to support secure file sharing and collaborative working. Possible options include paying for a commercial service and the potential for Sharepoint hosted on NHS servers to be opened to University staff to support collaboration and for virtual meetings to be supported by Microsoft Lync. This solution merits further investigation and case studies of successful implementation should be shared. • Review and pilot the use of cloud computing to maximise the benefits and minimise potential risks
Access	<p>Partial access – currently these sites are generally blocked in NHS locations, but sites like Dropbox may be accessible upon request.</p> <p>Staff with mobile and tablet devices will already be using these collaborative working tools and file sharing services.</p>

8.0 Survey tools

Sites here include Poll Daddy and Survey Monkey. Individuals can create free accounts to run surveys, larger scale surveys will require premium accounts.

Potential users include:

- Staff involved in teaching and training
- Staff and students involved in research
- Staff involved in service development, innovation and evaluation

Benefits	<ul style="list-style-type: none"> • Support research • Rapid development of surveys and polls • Support rapid evaluation of new innovations
Risks	<ul style="list-style-type: none"> • Lack of ethics approval for research • Inappropriate requests for personal data
Recommendations	<ul style="list-style-type: none"> • Staff development on using survey tools • Clear policy on use of tools with checks on appropriate use to ensure individuals are not trying to obtain personal data.
Access	PARTIAL ACCESS

9.0 Reference tools

Sites here include CiteULike, Mendeley, Zotero and Colwiz.

Potential users include:

- Staff involved in teaching and training
- Staff involved in research
- Library staff

Benefits	<ul style="list-style-type: none"> • Free reference management services could support financial savings • Support collaborative research • Support research networking • Supports collaborative research across institutions and international collaboration
Risks	<ul style="list-style-type: none"> • None identified
Recommendations	<ul style="list-style-type: none"> • Staff development on use of reference tools
Access	FULL ACCESS

10.0 Content aggregator and curation tools and RSS readers

Sites here include Netvibes, Yahoo Pipes, Scoop.it, Pinterest.

Potential users include:

- Staff involved in teaching and training
- Librarians
- Staff involved in research
- Students
- GPs and clinical departments who may wish to share information with patients
- All staff who want to remain up to date in their professional area and to curate and share information with colleagues

Benefits	<ul style="list-style-type: none"> • Collate and aggregate information relating to specific subject areas • Supports development of online information hubs • Support content curation for teaching • Ways of sharing validated information to patients
Risks	<ul style="list-style-type: none"> • Curated video content embedded in these sites could use valuable bandwidth
Recommendations	<ul style="list-style-type: none"> • These sites offer considerable benefits to staff and many are being developed by library and information services • Recommend open access • As an absolute minimum, work with local librarians to identify locally developed sites and others of particular professional use
Access	FULL ACCESS

With all of these Web 2.0 technologies and social media tools there are concerns about where data may end up given that many of these sites and service are hosted outwith EU territories. This could cause issues if things should go wrong.

The use of all of the tools and technologies detailed above may benefit from being included in NHS local social media policies. NHS organisations should also consider developing acceptable use guidelines for each rather than simply blocking access given that staff can use and access these services from personal mobile devices. Local guidelines may also benefit from the inclusion of case studies that can serve as exemplars of good and effective practice.