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# Social Networking in the National Health Service in England: A Quantitative Analysis of the Online Identities of 152 Primary Care Trusts

**Mark D. Hawker**

*Yorkshire Centre for Health Informatics, Leeds Institute of Health Sciences, Faculty of Medicine and Health, University of Leeds, Leeds LS2 9LJ, UK*

**Abstract**

*Increasing numbers of the public are becoming digitally connected. In particular, younger "born digital" generations now use the World Wide Web as their primary source of information alongside conventional media such as television and print. Little is known as to whether health organisations are using new media channels such as Facebook and Twitter to engage with the public and patients. This quantitative analysis investigates the online identities of Primary Care Trusts (PCTs) in the NHS in England to inspect their usage of social utilities. Results showed that a total of 61 organisations (40.13%) use at least one utility with the most popular being Twitter (n=30) and Bebo the least (n=1). However, organisations appear to be failing to take advantage of the interactive nature of social utilities instead using them as unidirectional information "push" channels. The ways in which health organisations could use social utilities for engagement is underexplored and so we must look to other research disciplines for best practice and evidence.*

***Keywords:***

Consumer health informatics, Internet, Organisation-patient relations

## Introduction

Five billion minutes are spent on Facebook worldwide per day [1]. In the UK alone, Facebook user numbers account for approximately one quarter (18,711,160) of the population [2]. Collectively Bebo, Facebook, Twitter and YouTube are used by millions of people worldwide to communicate with friends and family, to share and consume information. This is known as online social networking. In healthcare, there could be several use cases for utilising these systems such as facilitating virtual clinician-clinician, clinician-patient and patient-patient interaction. From an organisational perspective, they can be used for internal communication, but also outreach into the community which is the focus of this study. The aim of this research is to quantify whether health organisations in the NHS in England are using these "social utilities" to engage with patients and the public so further research can be conducted into how and whether digital communications is an appropriate communications channel for health organisations.

Primary Care Trusts (PCTs) manage health services such as family doctors, community nursing and dentists, commission secondary care services and account for approximately 80% of the total NHS budget [3]. There are currently 152 PCTs in the NHS in England. Theoretically, they are best positioned to understand the needs of their local communities and work with authorities and other agencies that provide health and social care to ensure the community's needs are met. PCTs are developing "world class" commissioning competencies [4] with the aim of achieving the most cost effective greatest healthcare gain and reducing health care inequalities. One of these competencies is to engage with patients and the public a role now enshrined in the NHS Constitution [5] giving them the right to be involved in the planning, development and feedback of services directly or indirectly affecting their care. Digital communications could form part of this ongoing engagement strategy. We report the outcomes of a quantitative analysis of the online identities of 152 PCTs in the NHS in England.

## Methods

To determine whether PCTs in the NHS in England are using digital communications as a means of public engagement, a quantitative analysis of all 152 organisations' digital identities was conducted. Organisation names were extracted from the NHS Connecting for Health Organisation Data Service which provides a downloadable Comma-Separated Value (CSV) or Microsoft Excel (XLS) snapshot of data including national identifiers and local addresses. These names were cross-referenced within the Bebo, Facebook, Twitter and YouTube social utilities to assess whether the organisation was represented. If an organisational presence was found it was investigated using metrics defined for each social utility. A preliminary search was conducted to identify that these four social utilities were being used by the NHS organisations and ruled out other social utilities such as MySpace as no accounts were found. In the future it is possible that other social utilities will be adopted and current metrics will need to be created to include them.

Founded in January 2005, Bebo ("Blog early, blog often") is a social networking site similar to Facebook. It allows users to share video, photos and groups as well as providing blog and whiteboard commenting functionalities to communicate and

share with friends. Bebo profiles list the number of times somebody visits a profile and also public information that has been permitted to be shared including the number of friends a user has. As suitable metrics the number of videos, photos, groups, blog posts, whiteboard entries, comments, number of friends, profiles views and links back to Facebook, Twitter and YouTube were recorded.

Founded in February 2004, Facebook is the largest and most-used social utility in the world today [6]. While complex, Facebook gives users full control over their use of core applications such as Photos, Groups and Video. The context analysis was split into three Facebook entities:

- Facebook Profiles are reserved for individuals and are not generally accessible to the public due to privacy restrictions. For this study they were excluded as there was no way of verifying whether they are owned by the official organisation.
- Facebook Groups can be created by anybody and are generally used for petitions, tributes and general conversation. Closed or "secret" groups are available which require an explicit invite as public ones can be subject to exploitation by malicious users.
- Facebook Pages are reserved for organisations and other business entities rather than them creating an individual account which is against Facebook Terms of Use. Facebook Pages are like Groups but are more flexible in terms of functionality and control.

All entities were queried using the internal Facebook search engine although Profiles were excluded from the quantitative analysis. As suitable metrics the number of members (fans), discussion topics and posts, notes (only on Pages), wall posts (only on Groups), photos, links, videos, events and links back to Bebo, Twitter and YouTube were recorded. Only "official" Groups were analysed which were filtered by discounting ones which did not display a legitimate .nhs.uk e-mail address. This is not a perfect solution but an adequate indicator of veracity.

Founded in 2006, Twitter is an open social networking and micro-blogging service that enables its users to send and read messages known as tweets. Like a cocktail party, users amass in groups and talk openly whilst listening in to surrounding conversations and contribute if they hear something interesting. On Twitter users "follow" others so that their tweets appear in their tweet-stream (the conversation) and can also be "followed" by other users so that they appear in somebody else's tweet-stream. As suitable metrics the number of tweets, following, followers, date joined and links back to Bebo, Facebook and YouTube were recorded.

Founded in February 2005 YouTube is a video-sharing site owned by Google, Inc. YouTube allows users to share, upload and comment on videos worldwide through playlists and user accounts known as "channels". Many YouTube videos are made public and are easily accessible which has both positive effects on mass viral distribution and reducing barriers to entry for video clip and movie producers but also brings negative effects such as comment abuse and illegal uploading of copyrighted materials. As suitable metrics the number of channel subscriptions, videos, channel views, date joined and links back to Bebo, Facebook and Twitter were recorded.

Data was collected on the 29th July, 2009, using a tripartite search strategy: via four generic Google search queries e.g. *NHS OR PCT OR "Primary Care Trust" site:bebo.com* replacing *bebo.com* with *facebook.com*, *twitter.com* and *youtube.com* to identify presences across the WWW; an internal Facebook search for *NHS OR PCT or "Primary Care Trust"* to identify Facebook Groups and Facebook Pages; and, PCT-specific Google searches e.g. *bebo OR twitter OR facebook OR youtube site:doncasterpct.nhs.uk* for all 152 organisations to identify any missed presences from the previous searches. Each presence was investigated and quantitative data recorded for each metric. Due to the human element of inquiry and the need to assess veracity this process was not computer-automated. Results were stored in Microsoft Access and exported to Microsoft Excel for analysis. Each result was then marked with the date it was collected to allow for future longitudinal research.

## Results

Figure 1 shows the total number of online accounts (Bebo, Facebook, Twitter and YouTube) created by PCTs in the NHS in England. In two instances, two PCTs had two Facebook Pages which were both included in the data analysis. The results show that Twitter is the most widely adopted platform ($n$=30) although this represents only 19.74% of total organisations, and the least adopted platform is Bebo ($n$=1). While Figure 1 gives an indication of quantity it does not give any indication of qualitative engagement by the public and patients.

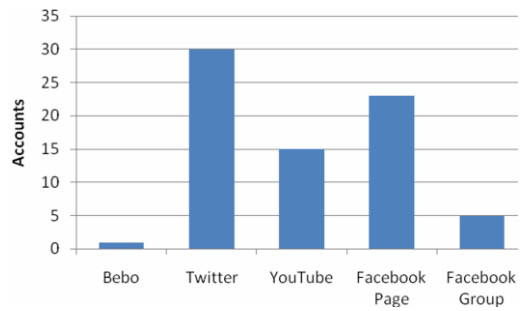


*Figure 1 – Total Number of Accounts (n=73)*

The total number of accounts represented 61 organisations (40.13%) out of all PCTs. Out of these organisations 42 (68.85%) utilised a single social utility, 16 (26.23%) used two, and three (4.92%) used three utilities. From the collection of official PCT web sites only three linked to their Facebook Group or Facebook Page, 12 to their Twitter accounts and four to their YouTube account. These statistics suggest that no clear, unified strategy has been enforced to link all identities or to align with organisational and communication strategies

which could lead to a richer, more streamlined experience for patients and the public.

**Bebo**

Only one organisation was utilizing the Bebo social utility. This organisation utilised all parts of the platform – photos, blog posts, videos, groups, comments and whiteboard – and had 136 friends and 76 profile views. Due to the low uptake of Bebo it is questionable whether it is a suitable utility for public engagement. Further investigation is required to elicit why the organisation decided upon Bebo and what prior market research led them to adopt the platform.

**Facebook**

Table 1 shows the frequencies of metrics across five Facebook Groups and 23 Facebook Pages which account for distinct 28 organisations. In one instance two organisations were amalgamated as they were using the same Facebook Page. Two organisations had two Facebook Pages which were both included separately. The results show many organisations failed to engage at all, with zero metrics accounting for 61.11% of outcomes. While discussions were used in 13 (44.83%) cases, in only five (38.46%) was a reply to the original post made. In only three cases did the organisation reference their presence on another social utility – all were Twitter.

*Table 1 – Facebook Engagement (n=28)*

| Metric | 0 | 1 | 2-10 | 11-20 | 21+ |
|---|---|---|---|---|---|
| Discussion Topics | 17 | 6 | 5 | 0 | 0 |
| Discussion Posts | 17 | 4 | 7 | 0 | 0 |
| Events | 19 | 5 | 4 | 0 | 0 |
| Members (Fans) | 3 | 2 | 9 | 3 | 11 |
| Links | 15 | 3 | 7 | 1 | 2 |
| Photos | 19 | 2 | 5 | 0 | 2 |
| Notes | 14 | 2 | 6 | 1 | 0 |
| Videos | 21 | 4 | 3 | 0 | 0 |
| Wall Posts | 2 | 1 | 2 | 0 | 0 |

To better understand engagement strategies, means were calculated to determine how often these strategies were employed across each organisation. Organisations provided more links ($m$=4.000, $SD$=9.623) than any other strategy, but also posted notes ($m$=2.217, $SD$=3.884), photos ($m$=1.786, $SD$=6.711) and discussion posts ($m$=1.107, $SD$=1.892). For discussions it is important to note that of the 11 organisations that used them, only 5 (45.45%) had a reply to an original post. The mean number of members (fans) was 35 ($SD$=58.421) with support varying from a high of 277 to a low of zero.

**Twitter and YouTube**

Figure 2 shows the cumulative number of organisations on Twitter and YouTube since June, 2007. In one instance two organisations were represented via a single Twitter account and so only one instance is reported. Since the beginning of January 2009, which was when Twitter began being mentioned in mainstream media, there has been a sharp increase in the number of Twitter accounts opened, and a marked plateau of account openings on YouTube. Further longitudinal research will need to be conducted to identify whether this trend will continue to be satisfied or whether it will plateau like YouTube in the future.

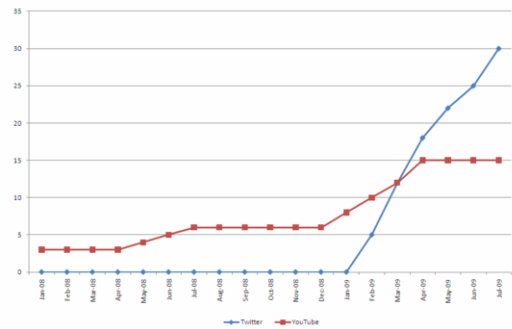


*Figure 2 –Accounts Opened on Twitter (n=30) and YouTube (n=15) Since June, 2007*

Figure 3 shows a bubble chart of the relationships between subscriptions, videos and channel views (indicated by the bubble size) of all 15 YouTube accounts.

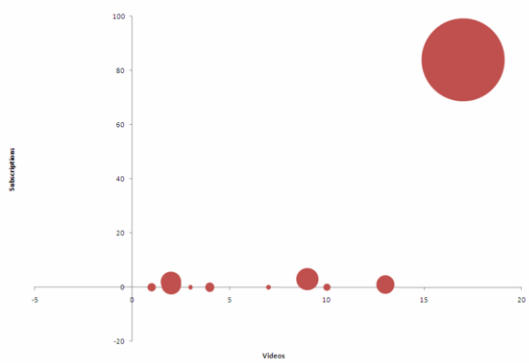


*Figure 3 –YouTube Engagement (n=15)*

The correlation between metrics is positive with subscriptions to channel views being the strongest (0.9982) followed by videos to channel views (0.6857) and videos to subscriptions (0.6764). This suggests it is more about the quality of videos to gain channel subscriptions than posting multiple videos that are not engaging. The large value in the top-right of the chart was due to a controversial video related to teen pregnancy which generated lots of media attention and thus increased views of the video before it was removed.

## Discussion

By analysing the amount of content of online identities of PCTs in the NHS in England this study found that organisations using social utilities were in the minority. The tentative use of technologies parallels earlier studies on how public relations practitioners viewed the WWW and its impact on relationship building. Hill and White [7] found even though the value of the WWW for helping improve an organisation's competitiveness and image was recognised, they were sceptical about its ability to advance. Practitioners highlighted that they "could not articulate or demonstrate with research that they were currently achieving [these] benefits" and that often their sites "did not reflect positively on the organisation". Even though this research pre-dated utilities such as Facebook and Twitter there is still a reluctance to adopt online identities.

This research fits within the broader context of consumer health informatics (CHI) which is defined as "the branch of medical informatics that analyses consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems" [8]. CHI focuses on prevention, self-care, patient empowerment and "consumer-as-partner" models of care rather than traditional, industrial-age, paternalistic, educational or Internet-age models of the consumer-professional relationship [9]. A subset of CHI, Medicine 2.0, describes an eHealth development which defines the broad adoption of Web 2.0 technologies and approaches to social networking, participation, apomediation, openness and collaboration within and between numerous stakeholders of health and social care [10]. This paper describes one element of a much broader picture and focuses on the interaction between healthcare organisations and the public using social networking. As an increasing number of "born digital" generations are entering the world of work their expectations of openness, transparency, access and privacy vary greatly from their predecessors. It could be hypothesised that these Generation Y (and beyond) workers could be the change agents required in healthcare technology utilisation [11] such as their ubiquitous use of the social utilities in their personal lives.

Our results indicated that organisations are failing to take advantage of the interactive nature of social utilities instead using them as unidirectional information "push" channels for news and links and providing a contact e-mail address instead of embracing components such as tweets and wall posts. It is unknown whether this is a strategic decision or one related to lack of operational knowledge as few guides exist for organisations on how to use these sites. Official Twitter [12] and Government [13] templates are emerging to fill this gap but what is not known is how they apply to health organisations and whether they need to be adapted to suit stakeholder groups. In health there is often a reluctance to engage with open systems for fear of reprimand or breaches of confidentiality. The fact that the Government appears to be endorsing the systems may be at odds with other controls within the service. Further research is needed into how these documents can be disseminated, used and evaluated across organisations.

The ways in which health organisations could use social utilities is underexplored and so we must look to other research disciplines for evidence. An analysis of non-profit organisations' use of Facebook for stakeholder engagement [14] suggested it could be used for message dissemination such as posting links to external news items about the organisation such as press releases or its campaigns and causes; posting photographs, video or audio files from the organisation and its supporters; and using discussion boards to post announcements and answer questions [15]. A calendar of events or listing volunteer opportunities was encouraged to bolster offline communications. Putting the influence research of Watts and Dodds [16] into practice who concluded that "large cascades of influence are driven not by influentials but by a critical mass of easily influence individuals" would suggest that by increasing the number of communications channels used you will increase the serendipity of these random information cascades. However, this was noted as being outside of the scope of the research paper. Would creating a Facebook Event or using targeting social advertising recruit more people to patient engagement focus groups?

Outside of academe there are two public projects that show that this is not just topical in the UK. Ed Bennett, a Hospital Web Manager from the United States has compiled a "Hospital Social Network List" of 351 organisations using Blogs, Facebook, Twitter and YouTube which is updated on a regular basis [17] and complementary to this, Lucien Engelen has begun compiling a "European Hospitals List" [18]. Preliminary results show that a staggering 253 (72.08%) of American hospitals have a Twitter account and approximately 50% have Facebook and YouTube accounts. Is this purely down to the competitive nature of care in the United States? Or is it something more complex?

Maintaining a digital identity will not in itself increase awareness or engagement as links between any two people do not imply an interaction between them as was shown by an analysis of a sample of Twitter users [19]. With an appropriate strategy, leadership, policy and guidance there is no reason why more health organisations cannot sensibly embrace new technologies rather than their adoption being linked to one or two keen enthusiasts who use them for personal use. What this research contributes is that organisations are using online identities, whether rightly or wrongly, and from those that do not digitally engage we can investigate whether this is an informed decision or ignorance.

A limitation of the data collection process was assuring veracity of digital identities. Veracity was assessed by the presence of an official NHS contact e-mail address or list of administrators that belonged to the organisation. Where appropriate, identities that appeared unofficial due to spurious e-mail addresses or objectionable content were removed and the organisations were contacted regarding the offending and potentially damaging presence. In all cases, there was no perfect and scalable way to address trust issues but this reflects the un-monitored nature of the World Wide Web (WWW). Further research involving organisational stakeholders is needed to address this issue. What is still not known is the effectiveness of engagement on social utilities such as Facebook and Twitter as little health-focused research has been

published to address this. Social utilities may have been adopted purely to "ride the wave" rather than forming any part of a much wider organisational communications strategy. Whether or not this is true was not the rationale behind this research, but to state that this is happening whether authorised or not.

## Conclusion

The quantitative analysis has proved that the adoption of technologies such as Bebo, Facebook, Twitter and YouTube in PCTs in the NHS in England is underway. We identified that Twitter was the most popular and fastest-growing social utility although this was closely followed by Facebook and YouTube. In all cases there was no apparent strategy to integrate all information channels although this may not have been made available to the public. Further research is needed to qualify this hypothesis and to gain feedback from those organisations that are both using and not using these technologies. We must explore each social utility in detail to identify why they are being used, evaluate how effective they are and what values organisations perceive they have so that others can see the benefits or drawbacks of digital engagement. Longitudinal studies could offer insights into how organisational strategies change over time and case studies should be conducted both in the UK and other countries as a means of sharing successes and failures of engagement efforts.

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**Address for Correspondence**

Mark Hawker, Yorkshire Centre for Health Informatics, Leeds Institute of Health Sciences, Faculty of Medicine and Health, University of Leeds, Leeds LS2 9LJ, UK