

## Perspectives

# Trending now: future directions in digital media for the public health sector

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### ABSTRACT

**Background** Digital media usage is expanding enormously and is starting to be used as a public health intervention and communication tool. It has an ability to increase the reach of public health research and communication, as well as drive measurable behaviour change. But there is an absence of both deep and wide understanding of the opportunities within digital media, i.e. most people think only of Facebook and Twitter when they think of social media; smart, strategic planning for its widespread use is not common practice and rigorous evaluative studies of its effectiveness are few and far between.

**Methods** This paper analyses the published literature on this topic and identifies the top 10 directions that use of digital media is likely to take in the medium term.

**Results** The analysis strongly supports the position that digital media needs to be taken seriously as a vehicle for public health activity in its own right and not merely as an adjunct to other campaigns.

**Conclusions** Digital media will continue to develop and move from being an add-on to existing activity to being the major vehicle for significant elements of research, data collection and advocacy. It is important that public health leaders fully understand and engage in its development and use.

**Keywords** social media, public health, health care, health sector, digital media, mobile media

### Introduction

Digital media are defined as ‘the creative convergence of digital arts, science, technology and business for human expression, communication, social interaction and education’.<sup>1</sup> For the purposes of this paper, the terms are used to cover a variety of types of digital channels that enhance communications, research and education by moving traditional dialogues to multi-directional dialogues including but not limited to social media, mobile media, social customer relationship management (CRM) and social research.

The excitement that surrounds the potential of digital media in public health is palpable. There is, however, little existing research or expert commentary that makes a compelling argument for investing time and money in the use of digital media in public health. Interesting? Yes. Compelling? No. It is not

enough to reference static case studies that use Facebook pages or Twitter handles for health-related causes, programmes or campaigns. These are commonplace in the health field now, and many people have experience with this level of digital media usage on a large or small scale. There is now a space for guidance on how to take digital media to the next stage. This paper examines the key trends and, building on that, what the future holds in the way of opportunities for the public health field. This includes channels such as the use of ‘meet-ups’ to drive behaviour change; leveraging Twitter as an extension of customer service portals; Big Data’s influence in the health

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care industry and listening in to social media so as to inform our strategies and communication. This paper makes a compelling case for the future of public health and healthcare's engagement with the next generation of digital media utilization, and it also proposes a framework for planning and evaluating digital media usage.

## Background

The advent of digital media as we understand it today has shifted communications significantly and despite already >15 years of its existence, we are only now fully coming to understand exactly how it is changing communications and what those changes mean. Globally there are more than one billion people on Facebook,<sup>2</sup> and YouTube is the second most used search engine in the world.<sup>3</sup> In terms of US users, according to the Pew Internet and American Life Project, as of August 2012, 69% of online adults in the USA use social networking sites.<sup>4</sup>

The importance of the often relatively poor health experience of ethnic minority groups across the world was highlighted in the Final Report of the Commission on Social Determinants of Health.<sup>5</sup> However, a potentially important assistance in the task of improving ethnic minority health is the evidence of a high uptake of social media amongst ethnic minority groups in some countries.

Social media in developed countries is often perceived of as being the sole preserve of younger people or mothers but, according to Pew Internet and American Life Project, usage in the USA is fairly broadly distributed across race, gender, income and education (Table 1).<sup>6</sup>

In relation to Spanish-speaking audiences in the USA, recent results from Univision's Hispanic Patient Journey Study found that 57% of Hispanics report that friends and family are a primary source for information, as compared with 41% of non-Hispanics.<sup>7</sup> Furthermore, research in the USA shows that minorities use the popular social media platforms, i.e. Facebook, similarly to non-minority groups.<sup>8</sup> In addition, while smart phone penetration is lower amongst minority populations, these groups are using advanced features on their basic mobile telephones to engage online.<sup>9</sup> Some of these differences can be explained by the younger demographic age profile of ethnic minority groups. Finally, in a 2011 USA study conducted by Fleishman–Hillard and ModernMom.com, 63% of mothers surveyed said online reviews are influential to their purchase decisions and >85% of them visit social networks on a regular basis,<sup>10</sup> making them one of the fastest growing demographics online.

Data for the UK indicate that people from ethnic minorities have higher levels of access to the Internet, including from mobile telephones, than the general population.<sup>11</sup> India

**Table 1** Digital media usage in the USA, 2012

<i>Societal group</i>	<i>Percentage of group that use the internet</i>
Gender	
Men	62
Women	71
Race/ethnicity	
White, non-Hispanic	65
Black, non-Hispanic	68
Hispanic	72
Educational attainment	
Less than high school/high school grad	66
Some college	69
College plus	65
Household income	
<\$30 000/year	72
\$30 000–\$49 999	65
\$50 000–\$74 999	66
\$75 000 plus	66

Adapted from Duggan & Brenner.<sup>6</sup>

is poised to become the largest Facebook market by 2015 and its online access is driven by mobile telephones with >700 000 000 subscribers and an additional 200 000 being added daily; people in Japan spend more time online than people from any other countries at 2.9 h per day and it is the only country where Twitter is bigger than Facebook; Sweden is the most connected country in the world; Brazil has the third largest population of Google+ users; Russia is home to >40 000 000 blogs and finally China's largest social network is Qzone with >530 000 000 users.<sup>12</sup>

For health, these international participation profiles have great significance. At a basic level, the very active participation in digital media of hard-to-reach audiences like young people, ethnic minorities and those who may be vulnerable, such as young mothers, means that these channels play a valuable and important role in spreading illness prevention messages to them and throughout their social networks. The ability to leverage these channels in this manner for health ultimately means that health messages can become more salient and relevant as they are shared through the 'trusted voices' of friends, neighbours, family, colleagues and other influencers. Moreover, the speed with which these messages can be shared and discussed in digital media is exponential. MarketingCharts found that a Facebook post will get half of its reach in the first 30 min after it is published.<sup>13</sup> If we compare this with the viral spread of an email—23.63%

of all email opens occur within the first hour after delivery<sup>14</sup>—it is clear that digital media, namely social media, possesses a unique ability to reach and engage enormous numbers of people and spread rapidly important prevention information.

These data only tell part of the story. It is therefore important to examine the existing body of knowledge, what has been done to-date and what the immediate opportunities are for digital media in health.

## Brief review of digital media uses to-date in health

The field of communications has demonstrated mixed reactions to the advent of digital media—some people and companies enthusiastically and whole-heartedly taking it up and engaging with it, whereas others have waited for either the obsession with digital media to die off or to see others' successes and learn lessons before developing their own strategy.

The role of mobile devices—specifically the role of text-messaging—has been well explored in the literature. One study found at follow-up that text-messaging led to significant decreases in frequency of methamphetamine use and unprotected sex while on methamphetamine among out-of-treatment men-who-have-sex-with-men (MSM). (Citation: Reback CJ, Grant DL, Fletcher JB *et al.* Text messaging reduces HIV risk behaviors among methamphetamine-using men who have sex with men. *AIDS Behav* 2012;**16 (7)**: 1993–2002).

A narrative literature review of published literature databases and informally published written material, i.e. grey literature, was conducted, the focus of which was digital media use for public health research and communications. For this review, a mix of PubMed, ProQuest, and Google Scholar published literature databases were searched and for grey literature, a mix of general web searches, targeted searches on topical websites (e.g. associations, organizations, academia) as well as general searches of newspapers, magazines, and transcripts were conducted. The search algorithms employed were based on developing relevant taxonomies that aligned with the goal of the study. Such key words included 'social media', 'social networking', 'Facebook', 'research', 'digital media', 'health', 'mobile media', 'mobile health', amongst others. In addition, database-specific search parameters and indexed terms (e.g. subject headings or descriptors) were employed. A total of 222 papers were retrieved. Of these, ~40 were grey literature articles, 179 were peer-reviewed

articles and three were PowerPoint presentations. The articles ranged in publication date from 2009 to 2013. The findings from this review revealed a number of things. First, across the literature, it is clear that digital media have been a focus of health intervention as well as behaviour change campaigns and research studies. The literature is rich with examples of how social and mobile media might be used to disseminate health information, engage consumers and ultimately impact on health status.

Second, a key takeaway message is that whether for healthy or unhealthy behaviours, digital media can be used successfully. What behaviours are promoted however depends on who is using it and the messages that are being shared.<sup>15</sup>

Finally, in respect of mobile technology—whether through text-message-based communications,<sup>16</sup> location-based social media such as FourSquare<sup>17</sup> or smartphone applications<sup>18</sup>—the research on mobile utilization for health is robust. The results are promising for health interventions with results showing increased adherence to smoking cessation,<sup>15</sup> decreased drug use and better informed sexual health decision-making.

Social media has been tested as a mechanism for study recruitment and follow-up. Using Facebook to track participants of a completed study, a follow-up study was able to find 78 out of the original 175 participants via Facebook, 68 of whom responded to the friend request and 43 of whom participated in the follow-up study. (Citation: Jones L, Saksvig BI, Grieser M, *et al.* Recruiting adolescent girls into a follow-up study: benefits of using a social networking website. *Contemp Clin Trials* 2012;**33(2)**: 268–272).

While the use of digital media for communication is ripe with examples of implementation, there is lack of effective and meaningful evaluation. While there are many studies, most of these are controlled experiments, thus making the implication of these experiments in respect of broader, more complex audiences, fledgling. Most observers have relegated themselves to using as the standard measurement, the basic 'click', 'tweet' and 'like' data that are readily available. Yet these are a small measure of reach and do not demonstrate health behaviour change. More work in this area is needed.

Additionally, when it comes to use of digital media in research studies, the health research community has been quick to acknowledge the digital media phenomenon and to produce many comments on digital media interventions and campaigns, yet it has been slower to develop effective methodologies to exploit digital media for its own purposes. The findings from this review confirm this. Much of the literature

is theoretical, focuses on study recruitment and on operational use of mobile devices in carrying out studies.

The research also shows positive results in terms of retention of study participants, including in longitudinal studies. One was able to locate 19 participants that would have been otherwise lost to the study—thus decreasing attrition by 16%. (Citation: Mychasiuk R, Benzie K. Facebook: an effective tool for participant retention in longitudinal research. *Child Care Health Dev* 2011 October 11. doi: 10.1111/j.1365-2214.2011.01326.x).

## Overall themes

Based on what we now know from the literature across several fields, there are a number of overall themes that can be identified. First, use of digital media is becoming more commonplace, particularly paid advertising aimed at online communities. However, there is not a lot of evidence that the health community is using it in effective ways to achieve impact on behaviour.<sup>19</sup> However, the conversation around the use of digital media for public health is intense (a quick Google search using the terms ‘public health + digital media’ brings up many different types of conversations all related to this topic),<sup>20</sup> and there is a call for evidence-based approaches.<sup>21</sup> Ultimately, while the literature provides examples of digital media usage for public health, these tend to be 1D and revolve around many of the same basic principles, i.e. using Facebook ads. Yet, the opportunities for digital media use in public health are much greater.

An innovative review of study recruitment methods compared Craigslist ads, email invitations and other online advertising as recruitment methods. While the other internet advertisements yielded the largest population of recruited participants and completed surveys overall, Craigslist and email were more successful at recruiting the survey’s main audience. (Citation: Graham AL, Milner P, Saul JE, *et al.* Online advertising as a public health and recruitment tool: comparison of different media campaigns to increase demand for smoking cessation interventions. *J Med Internet Res* 2008;**10(5)**:e50. December 15).

## Top 10 trends for digital media

Based on the overall themes identified, there appear to be a number of key trends for digital media and health. These are as follows.

### Buzz monitoring and social research

The ability to listen online and monitor trends—or monitor the buzz<sup>22</sup>—around a campaign, brand or issue is a largely untapped area for the health sector. While innovative monitoring is being implemented by some,<sup>23</sup> the conversation is not yet taking place about how to understand these data points and, importantly, how to overlay them with other research or communications campaigns in order to develop a deeper understanding of what is happening. We need to innovate with respect to current practice so that we can maximize the utility of the information we are gathering. This can be done by actively coupling traditional strategies with this newer one of online listening.

### Bringing the health care provider and health consumer closer together

The ability to connect the health researcher/provider/policy analyst, or other science-based health professional, directly to the health consumer has been greatly facilitated through social media. We see this through sponsorships of ‘MeetUps’<sup>24</sup> on meetup.com where health programmes can work with targeted MeetUp groups to provide relevant health information in a venue that is reassuringly familiar to them. We also see this in the form of TweetUps<sup>25</sup> or TwitterChats<sup>26</sup> where topical health information can be shared during these organized virtual online events. The TweetUp can also take the form of a physical meeting, and conference programmes are now including the opportunity for a community of regular Tweeters to meet socially, often for the first time. Thus, the virtual network can result in the development of new groupings within established organizations and interest groups.

### Expanded traditional information dissemination models

In the past, and it still holds today, health information for the public has often been disseminated through call centres and warehouse mass mailings.<sup>27</sup> While these avenues are still relevant and valid for many populations, finding ways to put the ‘public’ back into ‘public health communication’ is key.<sup>28</sup> This means integrating complimentary digital media channels into these otherwise traditional dissemination practices. This ‘Best Buy model’<sup>29</sup> (so called because of how the US consumer electronics retailer Best Buy has transformed their customer service model by adding a Twitter-based strategy where tweets come in and are triaged as a back of office function to various agents for response) is also important because it means being proactive rather than reactive to consumer calls and emails.

### Non-traditional digital partners

Partnership working has always played a major role in the promotion of health. However, the health space has tended to stay connected to the same kinds of partners—academic, research and not-for-profit organizations.<sup>30</sup> The opportunity to reach consumers with health information through non-traditional partners is becoming more commonplace, and the opportunity to utilize digital partners is part of this. Partnering with innovative digital organizations such as WebMD.com and About.com offers opportunities to put health information in front of engaged individuals and align content with other related topics. A number of types of stand-alone digital publishing, i.e. blogs, forums and social media platforms, are also useful vehicles for engaging consumers, but forging partnerships in a different way with digital companies allows health information to be disseminated and shared through trusted voices to both considerably larger and more highly targeted audiences.

### Social customer relations management

Social customer relations management, or Social CRM, is about understanding your audiences in social media<sup>31</sup> and is key to ensuring your messaging and content is relevant and engaging. In using social media, this is even more important as this form of communication can rapidly involve wider dispersal of, greater visibility of, and more dialogue about the information. The ability to understand and target and sub-target your audiences so that they receive the most relevant information is becoming more and more the engine behind digital media. Traditionally, in the health sector, we have been poor at segmenting the audience for our communication. Mostly this has been because of restricted budgets for the expensive process of identifying, refining and reaching target audiences, but with markedly less expensive tools available through digital media, there is an enormous opportunity for health to ‘get the right message to the right audience’.

### E-health and the release of personal health data

There is a clear movement in the health space and, with the support of US government, health data are becoming more open and available to people to understand and to take personal charge of. We have seen an explosion of mobile applications<sup>32</sup> that leverage this data to help individuals with their health issues.<sup>33</sup> We have seen this happen too with crowd-sourced health information,<sup>34</sup> or health information that is sourced from communities of people, and online illness epidemic tracking systems. This is becoming commonplace across the globe with examples like the mother in South Wales, UK, who was able to successfully diagnose her child through her Facebook social network<sup>35</sup> and the mother from the USA who

had a similar story.<sup>36</sup> A next step for health will be to narrow it down to those ‘special apps’ that really add value to people’s lives and evaluating their potential to improve health.

The Strategic Online Communication, Insights and Learning (S.O.C.I.A.L.) Framework is one to consider for planning and evaluating campaigns. Built on the premise that there are certain upfront questions one must ask in order to better determine if social media is appropriate as a strategy to support a health initiative, it then helps identify which social media tactics will successfully achieve the goals of the initiative. Likewise, for evaluation, S.O.C.I.A.L. posits that digital campaigns can be measured through the four-pronged paradigm of *Reach, Insights, Actions, and Value*. (Citation: Burke, A. Social media measurement for public health campaigns. *PRNews Measurement Guidebook* 2012; **6(6)**:173–175.

### Convergence of mobile and social for health

With personal health data residing with individuals and the growing prominence of mobile devices in the consumption of information, it is inevitable that interfacing with mobile communication offers substantial opportunity for the health sector. First and foremost, we know that minority and non-minority groups alike access the same types of social media and with similar frequency. We also know that minorities access online social sites and other information via their mobile telephones—regardless of whether they have smartphones or use advanced plans on basic phones. With mobile telephone social platforms such as FourSquare,<sup>37</sup> GetGlue<sup>38</sup> and Instagram,<sup>39</sup> information, sharing and networking is never far away and is instantly available.<sup>40</sup> This ability to access, consume and share information presents untapped opportunity for health if what is termed ‘mobile social’ becomes more ingrained in health programmes.<sup>40</sup>

### ‘Big data’ and evaluation

As previously mentioned, there is a need for more rigorous and consistent measurement when it comes to digital media. The availability of data is there—in fact, we have got what is known as ‘Big data’<sup>41</sup> in digital media, which means a hyper-abundance of data.<sup>42</sup> However, we must become better at knowing what questions to ask of this data and understand how to use the answers.<sup>43</sup> Thus, the search for those key pieces of data, i.e. the proverbial ‘needle in a haystack’, and the guidelines for how to do so, is still new territory. As bigdatabytes.com states, ‘In the new world, it’s not as much about organizing the landfills, it’s a whole lot more about mining value from the haystack.’<sup>44</sup>

### The changing role of the digital communicator

It is becoming clear that strategy and control of digital media within organizations can no longer be delegated to interns, junior or part-time staff. This often happens on the basis that 'They are young, so they just get it'. All too often there is a disconnect between those who constitute the strategic leadership of health organizations and the much more junior people who 'manage' digital media on their behalf. This can lead to stultified communication, which is inhibited in timescale and content by requirements of obtaining clearance from senior people before engagement. The need for personal commitment of senior leadership in digital communication is paramount, and their application of core business principles is key for the successful exploitation of digital media in health. Just as senior leaders would see it as their role to be the face or voice of their organization on television or radio, so they will have to learn rapidly the skills of using digital media as a way of communicating with patients, the public, staff and key stakeholders.

### The advent of pure digital media campaigns

As familiarity with digital media has developed amongst those planning and implementing campaigns, it has increasingly been used as part of the campaign communications strategy. But, to-date, the centre of gravity for public facing health campaigning has remained with the traditional broadcast media. For the first time, we are starting to see digital media being unbundled from other large campaigns to live and run on their own. This will be a growing trend and, just as print vehicles such as posters and leaflets have been eclipsed by broadcast campaigns, it is reasonable to assume that digital media will come to dominate health campaigns, particularly those aimed at discrete and coherent social groupings.

## Discussion

The importance of communicating ideas about health, and facilitating learning and discussion amongst the public and particular interest groups, is an enduring component of the functioning of health systems across the world. Just as television and radio have become important vehicles of communicating health messages and concepts, the advent and exciting growth of digital media is set to revolutionise the way in which health information is communicated and gathered. Digital media has fundamentally altered the nature of the interactions around health issues. From a passive one-way transfer of information, often from health professionals to the public, digital media has democratized those interfaces with open dynamic dialogue taking place, often at a very fast pace and at all times of day. The propensity for ideas, information and comment to spread rapidly on digital media

creates opportunities for health professionals and leaders to communicate and educate in new ways and to reach communities of interest that form and reform as issues develop.

The ability to gather data from digital media sources is growing rapidly. It can be used to track disease spread and mobilize responses to urgent and emerging problems. The opportunity to make data available on digital media in readily accessible forms can enhance the ability of individuals and communities to analyse, debate and understand health in new ways. The opportunity for healthcare and public health organizations to frame debates and communicate in a timely fashion with wide segments of the population using digital media will continue to grow. To take maximum advantage of these opportunities will require a new style of leadership however. Leaders will have to have an authentic presence in the world of digital media and have the confidence to interact with digital media, such as Twitter, as issues and debates develop. The managed face of media relations and the occasional press release will no longer suffice as the immediacy, intimacy and reach of digital media creates a new health commons of dynamic opportunity.

Our list of trends for digital media demonstrates the multifaceted aspects of digital media and the growth opportunities we should expect to see on all sides—better informed programme planning, expansion of health information services, deeper relationship building, technology development, personalization of health issues, more robust and meaningful measurement and evaluation, and, ultimately, digital media as the singular driver of health changes.

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