BUPA HEALTH PULSE 2010

ONLINE HEALTH: UNTANGLING THE WEB
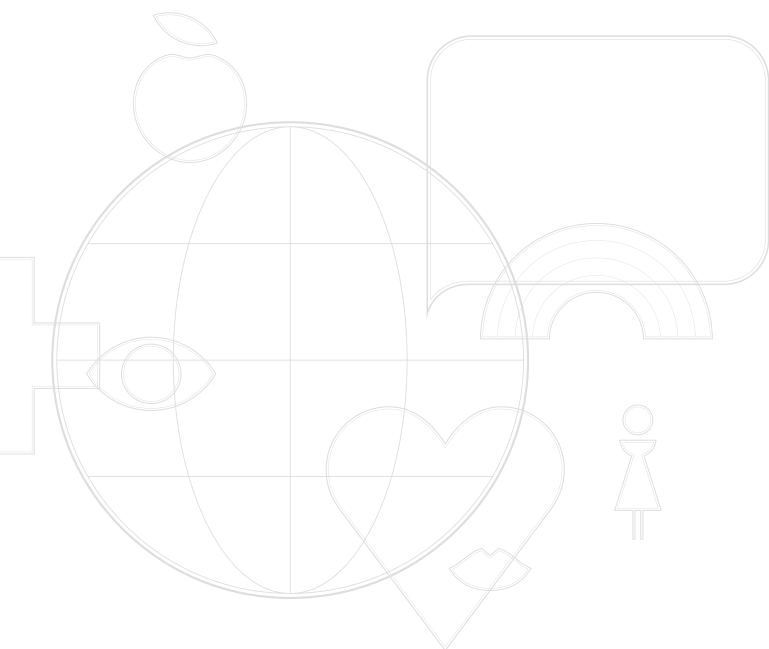
David McDaid and A-La Park

www.bupa.com/healthpulse

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ONLINE HEALTH: UNTANGLING THE WEB

EVIDENCE FROM THE BUPA HEALTH PULSE 2010 INTERNATIONAL HEALTHCARE SURVEY

David McDaid and A-La Park

4 January 2011

www.bupa.com/healthpulse

EXECUTIVE SUMMARY

Nearly half (46%) of people who use the internet to find out about health do so to self-diagnose

This report contextualises the findings of the Bupa Health Pulse 2010 international healthcare survey. The online survey asked 12,262 people in 12 countries across the world – Australia, Brazil, China, France, Germany, India, Italy, Mexico, Russia, Spain, UK and the USA – for their views on key health issues in the broad areas of Ageing, Chronic Disease and Health and Wellbeing. Further information about the study can be found at www.bupa.com/healthpulse

This final report in a series of three looks at the role that the internet, including social media, plays in healthcare. It looks at how and why people search for online health information and how they transact with healthcare professionals.

This report is structured around four main areas:

Firstly it looks at access to the internet and the growth in its use for health-related purposes.

It is necessary to have an internet infrastructure in place for people to be able to access online health information, and there are huge differences in access across the 12 countries included in the Bupa Health Pulse survey. India is the country with most to achieve – more than nine in ten of the population do not have access to the internet. Yet, even in the UK – the country with the most widespread internet access – almost one in five people are still not online. Social networks are significant in many countries, and their use is on the rise. In Australia, the UK and the US more than four in ten of the population are registered with Facebook alone. In non-English speaking countries social networks other than Facebook may play a more prominent role, as in China and Russia.

Even if a well-developed internet infrastructure is in place this does not mean it is used for health-related purposes. For instance, regulatory frameworks may limit the scope for interactive communication between healthcare professionals and patients in some countries, e.g. Germany. Nonetheless, in all countries reviewed for Bupa Health Pulse 2010, at least six in ten of the respondents were making some use of the internet to search for advice on health, medicines or medical conditions.

Secondly it looks at current trends in the use of the internet for health purposes.

Bupa Health Pulse 2010 reveals that the proportion of people frequently conducting online searches for health information is of particular importance in emerging economies like India (39 per cent), Russia (39 per cent), China (32 per cent), Brazil (29 per cent) and Mexico (27 per cent). The high cost of face-to-face consultations with medical professionals in these emerging economies may be one reason for this, with the internet seen as a cheaper alternative. Bupa Health Pulse 2010 also indicates that use of the internet to search online for health information varies with age and its use drops sharply in those aged 35 and over across the 12 countries. Higher levels of education and income are associated with higher levels of online searching.

In Bupa Health Pulse 2010, the primary use of the internet for health purposes continues to be finding information about medicines (68 per cent of respondents) in all countries. Other uses include searching for information to make a self-diagnosis (46 per cent) and seeking other patients' experiences (39 per cent). The use of the internet for interactive activities, such as emailing a medical professional, remains limited. Eighteen per cent of respondents were using social networking sites to find out about healthcare issues. On average, Twitter was only used by five per cent of respondents for this purpose.

EXECUTIVE SUMMARY

Thirdly it looks at what information is searched for on the internet and how it is accessed.

Most of the top 20 healthcare websites are based in the US, they are largely geared towards the scientific and academic communities and individuals from the US are their main users. In many cases individuals from India are their second most common users and the UK, Australia and China also feature frequently in the top five countries using these websites.

Most searches for health information will take place via the major search engines, e.g. Google and Yahoo. Searches for specific diseases or medical problems, medical procedures and exercise/fitness information are the principal types of information being sought. Evidence from the US suggests that patterns of information searching on mobile phones differ from those on computers. In the US the former are more likely to be used by younger people to search for information on intimate issues such as sexual health.

Finally it outlines some of the benefits and challenges of accessing health-related information via the internet and considers what steps may be taken to improve the potential of using the internet for health-related purposes.

People have already started to benefit from improved availability of online health-related information. The internet can help empower consumers to make better informed choices about their health and healthcare and can help reach population groups that would not otherwise have come into contact with face-to-face healthcare services. Moreover in some circumstances online health information may have economic benefits if it helps to reduce inappropriate consultations with healthcare professionals or decrease the costs of communication.

However, the full potential of the internet will only be realised if sufficient attention is paid to investment in high quality, accurate health content tailored to specific needs. It is also important to ensure that people have access to the internet, have the skills to identify high quality content and can effectively use social media to interact with their peers and healthcare professionals.

The internet can empower people to make better informed choices about their health

BUPA HEALTH PULSE 2010
SURVEYED MORE THAN
12,000 PEOPLE ACROSS
12 DIFFERENT COUNTRIES

1. INTRODUCTION

The development of the internet has revolutionised people's lives. It provides highly sophisticated visual and audio content, which can be delivered through a number of different devices including computers, game consoles, hand-held devices, mobile phones, tablets and digital television. Second generation web services, known as web 2.0, have given people almost unlimited opportunities for interaction via social networks. Various forms of social media include email, e-telephony, blogs and networks linking communities of interest, such as Facebook, as well as instant messaging systems.

While there are many advantages from this information revolution, it also presents challenges. For instance, greater reliance on the internet may lead to a digital divide between those who have access to the internet and those who do not. The varying levels of regulation in online systems which are truly global also risks leaving consumers open to fraud and exploitation.

The consequences of poor quality health information can be serious

Looking specifically at health-related issues, providing more and better information about health may help empower individuals, but it is a challenge to ensure that online health information is of high quality and can be trusted. Not only is there an ever increasing amount of information available, some of which may be inaccurate and out of date, it can also be difficult to identify the source of website content and if there is a link to commercial activity. The consequences of poor quality information can be serious, as it may lead to needless worry, unnecessary consultations, over-use of health services and/or a delay in appropriate diagnosis. In some circumstances, online health information may also lead to false hope, unnecessary costs and be directly harmful to health due to recommendations for unproven, ineffective, or even deliberately bogus tests and treatments.

This report looks at the relationship between the internet and health, with a specific focus on how the internet may or may not improve access to health-related information and self-diagnosis. It also looks at the way that the internet helps improve peer-to-peer communication and communication with healthcare professionals, both now and in the future.

All over the globe, the internet is increasingly being promoted as a tool for healthcare systems to develop as part of an e-health infrastructure, which can be defined as '*the use of modern information and communication technologies (ICTs) to meet the needs of citizens, patients, healthcare professionals, healthcare providers and policymakers. It makes use of digital data, transmitted, stored and retrieved electronically,*

for clinical, educational and administrative purposes, both at local sites and at a distance from them' (Christodolou *et al* 2008). This increasing reliance on the internet is such that, it is estimated that by the end of 2010, the total e-health spend will account for 5 per cent of the total health budgets of EU Member States compared with just 1 per cent in 2000 (Christodolou *et al* 2008).

This report contextualises the findings of the Bupa Health Pulse 2010 international healthcare survey, supplementing this data with information from other surveys and published literature. Bupa Health Pulse 2010 was conducted online with responses from 12,262 people in 12 countries across the world. It included questions about their use of the internet to search for information about health, medicines or medical conditions, as well as to book appointments with doctors or buy medicines.

The report begins with an overview of access to the internet around the globe, and how use of the internet to access health information has grown over time. It looks not only at the situation in high income countries, where the majority of the population already have good access to healthcare, but also the situation in emerging nations including India, China and Brazil where access to healthcare may be more limited, due in part to infrastructure challenges and the way in which their healthcare systems are funded.

The report also explores the different ways in which the internet is being used for health-related purposes by reviewing whether the internet is still mainly used to gain knowledge about health, disease and treatment or whether it is being used for more interactive purposes via social networking sites including Twitter, MySpace and Facebook, or for reading health-related blogs.

The report then looks at what types of health-related information are being sought online and identifies some of the most frequently accessed health-specific websites worldwide. It is not enough simply to provide access to the internet and assume high quality health-related websites and social media will develop. Individuals may not make use of online information and they may not be confident of the accuracy of information. We end this report by looking at some of the benefits and risks of the use of online health information and consider ways in which its quality, as well as public awareness of the need to consider quality, may be improved.

MAJOR DISPARITIES
REMAIN IN INTERNET
ACCESS WORLDWIDE

2. WHAT DO WE KNOW ABOUT ACCESS TO THE INTERNET?

There remain major disparities in access to the internet across the globe. **Figure 1** reports the proportion of the total population who have access to an internet connection point in the 12 countries included in the Bupa Health Pulse 2010 survey. In most high income countries worldwide, at least 60 per cent of the population have access to the internet. While these figures may seem high, in Italy in 2010, only half the population are online, while in the UK, US and France approximately one in every five, four or three people respectively do not have access to the internet. This can be contrasted with the situation in other countries such as Norway, Iceland and Sweden where 98, 95 and 93 per cent of their respective populations are online.

In all the major emerging economies internet access is restricted to less than half of the population: Mexico (27.2 per cent of population); China (31.8 per cent); Brazil (37.8 per cent); the Russian Federation (42.8 per cent). The situation is even more acute in India. Despite its perception as having a growing high technology economy, in 2010 less than seven per cent of the population have access to the internet, albeit this still means that 81 million people are connected (**Figure 2**).

FIGURE 1
Use of the internet as a % of total population, June 2010
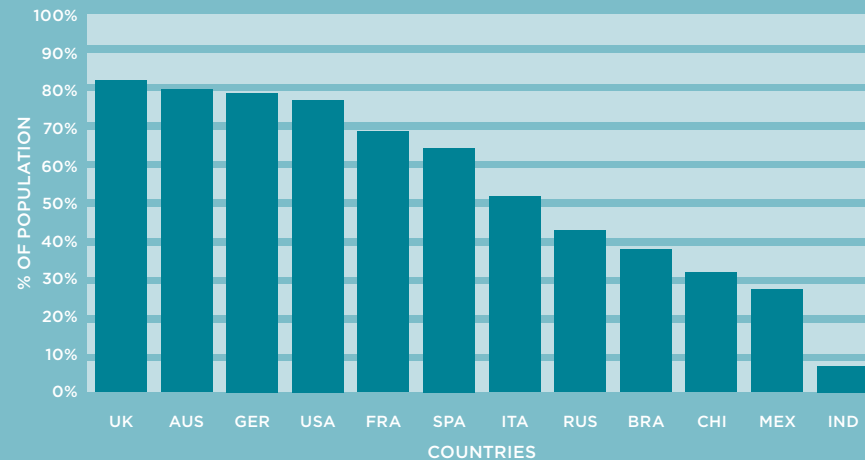
Source: Internet World Stats (2010). Internet Usage and World Population Statistics are for June 30, 2010. Demographic (population) numbers are based on data from the US Census Bureau. internet usage information comes from data published by Nielson Online, the International Telecommunications Union, GfK, local regulators and other reliable sources

KEY TO GRAPHS:
AUS (Australia)
BRZ (Brazil)
CHI (China)
FRA (France)
GER (Germany)
IND (India)
ITA (Italy)
MEX (Mexico)
RUS (Russia)
SPA (Spain)
UK (United Kingdom)
USA (United States of America)

2. WHAT DO WE KNOW ABOUT ACCESS TO THE INTERNET?

FIGURE 2
Internet and Facebook users in selected countries

COUNTRY	POPULATION	INTERNET USERS	% POPULATION	FACEBOOK USERS	% POPULATION
INDIA	1,173,108,018	81,000,000	6.90%	13,188,580	1.10%
MEXICO	112,468,855	30,600,000	27.20%	15,037,020	13.40%
CHINA	1,330,141,295	420,000,000	31.60%	24,060	0.00%
BRAZIL	201,103,330	75,943,600	37.80%	N/A	N/A
RUSSIA	139,390,205	59,700,000	42.80%	1,592,680	1.10%
ITALY	58,090,681	30,026,400	51.70%	16,888,600	29.10%
SPAIN	46,505,963	29,093,984	62.60%	11,010,060	23.70%
FRANCE	64,768,389	44,625,300	68.90%	19,444,660	30.00%
USA	310,232,863	239,232,863	77.30%	132,810,940	42.80%
GERMANY	82,282,988	65,123,800	79.10%	10,889,960	13.20%
AUSTRALIA	21,262,641	17,033,826	80.10%	9,520,280	44.80%
UK	62,348,447	51,442,100	82.50%	27,806,860	44.60%

N/A: Not Available
Source: Internet World Stats (2010). Internet Usage and World Population Statistics are for 30 June, 2010. Demographic (population) numbers are based on data from the US Census Bureau. Internet usage information comes from data published by Nielson Online, the International Telecommunications Union, GfK, local regulators and other reliable sources

In **Figure 2** we also looked at the use of Facebook – the largest social networking site in the world – in these 12 countries. Australia, the UK and the US stand out as all three countries have more than 40 per cent of their populations registered. Lower levels of Facebook use are found in other non-English speaking high income countries such as Germany and Spain, however this in part reflects the presence of strong local alternative social networks. For example, in Germany, by July 2010 the VZ network had obtained more than 17 million members in the German speaking world (Meinverzeichnis 2010). In Russia, V Kontakte is the most popular social network site, while in China there are several social networks, including RenRen, which was estimated to have up to 70 million subscribers in 2009 (Chow' 2010). While there are very few Facebook subscribers in mainland China, in contrast in Hong Kong, where 69.2 per cent of the population have access to the internet, there are more than 3.5 million Facebook subscribers – more than half of the entire population (Internet World Stats 2010).

Growth in the use of the internet for health information purposes

The use of the internet to obtain health-related information around the world continues to increase. One population-based survey of seven European countries looked at growth in the use of online health information between 2005 and 2007. Overall, the proportion of the population accessing health information online in the seven countries surveyed – Denmark, Norway, Germany, Poland, Latvia, Portugal and Greece – increased on average by 11.4 percentage points from 42.1 per cent to 53.5 per cent. The greatest increase in use was seen in Germany where use of the internet increased by 27 per cent, from 44.4 per cent of the population in 2005 to 56.6 per cent of the population in 2007 (Kummervold et al 2008). In the US in 2000 just 25 per cent of adults went online to look for health information; this had risen by 144 per cent to 61 per cent of all adults by 2009. Interestingly, about half of all these online searches for information in the US are on behalf of another individual (Fox and Jones 2009).

Infrastructure facilitators and barriers to accessing online health information

A number of drivers increase use of online health services. In section 5 we place an emphasis on securing trust in the quality of information provided; here we highlight some infrastructure concerns.

Countries with a well-established internet infrastructure have been at the forefront of developments in online health information (Santana 2010). Political will can also act as an important catalyst for action. In the EU, for example, the eEurope 2005 Action Plan set out a number of specific targets for both the European Commission and European Union Member States to stimulate the use of the internet for health-related purposes (Christodoulou *et al* 2008). The UK Government has also been at the forefront of developments, in particular, through its long-standing use of the NHS Direct website to provide online information and support. It generates more than 21 million hits every year, while the more recent NHS Choices website generates over 100 million visits per annum.

The power of the internet for providing and sharing health information is beginning to be harnessed in a number of the emerging economies too, for instance in Russia. Low life expectancy and high rates of some infectious diseases such as tuberculosis and chronic diseases, such as diabetes, in part prompted the Russian Ministry of Health and Social Development to fund the development of a public health portal, 'Takzdorovo', to provide health promotion and public health information. While too early to assess the impact of this website on the health of people in Russia, it does provide a good example of the many ways that people can interact online, for example, via its links to a number of different social networking platforms (**Figure 3**).

The web portal provides a range of health promotion and disease prevention information. Users can gain a greater understanding of disease risks through questionnaires, create profiles with health goals and progress charts and connect with others as 'friends'. The site offers information on healthy living, covering topics such as choosing foods correctly, giving up smoking and examining alcohol intake, as well as on specific diseases. The site is linked to Twitter (912 followers) and the Russian networking site Vkontakte (6,666 members).
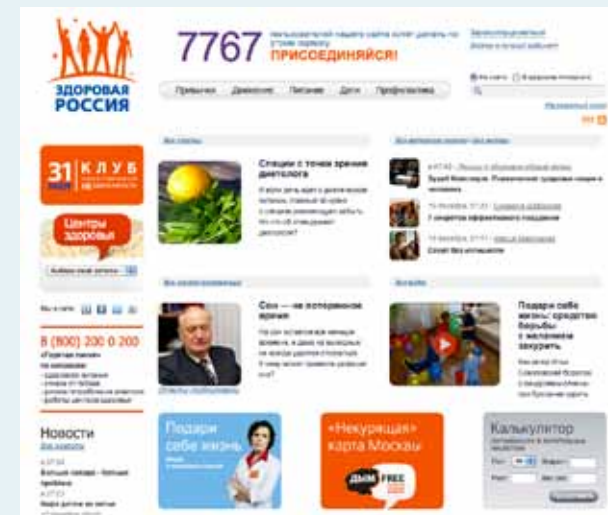
Source: http://www.takzdorovo.ru/ (Automated English translation using Google translator) Accessed December 2010

## 2. WHAT DO WE KNOW ABOUT ACCESS TO THE INTERNET?

Internet access in rural areas of China has risen by over 300 per cent in the last three years

The lack of infrastructure for fixed line telecommunications can be a major barrier to access to the internet; as a consequence the use of the internet for health-related purposes in many low and middle income countries remains restricted. This is especially the case in rural areas, even in rapidly developing countries like China, India and Brazil. In China, connection speeds have been slower in rural areas of the country, where access to personal computers has been forty times lower than in major cities; in these areas, most use of the internet has traditionally been through internet cafés. There has, however, been an increase of over 300 per cent in access to the internet in rural areas in the last three years, rising to 115.1 million by June 2010 (Internet World Stats 2010).

One recent survey indicates some growth in access to the internet in rural India, with a 17 per cent increase in people in rural villages using the internet – 6.46 million in 2009 compared with 5.5 million in 2008 (Internet and Mobile Association of India, IAMAI 2010). But this is still just one per cent of the total rural population. As well as infrastructure, there are logistical issues. Only 10 per cent of internet users in rural areas have a computer at home. Seventy-one per cent use internet cafés and 76 per cent of this group have to travel more than 10 kilometres to reach them.

The IAMAI survey of almost 15,000 rural Indians also reported that 84 per cent of the rural population are unaware of the existence of the internet. The low level of literacy also restricts demand. India stands out in this respect – while literacy rates were more than 90 per cent in 11 of the 12 countries included in the Bupa Health Pulse 2010 survey, according to the UN Development Programme in 2009 only 66 per cent of the Indian population was literate.

One consequence of the more limited access to computers in rural areas of China, and coinciding with the increased use of mobile phones, has been that most major health information websites have been designed with mobile phone use in mind; it has been suggested that future investment in health information delivered by mobile phones may prove a feasible alternative to investment in fixed line internet technology (Li 2008). This is, for instance, the case for the Chinese website www.cnkang.com. Fully accessible using a mobile phone, it provides information on healthy diet, disease-related knowledge and self-diagnosis tools about, for example, how to diagnose diabetes. It also includes interactive options allowing individuals to join virtual communities or consult medical experts online. Mobile phone technology is likely to play an important future role in increasing online access to health information in other emerging economies as well, as can be seen through the development of so-called 'mHealth' initiatives in India (Ganapathy and Ravinda 2008).
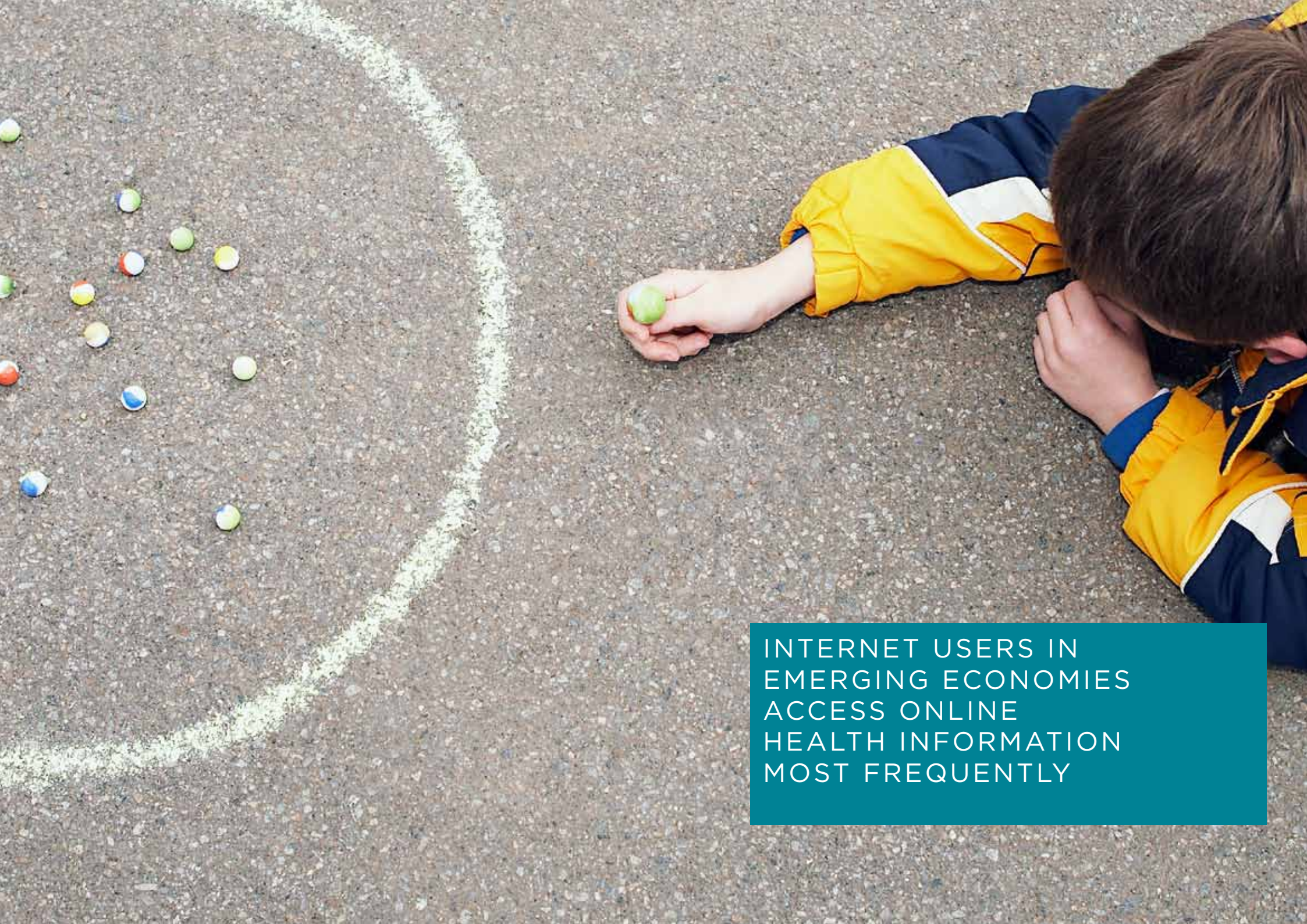
INTERNET USERS IN
EMERGING ECONOMIES
ACCESS ONLINE
HEALTH INFORMATION
MOST FREQUENTLY

# 3. CURRENT TRENDS IN THE USE OF THE INTERNET FOR HEALTH INFORMATION

In all countries surveyed in Bupa Health Pulse 2010, at least three in five respondents were making some use of the internet to search for advice on health, medicines or medical conditions. Respondents in all five emerging market countries – Brazil, China, India, Mexico and Russia – reported being most likely to use the internet on *a frequent basis* for this purpose. Approximately 40 per cent of survey respondents

in Russia and India made use of the internet 'often'; this could be contrasted with much lower frequent use rates of between 12 per cent (Spain) and 19 per cent (Italy) in the high income countries in the study (**Figure 4**). Little analysis has been undertaken to explain this difference, but one reason may be the higher costs of using traditional sources of information, such as primary care physicians, in

emerging markets. In China, for instance, individual costs to see a medical professional accounted for 45 per cent of all healthcare expenditure (National Health Economic Institute 2007), while in Brazil this accounts for 34 per cent of all expenditure (Uga and Santos 2007).

FIGURE 4
How often do individuals make use of the internet to search for advice about health, medicines or medical conditions?
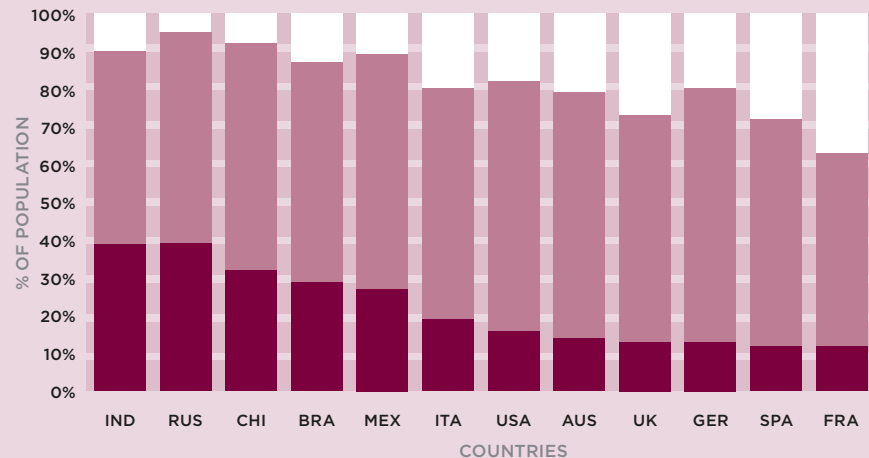
Source: Bupa Health Pulse 2010. 12,262 members of the general public in 12 different countries surveyed online

- NEVER
- YES, SOMETIMES
- YES, OFTEN

FIGURE 5
Use of the internet to search for advice about health, medicines or medical conditions by age group
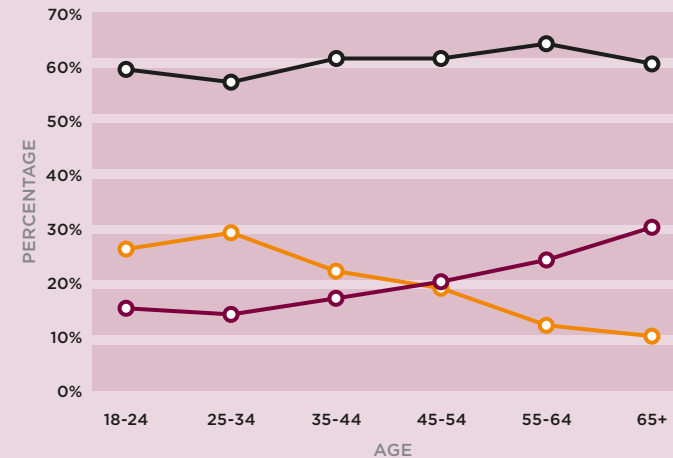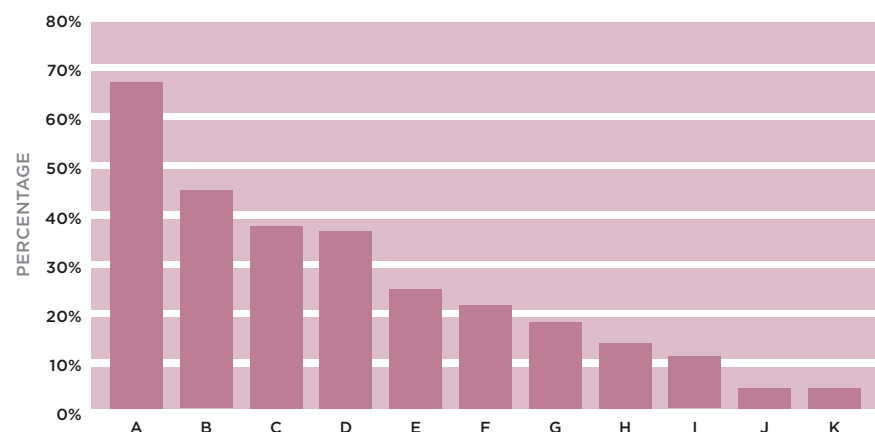

Source: Bupa Health Pulse 2010. 12,262 members of the general public in 12 different countries surveyed online.

- NEVER
- YES, SOMETIMES
- YES, OFTEN

FIGURE 6
Activities undertaken by individuals who make use of the internet for advice on health, medicine or medical conditions

KEY

A   Information on medicine
B   Self-diagnosis
C   Other patients' experiences
D   Information on hospitals/clinic
E   Information on doctors
F   Post a comment/question about a health condition
G   Social networking sites (e.g.Facebook etc) for healthcare info
H   Book an appointment with a doctor
I   Buy prescription medicine
J   Used Twitter to post/read about a healthcare matter
K   None of the above

Source: Bupa Health Pulse 2010 international statistics: 9,976 members of the general public in 12 different countries who indicated that they currently make use of the internet to search for advice about health, medicines or medicinal conditions

The Bupa Health Pulse 2010 survey also reveals that use of the internet to search online for health information varies with age; the likelihood of using the internet 'often' dropped sharply in those aged 35 upwards (**Figure 5**). The survey also indicated that graduates and those in the highest income bracket are more likely to regularly use the internet to search for health information.

Respondents who had made use of the internet were asked to state the different purposes they had used it for. As **Figure 6** indicates, consistent with the findings of other studies (e.g. Fox and Jones 2009), the internet continues to be most frequently used to look for information about medicines (68 per cent). Other major uses include searching for information to help make a self-diagnosis (46 per cent) followed by seeking other patients' experiences of health conditions (39 per cent). The internet is also being used to look for information about healthcare facilities (38 per cent) and medical professionals (25 per cent).

The use of the internet for interactive activities remains limited. Overall less than one-fifth (18 per cent) of respondents were using social networking sites (e.g. Facebook or MySpace) to find out about healthcare issues. The use of Twitter remained rare in the Bupa Health Pulse 2010 survey, with only five per cent having used this platform to post and/or read information on health issues.

There are, nonetheless, significant variations amongst the countries in Bupa Health Pulse 2010. As **Figure 7** indicates, 87 per cent of respondents in Russia made use of the internet to obtain information on medicines, followed by 76 per cent in Mexico. The lowest rate was to be seen in China (60 per cent). Russia was also among those countries that had the highest proportion of internet users seeking information to help make a self-diagnosis, along with the US (58 per cent), the UK (58 per cent) and China (56 per cent). In the UK and France only 12 per cent and 14 per cent of respondents respectively were looking for information on medical professionals, compared with 36 per cent in the US and India.

Use of internet for information on a medicine and self-diagnosis in selected countries
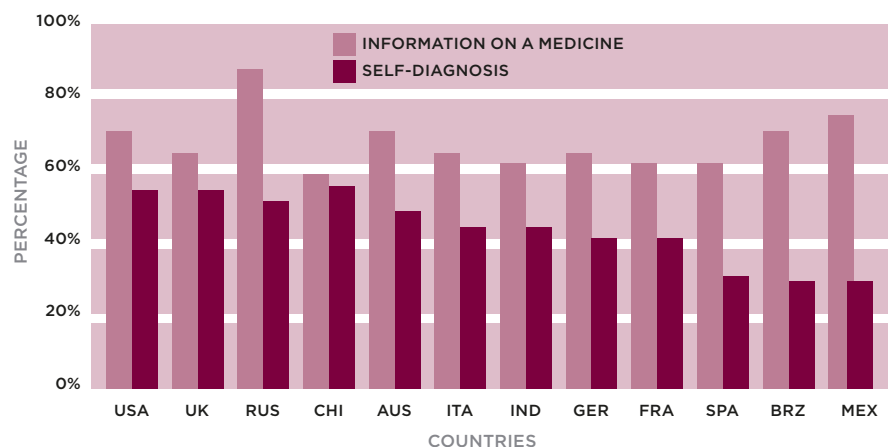
Source: Bupa Health Pulse 2010 international statistics: 9,976 members of the general public in 12 different countries who indicated that they currently make use of the internet to search for advice about health, medicines or medicinal conditions

Internationally, 56 per cent of people hope to access their medical records online in the future

The reasons for these variations remain unclear, however, the differences are likely, in part, to reflect differences in healthcare system structures. For instance, US private healthcare providers will be competing for business and potential patients may look at ratings of quality associated with different healthcare professionals before deciding what course of action to take, which might explain the high levels of people looking up medical professionals. In countries where tax and social health insurance dominate the healthcare landscape, there has been less demand for information on the quality of services provided; moreover, individuals in countries such as the UK have not been able to go directly to specialists for care within the publicly-funded NHS healthcare system, but instead must be referred on by their primary care practitioners. Thus, again there has been little demand for information on medical professionals as they don't have the same levels of choice within the publicly-funded system.

The results in **Figure 7** show that in a number of countries, most of the people looking for health information online look for information about medicines or want to self-diagnose. These findings are also consistent with those reported for health consumers in one recent US study (Fox and Jones 2009) which indicated that few consumers actively post content on the web. The study indicated that they are more likely simply to look passively at information (41 per cent), listen to podcasts (13 per cent) or

sign up for mailings (19 per cent) rather than post comments (six per cent), upload videos and audio files (four per cent) or write reviews of services received (five per cent). A seven-country European study in 2007, previously discussed, found that just 23 per cent of respondents indicated that they made use of the internet for interactive health-related services rather than simply for reading health information alone (Kummervold *et al* 2008).

Perceptions of current and future role of the internet

The Bupa Health Pulse 2010 survey also asked respondents for their perceptions about what actions they thought could be completed on the internet now and what they would like to do in future. As **Figure 8** indicates, current perceptions of the extent to which the internet may be used to interact with the healthcare system are modest. Overall, only 21 per cent of survey respondents believed they could book doctor appointments online and only 11 per cent reported being able to access medical records and test results online. The survey also found that 45 per cent of respondents did not believe they could currently use the internet for healthcare-related purposes. Does this for instance indicate a lack of awareness and confidence or does it reveal distrust in the internet – and, if so, how can this be overcome?
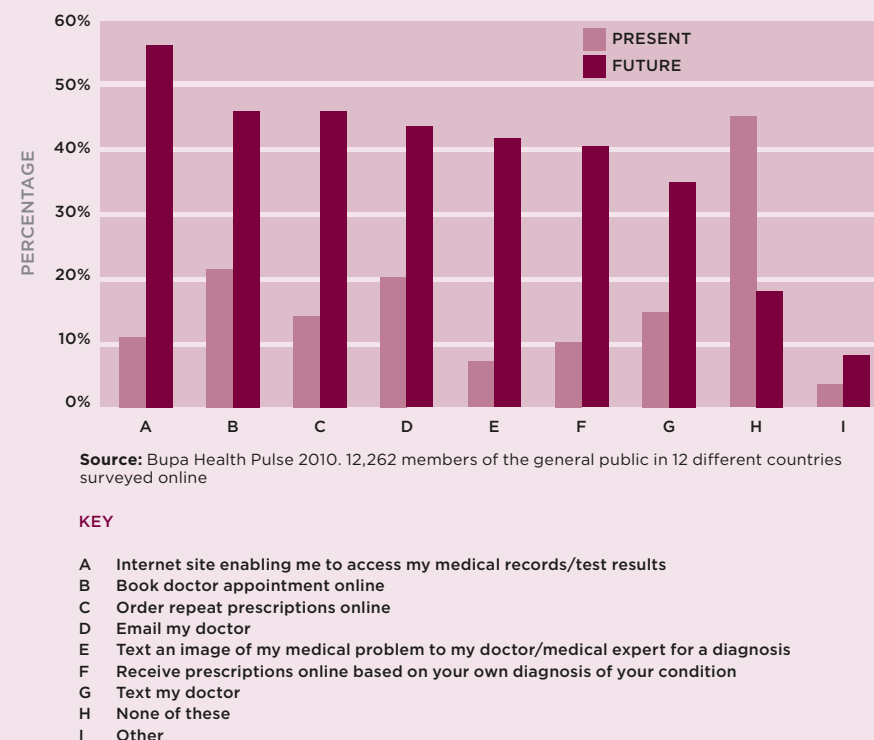
In Europe at least, these responses may reflect the extent to which healthcare professional practices are linked to the internet. A survey of 6,789 general practitioners across all 27 EU Member States in 2007 found that only 69 per cent of practices were connected to the internet (Dobrev et al 2008). The study also indicated that only 11, 17, 21, 25 and 53 per cent of practices in France, Italy, Germany, Spain and the UK respectively had a practice website. This can be contrasted with 93 per cent of practices having their own websites in Finland. There can also be legal barriers to interactive communication between doctors and patients; in Germany, doctors cannot discuss any personal health information with their patients on the internet; communications are restricted to administrative matters only, e.g. booking appointments. Furthermore, as of 2009 it was still not possible to obtain an electronic prescription in Germany (Santana et al 2010).

Information in other countries is more difficult to obtain, but it is worth noting that even in the US a recent survey of 2,053 adults found that only nine per cent could communicate with their doctors online, while eight per cent could schedule appointments or obtain diagnostic text results by email. Less than one in ten Americans make use of electronic health records; this has been attributed to a lack of confidence in data security (Pallarito 2010). There is also limited availability of such systems: in 2009 it was estimated that only 17 per cent of doctors and 10 per cent of hospitals had even basic electronic health record systems in place (Blumenthal 2009).

Another barrier to doctor–patient communication via the internet that has been highlighted in the US, is the reimbursement system which is geared up for face-to-face consultations rather than internet communication (Rubin 2010). In healthcare systems which have placed much emphasis on email communication, as in the case of Kaiser Permanente, three million patients in southern California and all primary and speciality doctors had signed up for a secure email communication system launched in 2004. By the end of 2008, eight per cent of patients had made use of the email system (Gardner 2010). Nationwide, the American Investment and Recovery Act 2009 includes a provision to incorporate secure patient-physician messaging into electronic health record systems by 2013 (Zhou et al 2009).

It is, however, clear from the Bupa Health Pulse 2010 survey that there is substantial demand for these online activities in future, with 82 per cent of respondents wanting to be able to use the internet for healthcare purposes, 56 per cent of respondents wanting to be able to access their healthcare records online and just under 50 per cent wanting to book doctor appointments and order repeat prescriptions. As **Figure 8** indicates, people are interested in texting or emailing images of their health problem to a doctor to aid in diagnosis.

Healthcare and the internet in the future

Source: Bupa Health Pulse 2010. 12,262 members of the general public in 12 different countries surveyed online

KEY

A   Internet site enabling me to access my medical records/test results
B   Book doctor appointment online
C   Order repeat prescriptions online
D   Email my doctor
E   Text an image of my medical problem to my doctor/medical expert for a diagnosis
F   Receive prescriptions online based on your own diagnosis of your condition
G   Text my doctor
H   None of these
I   Other

4. WHAT INFORMATION DO PEOPLE SEARCH FOR ON THE INTERNET?

Figure 9 provides information on the top 20 most popular health information websites during November 2010 (Alexa 2010). The one month rank is calculated using a combination of average daily visitors and page views. The list is dominated by US-based websites; the US National Institute of Medicine has three different websites featured, all of which are geared largely to the scientific and academic communities. Again, individuals from the US are in all cases the principal users of these websites; in many cases individuals based in India are the second most common users. The UK, Australia and China also feature frequently in the top five countries using these websites.

The top health searches on mobile phones are related to sexual health

FIGURE 9

Top 20 health-related websites in November 2010

Rank	Website	Three month global traffic rank (1=highest)	Top five countries of users
1	US National Institutes of Health www.nih.gov/	458	USA 39%; India 8.1%; UK 4.3%; Mexico 3.9%; Canada 3.0%
2	WebMD www.webmd.com	732	USA 70.6%; India 7.2%; Canada 2.5%; UK 2.2%; Pakistan 1.2%
3	PubMed www.ncbi.nlm.nih.gov/pubmed/	N/A	N/A
4	Medicinenet.com	1,396	USA 51.7%; India 11.9%; UK 5.1%; Canada 5.1%; Australia 2.9%
5	Natural Health Information Articles and Health Newsletter www.mercola.com	1,540	USA 68.3%; Canada 6.4%; Australia 5.2%; UK 4.7%; India 2.1%
6	Mayoclinic.com www.mayoclinic.com	1,693	USA 70.3%; India 5.6%; Canada 3.1%; UK 2.2%; Australia 1.4%
7	Medline plus www.nlm.nih.gov/medlineplus/	N/A	N/A
8	Drugs.com www.drugs.com	2,406	USA 65.3%; India 5.8%; Canada 2.6%; UK 2.5%; Australia 1.4%
9	Medscape www.medscape.com	2,834	USA 45.3%; India 10.5%; UK 3.8%; Canada 3.4%; Australia 2.4%
10	United States Patent and Trademark Office's AIDS Patents Database www.patents.uspto.gov	2,924	USA 65.1%; India 4.4%; Canada 2.5%; China 2.4%; UK 2.0%
11	Menshealth www.menshealth.com	2,644	USA 63.1%; Canada 5.7%; India 5.4%; UK 3.3%; China 2.3%
12	Weightwatchers www.weightwatchers.com	3,342	USA 92.2%; India 1.1%; UK 1.0%; Canada 0.8%
13	US Centers for Disease Prevention and Control www.cdc.gov	3,765	USA 62.7%; India 5.1%; Mexico 3.4%; Canada 2.7%; UK 1.7%
14	Psychologytoday.com www.psychologytoday.com	4,420	USA 59.2%; UK 4.9%; Canada 4.7%; India 4.5%; Germany 2.2%
15	Kidshealth.org www.kidshealth.org	4,236	USA 38.5%; India 12.3%; UK 4.9%; Mexico 4.9%; Canada 4.1%
16	World Health Organization www.who.int	5,402	USA 14.1%; India 11.9%; Mexico 3.9%; Nigeria 3.0%; UK 2.8%
17	Healthboards.com www.healthboards.com	5,923	USA 57.3%; India 8.1%; UK 7.7%; Canada 5.7%; Australia 3.0%
18	US Food and Drug Administration www.fda.gov	6,457	USA 61,6%; India 6.1%; China 5.1%; Canada 2.4%; UK 2.1%
19	AOL Health www.aolhealth.com	6,231	USA 82.7%; India 2.4%; China 2.1%; Canada 1.9%; UK 0.9%
20	Health media ventures inc www.health.com	7,015	USA 64.0%; India 8.7%; Canada 2.7%; UK 2.2%; Pakistan 1.9%

Source: Alexa (2010)

In this section we also reflect on popular online healthcare searches. The mix of healthcare topics searched for online is varied, as indicated by **Figure 10**, which shows the most demanded factsheets on Bupa's UK website. The most visited factsheet provides information on underactive thyroid (www.bupa.co.uk/underactive_thyroid).

Much detailed market research for online searches has been conducted in the US (Fox and Jones 2009). **Figure 11** shows the most popular topics related to health information. The top three topics for American internet users include searches for specific diseases or medical problems, certain medical procedures and exercise/fitness. There was a significant increase in adults looking for information related to exercise and fitness from 21 per cent in 2002 to 38 per cent in 2010. This area of physical activity shows a more rapid increase than any other health topic in the survey conducted by the Pew Internet and American Life project (Fox and Jones 2009).

In the US, 17 per cent of all mobile phone users and 29 per cent of all those aged 18 to 29 are now using their phones to obtain health information (Fox and Purcell 2010). CNN looked at the use of Yahoo and Google via computers and mobile phones to search for health information (Cohen CNN 21 Oct 2010). This research revealed differences in the types of topics searched for using the two different mediums. Three of the top five searches on Yahoo originating from mobile phones relate to sexual health: pregnancy, herpes and STI (sexually transmitted infection).

FIGURE 10
Most visited Bupa factsheets from November 2009-November 2010

1	Underactive thyroid
2	Haemorrhoids
3	Miscarriage
4	Deep vein thrombosis
5	Irritable bowel syndrome
6	Cystitis
7	Overactive thyroid
8	Peptic ulcer
9	Skin cancer
10	Hypertension

Source: Bupa (http://www.bupa.co.uk) – visits per month = 1.6 million

Sex-related queries do not appear on Google and Yahoo's top searches via conventional computers. This, the study suggests, is in part due to the fact that mobile phone searches are more likely to be conducted by people in their 20s and 30s. But it is sensible to suggest that this may also be due to a feeling of anonymity that comes with using a mobile phone as opposed to a computer. The research also revealed that search queries are becoming more specific e.g. 'preventing heart attacks with aspirin' rather than searching for 'heart disease'. More sophisticated search strategies can help internet users to find relevant information that meets their demands.

Patient choice can be increased as a result of better access to health information

FIGURE 11
Top online health-related searches in US study 2009

KEY

A   A specific disease or medical problem
B   Certain medical treatment/procedure
C   Exercise/fitness
D   Doctors or other health professionals
E   Prescription or over-the-counter drugs
F   Hospitals/medical facilities
G   Health insurance
H   Alternative treatments/medicines
I   How to lose weight or how to control weight
J   Depression, anxiety, stress/mental health issues
K   Any other health issue
L   Experimental treatments/medicines
M   How to stay healthy on a trip overseas

Source: Fox and Jones 2009

ONLINE HEALTH
INFORMATION CAN
EMPOWER BUT
ALSO MISLEAD

5. WHAT ARE THE BENEFITS AND CHALLENGES OF ACCESSING HEALTH-RELATED INFORMATION VIA THE INTERNET?

BENEFITS

There are a number of potential trade-offs between more empowerment and choice versus the risk of misleading information, misdiagnosis and unnecessary treatments.

Promoting choice

Patient choice can be increased as a result of better access to health information; moreover, better information about how to maintain good health may have public health benefits. Patients are empowered through being better informed of their symptoms; whenever they start feeling worried about certain symptoms, they can check online first and gain some understanding of the disease and treatment options. Online health information may also be used to fill in perceived gaps in the information provided by healthcare professionals.

One survey of 613 pregnant women who used search engines to identify pregnancy-related health information reported that almost half had searched online because of their dissatisfaction with the quality of information provided by healthcare professionals. Ninety-four per cent used the internet to supplement information provided by medical professionals and 83 per cent used it to influence their pregnancy healthcare options. Their confidence in pregnancy-related decisions also significantly improved as a result of accessing online health information (Lagan 2010).

Examples of web-based services providing information include NHS Direct in England, which receives more than 21 million hits each year. It provides online health and symptom checklists for many aspects of health. Services can also be accessed via mobile phone or interactive television (NHS Direct website 2010). Similarly the health information pages of the Bupa website have nearly two million hits per month. They contain more than a 1,000 pages of health information for consumers on conditions, treatment and maintaining a healthy lifestyle. All materials are written in plain English by professional health writers and reviewed by medical experts (Bupa 2010).

Research at the Kaiser Permanente health system in California indicates that 35,000 patients with diabetes and/or depression who made use of email to contact their doctors saw improvements of between 2.4 per cent and 6.5 per cent in blood sugar control and screening, cholesterol screening and control, as well as for retinopathy and nephropathy (kidney disease). They also had better blood pressure levels and the more frequently emails were exchanged, the greater the health improvements (Zhou *et al* 2010).

5. WHAT ARE THE BENEFITS AND CHALLENGES OF ACCESSING HEALTH–RELATED INFORMATION VIA THE INTERNET?

Engaging with hard-to-reach groups

The use of internet services are particularly popular with some population groups, such as young people, who have been shown to make use of online health information because they value the anonymity and quick response, especially when looking for information on subjects such as sexually transmitted diseases or addictive disorders (Fox and Jones 2009). NHS Direct in England has recently set up two anonymised online health checkers in respect of emergency contraception advice and male sexual health (NHS Direct 2010). In the case of the former, the service user may also engage in an interactive online chat with an NHS direct nurse; evaluation has indicated that webchat is an effective medium for contraception advice (NHS Direct 2010).

Economic benefits

Access to good online health information can potentially reduce the amount of contact time between health professionals and the 'worried well' (i.e. individuals who go to a medical facility with no discernible signs of ill health, or who are experiencing minor health problems such as coughs that may be managed without the need for medical consultation); this can free up resources that can be re-directed to people with diagnosable/severe diseases. This benefit has been observed in Asia (Bhatia *et al* 2008). There has been little work to date to estimate the economic benefits of increased access to high quality online health information. One exception to this is a recent evaluation of the NHS online health information portal in England. NHS Choices has been shown to generate substantial economic savings of £44 million as a result of a decrease in the use of GP consultations by 37 per cent of the website's users (Nelson 2010). An older study from San Francisco has also indicated that improved opportunities for patients to communicate with their physicians via the internet can also generate net cost savings, with average spending per patient per month falling by $1.71 (2002 prices) (Baker *et al* 2005).

Good online health information can free resources currently directed towards the 'worried well'

CHALLENGES

It should be noted that some challenges with the internet go well beyond its use for healthcare purposes. These concerns include data protection and worries about the security of information, risk of fraud and identity theft, etc. We do not propose to discuss these issues here.

Quality of information

A key issue is the veracity of online health information. Not all consumers are knowledgeable enough to distinguish between high and low quality information. For instance, in one study of 880 adults aged between 18 and 70 attending an outpatient private hospital clinic in India, 212 individuals (24 per cent) used the internet to find health information, 201 stated that the information they found was reliable, yet only 21 patients were aware of any quality controls and no one could name any specific accreditation system (Akerkar *et al* 2005). An unquestioning high level of trust in online information, as seen in this Indian study, despite any awareness of quality issues, may mean that individuals make use of misleading information.

Increasing individual awareness of the need to make use of online health information with caution is something that needs to be undertaken across the globe.

Another study looked at the quality, reliability and accuracy of health-related information for children available on UK web pages. Using Google to identify sites, only 39 per cent of 500 sites examined provided appropriate information; 11 per cent were incorrect while 49 per cent failed to answer the question put to them (Scullard *et al* 2010). As **Figure 12** indicates, government websites were found to present accurate information every time, compared with more than 80 per cent of the time for educational establishments (usually recognised by .ac.uk at the end of their URL), companies, interest groups and individuals, and 55 per cent of news websites. No sponsored websites were found to provide accurate information.

The authors concluded that healthcare professionals should only make use of government or health service provider websites.

Reliability of UK websites for child health
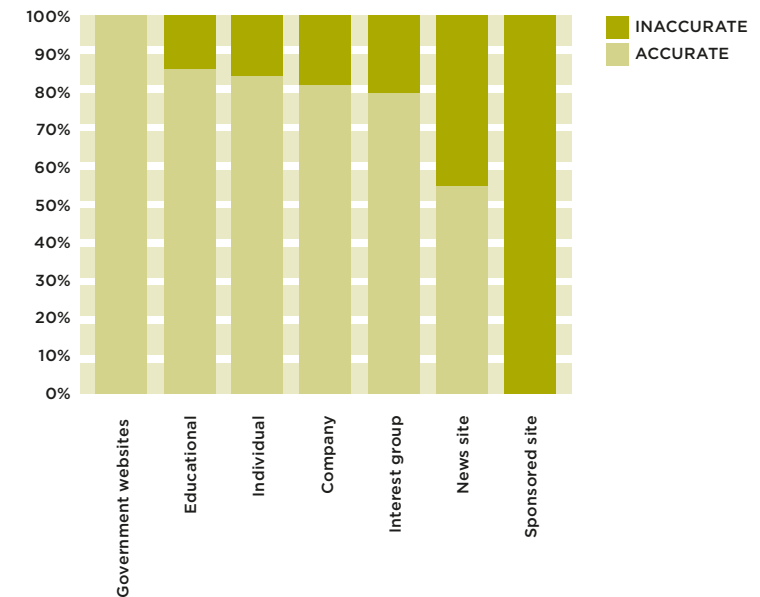
Source: Scullard *et al*, 2010

5. WHAT ARE THE BENEFITS AND CHALLENGES OF ACCESSING HEALTH–RELATED INFORMATION VIA THE INTERNET?

Need for quality assurance

According to a TNS omnibus survey conducted by the Department of Health in England in March 2007, almost three out of every four people expressed difficulties in identifying whether information provided on health websites is trustworthy. Quality assurance markers and checklists/guidance for the public can help maintain trust in health information found on the internet (Coulter *et al* 2006). "If (website) users see that a piece of information is kite marked, has a clear logo of accreditation, it greatly strengthens their trust in the information and the whole process" (King *et al* 2008). In England, a new 'Information Standard Quality Mark' scheme, which works as a type of accreditation system, exists. It is intended to help members of the general public and healthcare professionals, as well as information providers, to understand that where they see the Quality Mark they can trust the health information they are looking at. At present, the independent certification scheme has 36 certified members, including National Health Service organisations, national charities and some commercial organisations such as Bupa (see www.theinformationstandard.org/about).

However, if such a scheme is to be successful, measures must be implemented to increase public awareness of the existence of the scheme and its logo. Only about one quarter of health information seekers thoroughly check the sources and timeliness of information found on the internet (Fox and Jones 2009). This is where checklists and guidance for individuals searching online for health information have an important role to play. Existing checklists and guidance for information users have been produced by various organisations (Fox and Rainie 2002; Bupa 2005).

Checklists may provide recommendations, such as only making use of information from well-known authoritative websites like those run by national or local government, major non-governmental organisations (e.g. major cancer charities) and major health service actors (e.g. hospitals, national physician associations, major health insurance providers) or respected publications (e.g. *The Lancet, BMJ,* etc). They could also provide information on what to look out for to identify reputable quality assurance logos.

The importance of ensuring accurate information is critical to maintaining trust in health websites. We have highlighted examples of websites that provide inaccurate information that, in the worst case scenarios, may even generate false hope or false anxiety in members of the public. Miracle cures might be bought by vulnerable consumers; there is also a risk of misdiagnosis through a reliance on web-based information alone (Ryan and Wilson 2008). If this leads to a lack of public confidence in the internet, many of its potential public health benefits will be lost.

Global access

Another issue concerns the global nature of health information. Individuals can search websites that may be located anywhere in the world; the information on these websites may not be relevant to the local context and the rules about the way in which information is displayed vary across jurisdictions. In some settings and circumstances advertising may be permitted, as in the US. It may be difficult for consumers to distinguish between advertising and health information, particularly if a health information website has automatic links to the pages of a sponsor organisation. In some instances, it may not be apparent that an individual has moved to a commercial website. As social media becomes more popular, celebrities might post messages on sites that in fact endorse specific health-related products. In addition, in the world of social media – where anyone can be a journalist by posting/tweeting/blogging about their experiences and point of view – in the same vein, anyone can also be a doctor. Online, the traditional rules of engagement between the medical community and its patients have gone for good and, as the social media landscape is always changing, people can never quite be sure where they stand.

Transparency

Website users should be made aware of the potential influence of sponsors on third party websites. Users should also obtain information on who runs each website and the registered address of the organisation.

The healthcare industry could also have an important role to play in helping to correct misinformation using social media. A five-country European survey found that 58 per cent of respondents felt this was an appropriate activity (EPG Health Media 2010). Forty-nine per cent of patients/consumers and 50 per cent of healthcare professionals in this survey indicated that they would be more likely to use new social media if there were clear, established regulations on the interactions between healthcare professionals, the healthcare industry and patients.

6. FUTURE GAZING - WHERE NEXT?

Mobile technologies remove barriers to health information, particularly in emerging economies

There are a number of conclusions and policy implications that can be drawn from the trends identified and analysed in this report. Clearly there is increasing demand for online health information and services – particularly in emerging economies. This brings many challenges for individuals and those tasked with maintaining the quality of online health information.

1. Mobile technologies are the future

Mobile technologies offer an accessible way to reach people in emerging economies where broadband infrastructure is limited. Already in countries such as China, health information websites have been set up to be accessible for both computers and mobile devices. New mobile technologies are also likely to influence, not only the way in which we obtain health information, but also the type of information we search for online. The perception that mobile devices are more personal and anonymous than computers has led to many in the US to use mobile devices to obtain information on sexual health problems. The role of new forms of mobile technology will become even more apparent as younger generations, who are more familiar with social media and mobile technologies, age and face more health challenges.

2. There are large variations in the quality of online health information

Increasing individual awareness of the need to make use of health information with caution is something that needs to be undertaken across the globe. The internet is not restrained by national boundaries and it is often not clear where a website is based. There is a need for support and advice about health information to help consumers look out for both indicators of credibility and warning signs about poor quality information. But advice and support should not stop there – for instance, what advice can be given on how to search for information?

As the amount of health-related material on the internet increases, how can governments and health information providers ensure the accuracy of information? Accreditation procedures might be used to 'badge' trustworthy websites, but will this have any impact on how people make use of the internet? The global nature of the internet will mean that many different accreditation systems may develop. It will be important to increase public awareness of such schemes, but this in itself is far from sufficient.

INDIVIDUALS NEED TO BE MORE AWARE OF THE QUALITY OF THE HEALTH INFORMATION THEY ARE SOURCING ONLINE

SOCIAL MEDIA HAS
THE POTENTIAL TO
BROADEN ACCESS TO
HEALTH INFORMATION
EVEN FURTHER

3. We need to understand how to make best use of social media

While the use of new forms of social media to access health information appears to have had only modest uptake to date, this is likely to change as populations become ever more familiar with these technologies. Social media may provide another potential way of reaching sub-population groups who might otherwise miss out on health information (Wen-ying *et al* 2009), but there is also a need for support and advice to help individuals make good use of these new opportunities. Furthermore, the extent to which individuals who post comments or write blogs are representative of the broader health population is unknown; this needs to be borne in mind by the individuals who take their advice.

4. Economic benefits

There are many potential economic benefits from increased access to high quality health information online. In particular, it may help reduce the number of inappropriate consultations with healthcare professionals if potential patients are able to research their symptoms using robust and verifiable health information. As the Bupa Health Pulse 2010 results show, nearly half of those surveyed (46 per cent) are already attempting to self-diagnose using the internet. The internet can also potentially reduce communication costs.

Conclusion

The internet has already generated many benefits through the improved availability of health-related information. It has the potential to help empower consumers to make better informed choices about their health and care and it may also help reach population groups that would not have come into contact with face-to-face services. Moreover, in some circumstances it may also have economic benefits for health providers and consumers alike – particularly relevant in economically challenging times. Yet the positive potential of the internet will only be fully realised if sufficient attention is paid to encouraging investment in the provision of high quality, accurate information that is tailored to specific population group needs, as well as to help people identify trustworthy information and make more effective use of social media.

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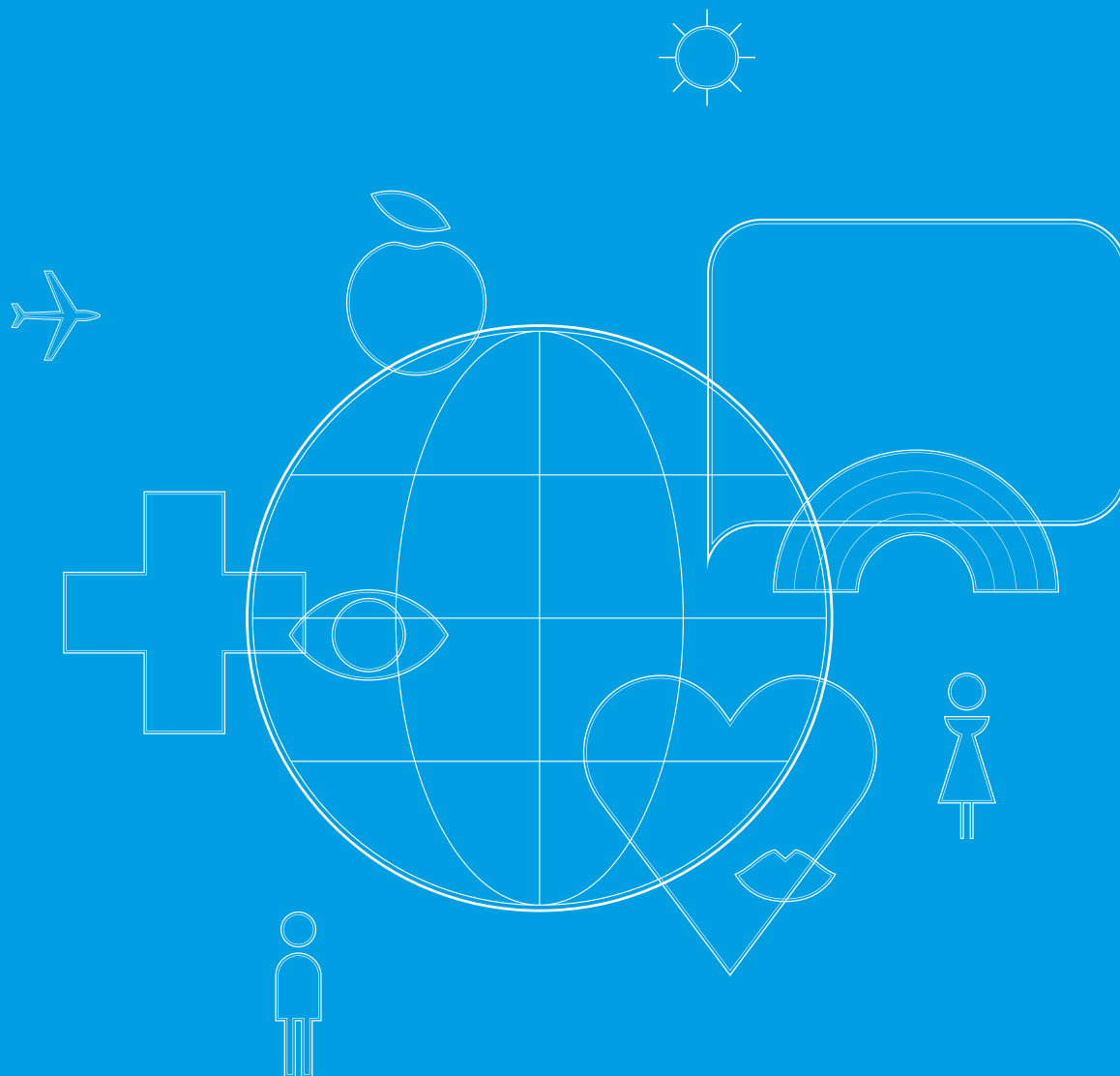
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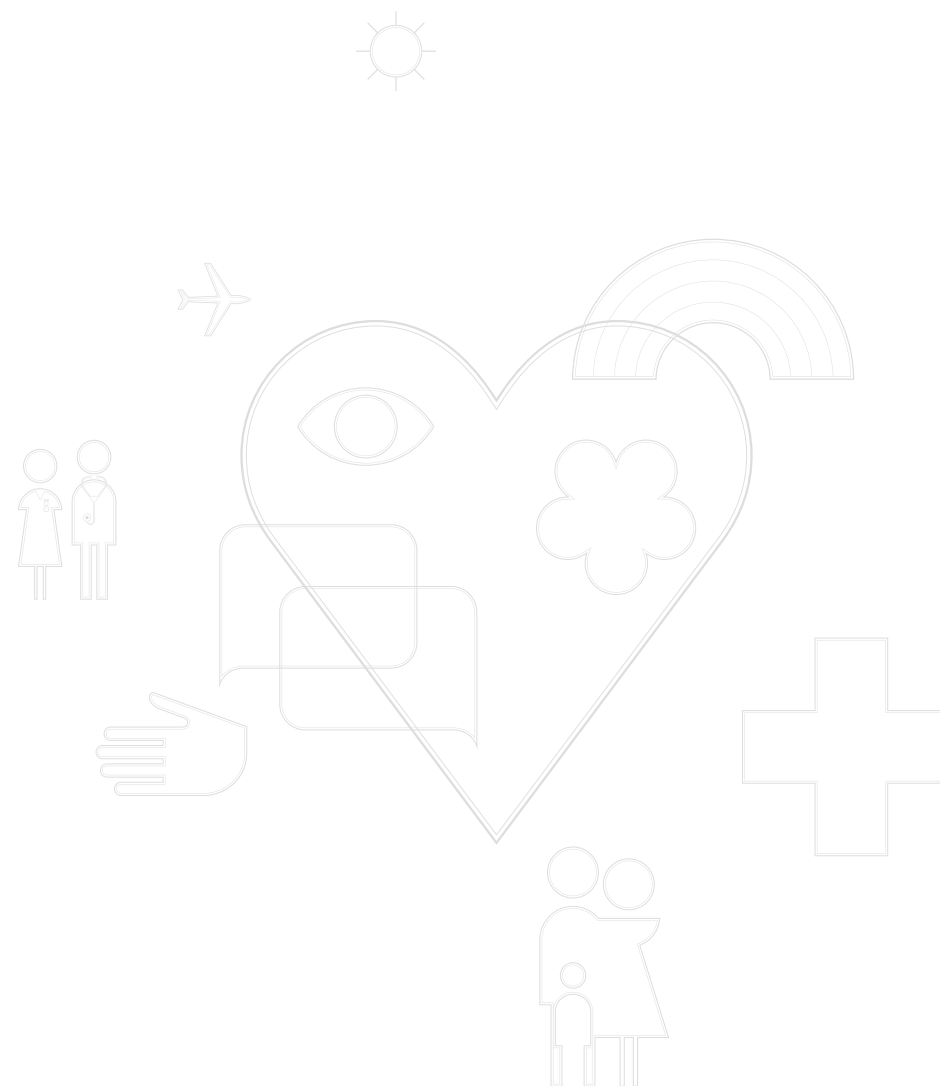
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