

Executive Summary

Chapter One

Content – **An Introduction to Information and Communications Technologies** provides basic information on ICTs including: levels of ICT access in the UK, demographics of ICT users, common uses of ICTs and methods of accessing the Internet. It describes geographical, age, sex and income related variations in home Internet access and looks at reasons why individuals have not yet accessed the Internet. As well as personal use statistics, current levels of Internet access among medium and small businesses and more specifically among health professionals are included. Access to and use of other new technologies are also described including digital TV and mobile phones.

Summary - Variations in home Internet access for personal use reveal higher levels of ICT use among younger, less disadvantaged groups with higher levels of household access in and around London (see Section 1.5). Among those who have never used the Internet, reasons include lack of interest or perceived need and lack of access or skill. For those who use ICTs, the most popular uses are for email and educational purposes with, for instance, over half of young users utilising the Internet for help with homework (see Section 1.7). In addition to home use, 90% of UK employees work in businesses with Internet access, although how free they are to use the Internet at work varies. Internet use is also increasing among health professionals with 97% of GP Practices having Internet connection through NHSnet (see Section 1.8). As Internet use by GPs grows, so does their propensity to refer patients to useful websites (e.g. NHS Direct) for health information.

The distribution of digital TV and mobile phones across social categories is less income-related than computer Internet access. Although both technologies offer the potential for Internet access, their use to access online services is currently limited. Almost half (44%) of adults in the UK report having digital TV at home. However, with TV usually located in communal areas and few websites currently functioning through this medium, Internet access and email facilities are rarely used through digital TV (see Section 1.9.1). Mobile phones are now owned by around 75% of UK adults and are used to send 30 million text messages in the UK every day. While growing numbers of mobile phones provide some level of Internet access, only a few online services are available through mobiles and data transfer speeds are very slow. Thus, only 6% of mobile phone users have used their phones to access the Internet (see Section 1.9.2). Although developments in mobile technology should make online services more accessible, the initial high costs of new technologies means income factors are likely to prevent use by the least well off, presenting new challenges for public health initiatives wishing to utilise this technology for tackling ill health.

Chapter Two

Content – **National Initiatives for Information and Communications Technologies** explores the range of health and other strategies implemented in UK to increase use of ICTs (particularly the Internet) and to build capacity in ICT skills. The government's UK Online strategy to develop the use of ICTs is outlined. Other initiatives summarised include: Wired Up Communities which delivers ICT in deprived areas (see Section 2.2.1); schemes to provide Internet access to schools and teachers (see Section 2.2.3) and developments such as Broadband Britain. More specifically, details are provided of selected ICT initiatives for health (see Section 2.6), including plans for ICT developments in the NHS (e.g. Information for Health: An Information Strategy for the Modern NHS), modernising health delivery (The NHS Plan) and developing staff skills (Together with Health Education – A Partnership Strategy for Education, Training and Development). Chapter Two concludes by outlining some of the major NHS facilities (e.g. NHSnet; see Section 2.8.1), web resources (e.g. nhs.uk and NHS Direct) and organisations (e.g. NHS Information Authority and NHS Information Policy Unit) that are available to lead and assist in the development of health resources and communications on the Internet.

Summary - The government's UK Online strategy aims to create opportunities for all UK residents to connect to the Internet, to encourage businesses to adopt ICTs and undertake online business transactions, and to move government services online (see Section 2.2). Importantly, providing access alone will not necessarily result in uptake of Internet use. Thus, a General Practice that provided Internet access for patients within the surgery found only nine of 13,000 used the service over three months; all of whom had accessed the Internet before (see Section 2.3). Critically, plans for public involvement in NHS development (see Section 2.6) often involve communications between public and professionals through new technologies. However, current demographics of Internet access mean that such communications would exclude those with the greatest health problems.

At the centre of online health advice for the public is NHS Direct which already receives over four million visits every month (see Section 2.8.3) while at the centre of professional health information will be the National Electronic Library for Health (NeLH) and, for public health, its branch the Public Health electronic Library (PHeL). Used properly, such national resources should be a critical component in local intelligence. Local web developments are also essential and should complement (not replicate) national resources by sign-posting users to key national sites as well as providing specific information pertinent to a particular locality, network or target group. Information on developing local web sites is briefly reviewed in Chapter Two but expanded upon in Chapter Six. Finally, not all Internet initiatives are accessed through computers, and services such as *Living Health* aim to provide health information through digital TV as well as the ability to speak to nurses, book GP appointments and watch educational video clips (see Section 2.8.3).

Chapter Three

Content – **The Professional Web: Online Public Health** outlines some of the major benefits and uses of ICTs for public health professionals. It provides a basic introduction to many available online information sources including national public health sites (e.g. Public Health electronic Library, Public Health Observatories) catalogues and databases of online resources (e.g. the Health Development Agency's Evidence Base and the National Institute for Clinical Evidence), and public health data sources (e.g. Department of Health, Office for National Statistics). Alongside these information sources are a vast range of additional resources including search engines, voluntary organisation sites and commercial media resources (especially the BBC and newspapers). The Chapter concludes by briefly reviewing the application of online resources and new technologies in building public health networks.

Summary - Many of the resources (outlined in this Chapter) provide direct access to quality public health information. Furthermore, they also help the professional identify what other information exists, where it can be accessed and, can help ascertain information quality and therefore the confidence that can be placed in a resource. Public health professionals or others need to be aware of the key online resources available to them to help improve health in their local populations (see Section 3.15). One particularly important new online development for Primary Care Trusts is the Neighbourhood Statistics service, developed to meet the information needs of the National Strategy of Neighbourhood Renewal (see Section 3.5.2). It aims to provide information at small geographical levels. Equally, in line with increasing use of the web to distribute new data, the 2001 Census will be free and unrestricted and will largely be provided electronically through the Census Access project (see Section 3.5.2). Some resources, such as NCHOD (National Centre for Health Outcomes Development; a knowledge base on the assessment of health and health outcomes interventions) are currently only available on NHSnet but should be more widely available in the near future (see Section 3.5.4).

With a huge amount of new information becoming available on a daily basis, ICTs can help professionals to manage what has become known as the 'information overload'. Useful tools available include e-mail alerts that automatically inform subscribers when new, relevant information is available (e.g. 10 Downing Street and Info4Local; see Section 3.7). For professionals, the potential for such services is not limited to national schemes - local versions could play a part in sending relevant information out to key patients or communities on issues that affect them. At both local and national levels recognition of the opportunities presented by ICTs for communication and dissemination of information is resulting in the development of public health networks. These aim to provide the structure necessary to encourage and enable the exchange of information and knowledge between professionals and organisations for common benefit (see Section 3.14).

Chapter Four

Content - **Matching Health Needs to Internet Access: Using ICTs to Reach Communities** describes some of the existing and developing uses of ICTs by the public for health purposes. The Chapter looks at the potential of ICTs (and particularly the Internet) for reaching different health populations (ethnic minorities, older people, young people and disabled people) and for addressing selected public health issues (sexual health, diabetes, mental health and smoking).

Summary - Already the potential for delivering health information through the Internet is immense with over 100,000 health related sites available and over half of all UK Internet users having accessed health information through the Web (see Section 4.2). However, the effectiveness of the Internet depends on access and the web skills of the group being targeted. Relying only on new technologies can exclude significant numbers of people who often have the greatest needs. Thus, ethnic minorities have much to gain through the Internet including skills development, promotion of equal opportunities and the ability to access specific cultural information. However, they are also more likely to live in socially disadvantaged communities and consequently less likely to have access to new technologies (see Section 4.3.1). Even when access is possible health information on the web is usually in English. Older people suffer from a similar combination of high potential gains from new technologies combined with generally poor levels of access and skills. However, initiatives such as Age Resource (a division of Age Concern) encourage older people to become involved with ICTs and provide access to computers and training. How effective the Internet is as a medium for addressing specific health issues varies across health conditions. Sexual health for instance is a private matter individuals may prefer to explore alone through the Internet (see Section 4.3.5). Good sexual health information is highly pertinent to young people and as young people are high Internet users (see Section 4.3.3) the Web can provide an appropriate medium for delivery. However, filters meant to protect the young from pornography can also prevent users accessing genuine sexual health sites (see Section 4.3.5).

The Internet allows members of the public to learn from each other. For example a review of diabetes ICT initiatives identified how discussion groups are well used by friends and relatives as well as patients and how after participating in online discussion 80% thought they had improved their ability to deal with condition (see Section 4.3.6). Across all conditions, common lessons include the importance of considering both levels of access among the target audience and the appropriateness of ICTs for dealing with each particular health issue. Any ICT initiative should ensure alternative methods of accessing information are available to those individuals without ICT access.

Chapter Five

Content – **Preparing for the Future** looks at new and emerging technologies and their potential impacts on society in general and on public health in particular. Digital TV and broadband are discussed as new technologies that are becoming increasingly popular in the UK, whilst 3G (third generation) mobile is outlined as an emerging technology which may become widely used in the future. The Chapter discusses current and potential uses, likely diffusion, and possible benefits and challenges to public health of each technology.

Summary - Digital TV has the potential to provide all members of society with easy access to online services and a national switch to digital should occur by 2010; making analogue a thing of the past (see Section 5.2). Already use of digital TV is more equally distributed across social groups than other new technologies (see Section 1.8.1). At present however, use of digital TV for accessing the Internet and sending emails is low (10% and 15% of users respectively) with TV use being regarded as a social activity inappropriate for personal Internet use (see Section 5.2). In addition, most websites are not designed for this medium and hence do not function properly on digital TV despite guidelines on creating digital sites being available (see Section 5.2).

Broadband makes the use of online services much faster and by ending the ‘World Wide Wait’ should encourage greater use of the Internet. The rapid data transfer speeds also enable use of video-conferencing facilities (see Section 5.3), which could aid communications in, for example, rural populations and ease remote access to health services. Broadband has been slow to take off in the UK due to high costs and lack of access, but is now becoming more widely used. However, it is not yet available universally and although rural populations may stand to benefit most they may also be last to receive such services. Emerging technologies such as 3G (see Section 5.4) combine broadband and mobile technology, allowing users to access online services wherever they are. One major benefit of mobile technologies is the opportunity they provide for contacting people quickly. However, rapid developments in technology and the ease with which users switch between suppliers means contact details often become quickly obsolete, making patient follow up and maintenance of contact information more problematic.

All the technologies discussed in this chapter have potential to impact positively on society and provide particular benefits to public health. Equally however, they also have the potential to increase inequalities and to further marginalise deprived populations. Initial access to new technologies will always be unequal and the benefits to public health for some must be weighed against the marginalisation of others.

Chapter Six

Content – **Creating Web Pages** provides basic advice on the development of web content, outlining official guidelines for government websites (see Section 6.2) and NHS organisations (NHS Identity Guidelines, see Section 6.3), as well as providing more general guidelines covering issues such as design, layout, and writing styles. A further section is devoted to usability and accessibility issues. Finally, the chapter outlines a range of other important issues surrounding web development including security, promotion and advertising, data standards, and monitoring and evaluation.

Summary - Numerous resources are available to assist web developers in creating appropriate, useful and accessible websites, such as the Handy Web Tools section on the Health Promotion England website (see Section 6.1). Guidelines for government websites are based around ten key principles and importantly acknowledge the need to develop content to be accessible over a range of different platforms including digital TV and mobile devices. NHS guidelines include information on usability issues to ensure that NHS sites can be used by as many people as possible. Individuals and groups such as the elderly and those with disabilities should not unnecessarily be excluded from accessing online information through poor design. Several resources are available for creating accessible websites (e.g. World Wide Web Consortium Web Accessibility Guidelines, see Section 6.5), while organisations such as the Royal National Institute for the Blind and Age Concern have developed guidelines for making sites accessible to specific populations.

No matter how well designed a website is, effective advertising and promotion is essential to raise awareness of it amongst the target audience (see Section 6.6.3). Other issues also determine how well ICT initiatives deliver on their objectives. Whether a site is developed internally or externally will impact both on the cost of development and maintenance of the site and on the ease with which information is added, amended and secured (see Section 6.6.2). Security is a major issue for any project, but is critically important for health organisations that deal with electronic storage and transfer of confidential information (see Section 6.6.5). Equally, links from NHS to other sites can be seen as a stamp of NHS quality and vetting for quality and appropriateness should be encouraged before links are established. A number of resources have been developed to help ascertain the quality of information, including an online version of Discern (see Section 6.6.8). Often however, such aids to determining quality are themselves incomplete and of questionable value. The World Health Organisation is currently campaigning for the creation of a '.health' domain name which should help professionals and consumers alike identify legitimate health sites.