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Evidence Based Guidelines for Nursing and Social Care on eHealth Services

Prevention

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Contents

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List of the ENS4Care partners

Executive summary

This guideline is a component of the ENS4Care Thematic Network and focuses on how nurses and social workers can use technology in a cost-effective way to enhance their practice, empower and educate patients and the public in the prevention of chronic non-communicable diseases (NCDs). The overall aim of the Network is to make up-to-date and effective eHealth guidance available to health and social care staff and those using their services in accessible formats and foster continuity and quality of care as well as patient safety across all EU Member States and the EEA.

This eHealth guidance places up-to-date information at the fingertips of citizens, carers and professionals and encourages the development of expanded roles for health and social care professionals such as Information and Social Prescribing; it notes that a change in lifestyle may be offered rather than medication or other clinical intervention. Examples of Social Prescriptions include assistance to join an exercise or other club, or a smoking or alcohol cessation support group. Such forms of assistance can be of particular benefit to citizens whose problems stem from social isolation or other circumstances affecting their mental health.

Supporting the use of Information Communication Technology (ICT) based solutions by nurses and social workers is a central objective of this project. The pervasive use and impact of technology can be harnessed at every level to contribute to the prevention agenda and reduce health inequalities. There are increasing numbers of technological innovations including tools and apps that can be used by individual professionals and the public to motivate behaviour change and assess and monitor progress in various health dimensions. There are also systems and products that can be used at organisation level as well as locally, regionally or nationally as part of a clinical pathway or integrated care system. This guideline refers to examples of practices submitted as part of the ENS4Care data collection but focuses particularly on the use of one tool, HeartAge, which it uses as an exemplar to highlight the issues to be considered by nurses and social workers in choosing and using the rapidly expanding range of eHealth technologies. This includes clarification of the purpose of the tool and the context in which it may be used, as well as the organisational and educational requirements in order to maximise the value for people receiving a service.

As more of these tools are introduced into practice, either by professionals or the public, it is important that nurses and social workers have sufficient understanding of the evidence base underpinning the tools to ensure that they are selected and used appropriately, and that they have the knowledge and skills to add value in their use with citizens. With the right knowledge, skills and support nurses, social workers and citizens alike can use eHealth technologies to achieve transformational advances in health promotion and disease prevention.

1. Introduction

This guideline was developed through the work of the Thematic Network ENS4Care, which aims to share good nursing and social care practices in eHealth services. It focuses on the use of technology by nurses, social workers to promote health, prevent disease, provide individualised education and advice, and empower patients and families to take control of and responsibility for their own health. The results of that data collection process and its analysis are included in the ENS4Care Deliverable on Nursing and Social care practices in ICT enabled Prevention, Clinical Practice, Advanced Roles, Integrated care and nurse ePrescribing, which was prepared by the ENS4Care partners in May 2015.

As technological change transforms almost every aspect of life, it is vital that those involved in health and social care embrace technological innovation to empower citizens and carers to promote health and wellbeing and ensure the delivery of appropriate cost-effective care and improved outcomes. Educating and enabling people to take more responsibility for their own health is essential as health systems face increased demands, against a backdrop of a rising tide of chronic and non-communicable disease (NCD) – much of which is preventable – and an ageing population, many of whom will suffer from more than one NCD.

eHealth technologies can make a significant contribution in preventing NCDs and empowering citizens to take control of their own health. A wide range of technologies are currently in use to promote health and wellbeing, ranging from simple, free apps which can be downloaded by individuals on their smartphones to more complex innovations incorporated into local or national health systems and focused on secondary and tertiary prevention. Examples of technology based programmes used in prevention were submitted to the Thematic Network ENS4Care, and are referred to in Box 1.

However, the main focus of this guideline is to provide an example of how individual nurses and social workers can use internet-based technology to promote healthy lifestyles. The guidelines focus on the use of one specific tool, 'HeartAge', as an exemplar. This is one of the few easy to use and free to access tools which is evidence based. While HeartAge is endorsed by the World Health Federation and available on its website http://www.world-heart-federation.org/cardiovascular-health/heart-age-calculator/, this guideline is not to be taken as a specific recommendation of this particular tool but, rather, as an opportunity to highlight key issues to be taken into account by nurses and social workers when adopting similar technologies. Nurses and social workers with the right knowledge and skills are often well placed to add considerable value and form an important link between technological innovation, health promotion and disease prevention. The proliferation of eHealth tools and technologies require nurses and social workers to understand the evidence base underpinning the available tools, and to ensure that they are selected and used appropriately and the outcomes monitored and evaluated.

Guideline statement: Nurses and social workers, with the right knowledge and skills will add considerable value and form an important link between technological innovation, health promotion and disease prevention.

NCDs – including type 2 diabetes, cardiovascular disease (CVD), cancers, and chronic lung disease – are among the biggest global challenges affecting not only health but also social and economic development. They affect high-, middle- and low-income countries, with the poorest sections of society often carrying the heaviest burden. They cost an estimated €700 billion per year in the European Union i.e. 70–80% of health care budgets (EU Commission 2013). NCDs affect more than 80% of people aged over 65 in Europe. Moreover, in patients over 65, the presence of multiple conditions or co-morbidities has a multiplier effect on the burden of disease and on management costs. This is particularly significant as current forecasts indicate that in the EU, the population aged 65 and above will rise from 87.5 million in 2010 to 152.6 million in 2060 (EU Commission 2013).

Cardiovascular disease is the collective term for heart disease, stroke and all other diseases of the heart and circulation, and is by far the leading cause of death worldwide (JBS3, 2014 p1). The increase in obesity and diabetes especially among younger people is likely to contribute significantly to CVD-related mortality: "The cardiovascular disease (CVD) epidemic is a world-wide public health challenge. In Europe, CVD accounted for up to 47% of total mortality in 2012. The World Health Organization (WHO) estimates that 80% of CVD-related premature deaths could be avoided if primary causative factors (smoking, dyslipidaemia, hypertension, diabetes and obesity) were reduced through adoption of a healthier diet, exercising and smoking habit cessation." (Lopez-Gonzalez et al 2013).

A focus on prevention is imperative but still 97% of health budgets are presently spent on treatment, whereas only 3% are invested in prevention (EU Commission 2013). Governments, inter-governmental organisations, non-governmental organisations, civil society, corporations and others must play a major role in supporting the prevention agenda and reducing health inequalities. However, securing the active engagement of citizens, families, carers and communities in making healthier choices and adopting health promoting behaviours is fundamental as is the support necessary to enable healthier options. To help engage citizens it is important to personalise the messages so that citizens have a better idea of their own health status, the health risks they face, and the opportunities that they can seize to reduce their risk of NCDs and improve their health. Nurses and social workers are well placed to assist people in assessing their CVD risk and in motivating and supporting them to change their behaviour.

Traditional risk-based approaches tend to focus on relatively short-term (10-year) risks, identifying those at the highest risk, but it is now acknowledged that there is a continuum of CVD risk across the population. "Recognition of this 'continuum of risk', and the impact of the duration of exposure to risk factors upon future CVD events, is an important concept and offers the opportunity to modify the evolution of CVD" (JBS3, 2014 p1). By using a lifetime risk approach, people who have a lower 10-year risk but a high lifetime risk, including younger citizens and women, can be helped to understand why and how they should start CVD risk reduction. A big problem lies in communicating this risk to citizens in a clear understandable and meaningful way. This is what HeartAge, an online tool, is designed to do.

2. The guideline

2.1 Scope

This guideline represents an evidence-based consensus statement and highlights key principles and criteria to consider when choosing from the vast and increasing array of tools and technologies available to promote and monitor health and wellbeing and prevent NCDs. It is aimed at nurses and social workers who are interested in incorporating the use of technology into their day-to-day practice.

The ENS4Care project is based on and underpinned by the contention that transferability of practices and guidelines are key drivers of change. Encouraging and supporting nurses and social workers to engage with new technologies in health promotion and disease prevention is key to sustainable health systems. The adoption and use of technology in health promotion and disease prevention is increasing both among professionals and citizens. The pace of change is such that many tools, products and technologies become out-dated or are superseded quickly, which means that an understanding of the principles underpinning their use is important. Nurses and social workers need the knowledge and skills to enable them to make appropriate decisions about which technologies to use and in what circumstances. Nurses and social workers also require on-going education and training to help them understand the opportunities and impact of technology on practice and care delivery; and to develop the competencies necessary to choose and use appropriate technologies. They should then be well placed to motivate and support citizens, families and carers in maximising the use of technology for enhanced, appropriate and cost-effective care. Practitioners may also help shape the development and use of technology to promote health and prevent disease.

2.2 Process & Outcome

This guideline was developed following a data collection exercise designed to identify examples of tools and technologies currently used by nurses and social workers to support citizens and groups to make lifestyle changes that promote health and prevent disease. The data collection was carried out online in early 2014 through the ENS4Care Network using a set of criteria developed by the ENS4Care partners. The selection criteria included:

1. ICT component
2. Involvement of nurses and/or social workers
3. Cost-effectiveness
4. Patient empowerment
5. Usability and usefulness
6. Safety and privacy.

About twenty examples were submitted in the field of prevention and these were analysed against the selection criteria. Examples of submissions are included in Box 1. As well as the selection criteria, other issues and principles emerged from the analysis of the submissions including:

- Evidence base
- Appropriateness for target audience and in relation to existing programmes and practices
- Knowledge, skills and education required to maximise the use of the tools and technologies

- Contribution of tools and technologies in addressing health inequalities including gender bias.

Following analysis of the submissions, HeartAge, an online evidence-based tool used for communicating important health information and advice to help prevent CVD was chosen as an example to demonstrate how the principles and criteria can be used in practice. A description of HeartAge is provided in Box 2. Apart from meeting the agreed criteria, this example was chosen because of its accessibility, ease of use by individual citizens especially those with limited opportunity and infrastructure to use more sophisticated tools and technologies, relevance and potential impact.

Box 1: Examples from practice

Although not elaborated in any detail, it is helpful to note the range of eHealth technologies employed in prevention which were submitted as examples to the ENS4Care Thematic Network. They are all underpinned by a common theme of empowering citizens. They include:

Cardiac rehabilitation. A programme designed to promote early ambulation and monitor physical activity, nutrition and vital signs following discharge from hospital. The programme enables citizens to learn to live with their condition, to develop healthy lifestyles and increase functional capacity. As they begin to feel better citizens tend to gradually involve family and friends in lifestyle changes. *(Submitted by ACES estuario do Tejo, Portugal)*

eRehab. An internet- and mobile-based tailored intervention for maintenance of physical activity following cardiac rehabilitation. The intervention, designed in collaboration with users, has the potential to reduce the number of face-to-face visits and re-hospitalisations, and improve quality of life through increased levels of physical activity. *(Submitted by the Norwegian Centre for Integrated Care and Telemedicine.)*

Prevention of malnutrition and social isolation. Provision of an iPad with a range of relevant apps to meet the needs of selected citizens, male and female, over the age of 65 years, to promote social contact or healthy eating. *(Submitted by the University of Oslo.)*

Tukinet. An internet based mental health crisis centre and online platform offering personal support services including real-time chat, online open and closed groups, and information services. The service is used by half a million users per year. *(Submitted by Helsinki Metropolia University of Applied Sciences)*

COPD RehabApp. This computer based programme is aimed at citizens with severe COPD who are participating in out-patient pulmonary rehabilitation. The programme includes walking tests, training exercises, videos on breathing techniques, links to patient organisations and the opportunity to record training results and activities as well as measures such as scale of breathlessness. Nurses and physiotherapists provide ongoing follow up and support. *(Submitted by Nordsjaellands Hospital, Denmark)*

Box 2: HeartAge

HeartAge is based on scientific evidence from the Framingham Heart Study (www.framinghamheartstudy.org), which provides a simple way of estimating and expressing CVD risk in a way that is easily understandable for the individual citizen. It has been used by more than 6 million people around the world. It converts the output of the routinely used Framingham CVD risk score (D'Agostino, R. B. et al 2008) from a difficult to grasp '% risk in the next ten years' into an easily understandable concept 'Your HeartAge is …' i.e. the age at which the individual's percentage risk score would be considered normal with healthy levels of risk factors. This enables the individual to see how modifiable risk factors such as smoking, physical inactivity, excess alcohol intake and poor diet can 'age' the heart.

The HeartAge Platform is an accurate and user friendly system that can be used by nurses and social care workers as well as by citizens themselves to find their HeartAge score. While the technology is easy to use, HeartAge is based on complex and robust evidence. It requires the completion of an online health questionnaire, which takes only about five minutes to complete and can be found on www.heartage.me; www.heartagecalculator.com; or http://www.world-heart-federation.org/cardiovascular-health/heart-age-calculator/

HeartAge contextualises the risk and highlights whether individuals may be at a higher or lower risk of developing CVD than a 'normal' healthy person of the same age. If their HeartAge is greater than their chronological age, it is immediately clear they should make changes. Equally important, however, the HeartAge concept has been shown to have an emotional impact on the individual, due to the fear of aging faster. This has been shown to correlate with a strong desire to engage in positive lifestyle changes (Soureti et al. 2010).

The fields that need to be completed include age, gender, family history, diabetes status, smoking status, blood pressure, total cholesterol, HDL cholesterol, weight, height and waist measurement.

When the data is entered into the HeartAge Platform in response to the questions, the algorithms within the system calculate a single CVD risk expressed as how old their heart is compared to their chronological age. For example a smoker will have a HeartAge roughly 10 years older than that of a non-smoker, providing all other risk factors are equal. Although the HeartAge platform was originally based on the Framingham risk score (percentage chance of having a CVD event over 10 years), it can be adapted for other risk-prediction scores that may be more commonly used in particular countries. If some of the information is not available (e.g. blood cholesterol), then HeartAge uses a different validated formula based, for example, on body mass index. Depending on the results and level of risk, people may be recommended to see their most appropriate health professional and request their CVD risk-factor values such as cholesterol levels. (HeartAge Toolkit p 11).

Information and advice is provided to help participants make informed healthier choices.

2.2.1 Guideline principles and criteria

The selection criteria and the other emerging issues and principles identified above have been consolidated under the following headings to form the basis of this guideline and nurses and social workers are encouraged to consider each of these when choosing and using eHealth technology to promote health and prevent disease:

- Reducing health inequalities

Investing in reducing health inequalities contributes to social cohesion and breaks the vicious spiral of poor health contributing to, and resulting from, poverty, exclusion and premature aging. eHealth tools can be used to assist and enhance prevention, diagnosis, treatment, monitoring and management concerning health and lifestyle.

- User friendliness and appropriateness for target audience

The tools and technologies should be user friendly for all those involved including patients, carers and the public as well as the professionals. They should be appropriate for the target audience and the local setting as well as gender sensitive and acceptable in terms of patients' cultural, spiritual and psychosocial needs. eHealth technologies can be used in different locations including workplaces and community settings to promote health and prevent disease among citizens who tend not to access or have difficulties accessing the health system thereby potentially contributing to a reduction in health inequalities. eHealth technologies may transition from activity-based, added-value services to performance and outcome oriented, highlighting prevention, surveillance and empowerment.

Guideline statement: eHealth tools and technologies should be user friendly for all those involved including the patients, carers and the public as well as the professionals.

- Evidence base

Given the proliferation of tools and technologies to promote and monitor health and wellbeing it is particularly important to ensure that the tools and technologies chosen are based on sound scientific principles and, where possible, are evidence based. As a result of the increasing speed from innovation to implementation and use of tools and technologies the evidence base informing the value and impact may be limited. It is important therefore that the use of innovative tools is monitored and

evaluated and adapted where necessary and that the necessary resources are secured to enable this to happen.

Guideline statement: The choice of eHealth tools and technologies should be based on sound scientific principles.

- Cost-effectiveness

Assessing the cost effectiveness of eHealth technologies in promoting health and preventing disease can be challenging. Health Technology Assessment (HTA) is the main tool developed to assess and support the cost effective use of new technologies and innovation in healthcare. It is a multidisciplinary process firmly rooted in research and the scientific method that summarises information about the outcomes. Examples of successful eHealth developments include health information management and networks, electronic health records, telemedicine services, wearable and portable monitoring systems and health portals. http://ec.europa.eu/health/strategy/docs/swd_investing_in_health.pdf

Guideline statement: eHealth interventions should be assessed for cost effectiveness.

It is often assumed that new eHealth technologies are cost-effective, especially when used as part of a structured self-help intervention or interventions requiring minimal health and social care professional support. Alternatively, there is a view that new screening technologies could result in 'over diagnosis' thereby placing unnecessary demands on health services. However, to date there is a lack of long-term impact studies (Tate, D.F. et al 2009). Therefore, health-economic evaluation of health gains and financial impact of adding new technologies to existing health and social care systems in the field of prevention is opportune.

Online evidence-based tools used for communicating important health information and advice to help prevent NCDs, can be cost-free to users if they follow the example of HeartAge. Provided by organisations that have an interest in prevention, these tools are available to patients and nurses, at home, in community centres, as well as in the hospital.

- Patient empowerment

The use of eHealth tools and technologies can empower citizens, carers and families to lead healthier lives and monitor and manage their health and social care challenges or conditions. Nurses and social workers may need to assess the health literacy levels of citizens, carers, families and communities to ensure that they are enabled to harness and gain maximum benefit from changing eHealth technologies. Moreover, solutions need to be flexible to ensure that citizens with different health literacy levels are able to make good use of them and take appropriate decisions.

Guideline statement: Nurses and social workers should assess the health literacy levels of patients, carers, families and communities to ensure that they are enabled to harness and gain maximum benefit from changing eHealth technologies.

- Knowledge, skills and education

For effective and appropriate use of eHealth technologies nurses and social workers must have the knowledge, skills, opportunities and capacity to use the tools and technologies effectively. eHealth technologies provide great opportunities for nurses and social workers to enhance and add value to technological innovations by using their professional knowledge. This may be particularly true in promoting health and preventing disease. Technological innovation can lead to new and changing roles for nurses and social workers, for example as health coaches, and should form an essential part of any competency framework for initial and continuing professional education.

Guideline statement: Nurses and social workers should have the knowledge, skills, opportunities and capacity to use the tools and technologies effectively.

- Integration with existing practices, programmes, policies and structures

It is important when choosing tools and technologies to enhance their practice, individual nurses and social workers ensure that the chosen interventions can be integrated into or complement existing practices and programmes. All tools and approaches used must comply with local and national policies and structures for example in relation to functionality, data protection, patient confidentiality and privacy, as well as legal and governance requirements. Where possible tools may be adapted to meet local realities.

Guideline statement: eHealth tools and approaches must comply with local and national policies and structures - in relation to data protection, patient confidentiality and privacy, as well as legal and governance requirements.

2.3 HeartAge – an example

This guideline uses the HeartAge tool as an example to highlight key principles and criteria outlined above. HeartAge is an online tool that can be used by nurses and social workers to:

- improve communication about CVD risk;
- enable and facilitate citizens and families in health and social care settings to assess their risk; and
- provide individualised, gender-sensitive, person-centred support and advice in making appropriate positive changes in behaviour and lifestyle.

- Health Inequalities

HeartAge has been shown to correlate with a strong desire to engage in positive lifestyle changes which can contribute to social and economic prosperity. It also means that people can be diagnosed and treated more speedily contributing to the prevention of chronic disease and premature ageing.

- User friendliness and appropriateness for target audience

The tool is easy to use by nurses and social workers and indeed by any citizen in any setting who has access to the internet. It involves responding to a questionnaire which takes only about 5 minutes to

complete and provides a risk score readily understandable by the individual (Bonner et al. 2014). HeartAge can be used by health and social care professionals as part of their day-to-day practice with citizens in hospitals and primary care, as well as with families and the general public. It can be incorporated into health systems locally and nationally and used as part of a clinical strategy with particular citizen groups, such as those who have been diagnosed with hypertension and with families following cardiac events or diagnosis, as indicated in the case examples in Box 3. It can also be used in workplaces and other settings. It can be used with adults of all ages but it is not designed to be used for medical diagnosis or with those who have already been diagnosed with CVD.

Further research in this field could include an assessment of the use of the technology including an analysis of its use by different groups.

- Evidence base

A recent study with 3,000 individuals undertaken in Spain (Lopez Gonzalez 2015) evaluated the impact of using the HeartAge platform to promote healthier lifestyles and improve cardiovascular risk factors compared with the more conventional Framingham risk score. The results showed that using HeartAge to raise awareness of CVD risk over a one-year period promoted behavioural changes that resulted in a decrease of CVD risk, and a reduction in HeartAge (1.5 years younger than at baseline). It also showed that the HeartAge Platform is more effective than the conventional Framingham Heart study risk score in engaging the participants to adopt healthier lifestyles and reduce CVD risk. The significant improvement in CVD risk seen in this study in the HeartAge group was reached with no intervention other than informing participants of their HeartAge. The Joint British Society Guidelines (2014) agrees that using a person's heart age is an effective method of communicating risk.

- Cost-effectiveness

With regard to costs, the tool is free to access online and can be used quickly and easily by individuals. There is no significant clinical time burden and it can easily be incorporated into practice, although the real added value is the opportunity taken by the professional to discuss the results of the questionnaire and motivate and support behaviour change. However, use of the tool could result in increased requests for blood tests, as well as increased uptake of local support services such as smoking-cessation clinics. In the longer term there could be significant savings. To assess the potential impact of HeartAge in the UK, a theoretical modelling exercise was carried out which showed that, over the next decade, if people with an elevated HeartAge were able to reduce it by three years, the 2.75 million cardiovascular events predicted for this period could be reduced by 216,000. If everyone's heart stayed as young as their chronological age, up to 1 million events would be prevented over a decade (Murray et al. 2011).

- Patient empowerment

HeartAge empowers citizens, families and the public by increasing their understanding of CVD risk and offering individualised information and education. It can be used to motivate and signpost people to available resources to support behaviour change, resulting in improved management of risk factors. Wide acceptance and use of the tool can be gathered by encouraging families and friends of citizens to access HeartAge and complete the assessment at home at their own convenience. The behavioural implications include citizens and carers taking more responsibility for their own health and being motivated and supported to change their behaviour and choose healthier options. This could lead to

increased public demands on governments, industry and others to make the healthier options easier, more affordable and more accessible.

An aspect that should be taken into account is the danger that too much responsibility is left to the patients / citizens without the adequate needed support from health professionals. Some patients may need education and support in the use of these kinds of tools and may benefit from advice and information as they go through the process. Because HeartAge depends on specific information about different health factors, the more a person knows about their own health status the easier it may be for them to understand the issues that might contribute to an increase in their heart age.

- Knowledge, skills and education

While the HeartAge tool can be used by anybody, nurses and social workers can add value by providing motivational and educational support to empower citizens. HeartAge enables professionals to communicate and respond to CVD risk; inform, educate and support citizens to understand and address their health risks; and provide individualised, person-centred support and advice in making appropriate positive changes in behaviour and lifestyle. To maximise the use of the tool, nurses and social workers would benefit from education and training on theories, models and evidence, and the barriers as well as facilitators relating to behaviour and behaviour change; knowledge and skills to initiate 'difficult' conversations with people using techniques such as motivational interviewing and provide opportunistic brief advice. Nurses and social workers also need to know about local facilities and support (such as smoking-cessation clinics, walking groups, weight-management programmes, etc.) so as to make it easy for people to access such resources.

- Integration with existing practices, programmes, policies and structures

HeartAge can be used by nurses and social workers in a variety of ways to integrate and complement existing practices and programmes ranging from simple to complex, as was demonstrated in the Lopez-Gonzalez study with public health workers in hospital settings. They can:

  - use it to raise awareness of citizens, carers and families; support self-care and self-management; and provide added value with advice about healthy choices and behaviours and signposting to local services and resources;
  - incorporate it into systematic care pathways for citizens with other risk factors such as hypertension or obesity;
  - build it into the care process in outpatient clinics and primary care settings and use it to support integrated family-centred care; and
  - incorporate it into local and national initiatives aimed at raising awareness about CVD risk.

In the UK for example, the HeartAge tool uses the QRisk algorithm in line with National Institute for Health and Clinical Excellence (NICE) and Joint British Societies for Cardiovascular Disease Prevention and Treatment (JBS3) guidelines. In the rest of Europe it can be adapted to use the SCORE algorithm in line with the European Society of Cardiology guidelines.

Completion of the HeartAge questionnaire does not require identifiable personal information when used on an individual basis. If incorporated into a comprehensive integrated care package, as with the rest of the care package, data protection would need to be ensured and attention paid to all relevant local and national policies concerning confidentiality and privacy as well as legal and governance issues.

Box 3:

Case practice 1 - Using HeartAge in cardiac rehabilitation

When a friend or family member suffers a cardiovascular event it often leads people to think about their own health and risk of something similar happening to them. Family history is a significant risk factor and there is evidence that spouses and partners of cardiac patients are also at increased risk of CVD (Connolly, S. et al. 2011). HeartAge can be used by family members and friends to assess and understand their own risk.

Knowing their HeartAge can really motivate people to change their health behaviour to reduce their risk of CVD through a lifestyle change plan. A family-based approach can be very successful in cardiac rehabilitation and prevention for both the cardiac patient and those around them. Making and sharing goals and supporting each other to increase physical activity, make dietary changes and quit smoking can dramatically reduce risk for all involved; including the cardiac patient. Most people are able to make lifestyle changes, but maintaining those changes beyond a few weeks can be the biggest challenge. A move towards a healthier lifestyle for the whole family – and perhaps beyond into social circles – can only help with long-term risk reduction and health outcomes.

Case practice 2 - Using HeartAge for citizens with hypertension

Citizens with hypertension are at an increased risk of developing cardiovascular disease (NICE 2011). HeartAge enables a person's cardiovascular risk to be put into context, and increases their understanding of the impact of hypertension on their health. It can also assist in conveying the importance of appropriate management (both medical and lifestyle), as a lower blood pressure indicates lower HeartAge and hence, lower CVD risk. Using HeartAge for citizens with hypertension could be used as a way of linking everything together to improve the overall monitoring and management of their blood pressure. Most people with hypertension do not feel unwell, and as a result they may be less likely to take medication or make lifestyle changes. Seeing their HeartAge can be a simple but effective motivator. By developing and implementing a plan to reduce blood pressure, people can actively reduce their HeartAge and this, combined with monitoring of blood pressure, will improve hypertension management. Benefits of using HeartAge in citizens with hypertension include:

- individuals take more responsibility for own health;
- improved blood pressure management;
- improved adherence to medication;
- individuals more likely to respond to six-month review;
- individuals more likely to make positive lifestyle changes;
- improved risk factor profile;
- improved cardiovascular risk; and
- reduced future cardiovascular events.

3. Policy context

The policy context for this guideline reflects both the NCD challenge and the increasing use of technology in health. NCDs are a complex challenge but eHealth can simplify solutions and help with messaging. The policy context is heavily influenced by the 2011 UN General Assembly, which – with EU support – adopted a political declaration on the prevention and control of NCDs, and the subsequent WHO Global Plan for the Prevention and Control of NCDs 2013-2020. With their experience of addressing public health challenges, the EU and its Member States are key actors in this UN process. Engaging health and social care professionals in the prevention agenda is an essential priority.

The European Commission Third Health Programme 2014–2020 aims to strengthen action to promote health and prevent diseases and increase the uptake of innovation in health: http://ec.europa.eu/eahc/health/index.html. It is acknowledged across the EU that this major policy challenge requires a comprehensive, integrated, horizontal approach involving all the relevant levels, from individual citizens, communities and corporations to policymakers – based on targeted health promotion, prevention and early detection with a focus on addressing major risk factors.

With reference to the wider adoption and use of eHealth technologies national guidelines and policies need to be adhered to. This guideline focuses on the use of technology by individual health and social care professionals but acknowledges that incorporation of tools such as HeartAge as part of a comprehensive approach to prevention would require attention to local and national eHealth policies and strategies.

Because this guideline is focused at the level of individual practitioners, the main requirement is adherence to professional codes of practice as well as the knowledge and skills necessary to maximise the opportunities for health education and behaviour change generated as a result of using HeartAge or any other eHealth tool. If tools are used as part of an integrated, comprehensive care package or programme appropriate frameworks, systems and policies need to be in place and attention paid to relevant directives such as the Data Protection Directive 95/46/EC.

4. Requirements to implement the guideline

A key challenge in maximising the use of the guideline relates to the pace of technological change and the requirement that tools such as HeartAge continue to be developed and supported online. An inevitable consequence of the pace of change is the rapid emergence and disappearance of eHealth tools and apps.

This guideline can be used to guide individual professional practice related to the selection and use of eHealth technologies in any setting. The guideline and the HeartAge tool could be translated into languages other than English and, if necessary, the online platform could be reconfigured to use other risk-prediction scores in line with national policies and practices.

5. Review of the guideline

This guideline should be reviewed and updated in line with technological change and innovation particularly as nurses and social workers engage more readily in the use of eHealth tools as their practice develops, or in response to citizen demand.

The guideline is expected to be reviewed in 2017.

6. Conclusion

This guideline demonstrates how, in an environment where prevention is critical and yet hampered by a lack of funding, the principles and criteria illustrated above can be used to help nurses and social workers select and use appropriate technologies in their day-to-day practice. The guideline assists nurses and social workers in addressing one of the major global health challenges: the increasing burden of cardiovascular disease. Prevention is essential as the increasing cost of NCDs including CVD threatens to overwhelm health systems in rich and poor countries alike. Nurses and social workers are well placed to use this guideline when selecting and using eHealth initiatives and technologies.

7. Glossary

Blood pressure – Blood pressure is simply the physical pressure of blood in the blood vessels. It is similar to the concept of air pressure in a car tyre. These values are quoted in units known as millimetres of mercury (mmHg). See systolic pressure and diastolic pressure.

Cardiovascular disease (CVD) – the collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels).

Community-based care - spectrum of services that enable individuals to live in the community and, in the case of children, to grow up in a family environment as opposed to an institution. It encompasses mainstream services, such as housing, health care, education, employment, culture and leisure, which should be accessible to everyone regardless of the nature of their impairment or the required level of support. It also refers to specialised services, such as personal assistance for persons with disabilities, respite care and others. In addition, the term includes family-based and family-like care for children, including substitute family care and preventive measures for early intervention and family support.

Diabetes (type 2) – a disease caused by an increased resistance of the body to insulin. Diabetes is characterised by high blood glucose levels. The resulting chronic high blood glucose levels (hyperglycaemia) are associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels. (Type 1 diabetes which is caused by lack of insulin is not preventable.)

Diastolic blood pressure – A common blood pressure reading might be 120/80 mmHg. The lower pressure (80) represents the pressure in the arteries when the heart is relaxed between beats. This pressure is called diastolic pressure.

eHealth – Refers to Information and Communication Technology tools and services for health, used by healthcare professionals, institutions and administrations as well as utilities which provide patients directly with services related to healthcare. (epSOS)

HDL (High Density Lipoprotein) cholesterol – the fraction of cholesterol that removes cholesterol (via the liver) from the blood. Low levels of HDL-cholesterol are associated with an increased risk of atherosclerosis.

Heart attack – the condition caused by a blockage of one of the coronary arteries which supply the heart starving the heart of oxygen. A heart attack usually causes severe pain in the centre of the chest. The pain lasts for more than fifteen minutes, and may last for many hours. The pain usually feels like a heaviness or tightness which may also spread to the arms, neck, jaw, face, back or stomach. There may also be sweating, light-headedness, nausea or shortness of breath. Sometimes a heart attack can be 'silent' and produce little discomfort.

Hypertension – Hypertension is a clinical condition of having a high blood pressure. Mostly it is considered blood pressures of 140/90 mmHg and greater to be high although this is influenced by other factors. For example, in patients with diabetes, the definition of hypertension is considered by some to be pressures greater than 130/80.

ICT - ICT (information and communications technology) is an umbrella term that includes any communication device or application. For example radio; television; mobile phones; computer and network hardware and software; and services such as videoconferencing and distance learning.

LDL (Low Density Lipoprotein) cholesterol – the more harmful fraction of cholesterol which carries cholesterol from the liver to the cells of the body and causes atherosclerosis.

Primary prevention – interventions aimed at reducing the risk of disease before the disease has presented. Primary prevention interventions are usually aimed at populations, such as health promotion and regulation of tobacco advertising.

Secondary prevention - interventions aimed at reducing the risk of disease recurrence after the disease has initially presented. Secondary prevention interventions are therefore targeted at individuals already at high risk of disease.

Stroke – the consequence of an interruption to the flow of blood to the brain. A stroke can vary in severity from a passing weakness or tingling of a limb to a profound paralysis, coma and death.

Systolic blood pressure – A common blood pressure reading might be 120/80 mmHg. The higher pressure (120) represents the pressure in the arteries when the heart beats, pumping blood into the arteries. This pressure is called systolic pressure.

Team – A group of individuals who work together to produce products or deliver services for which they are mutually accountable. Team members share goals and are mutually held accountable for meeting them, they are interdependent in their accomplishment, and they affect the results through their interactions with one another. Because the team is held collectively accountable, the work of integrating with one another is included among the responsibilities of each member (Mohrman et al, 1995).

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