IMPROVING HEALTH LITERACY FOR HEALTH EQUITY
Health Literacy: Key Messages

- Health literacy incorporates language, literacy and numeracy skills that are used in health settings and for managing health, as well as the ability to access, understand, evaluate, use and navigate health information and services.

- A person's health literacy depends both on their own abilities, as well as the efforts of health systems to make their services and information clear and accessible.

- Health literacy is associated with the social determinants of health, and also has an independent association with some health outcomes and long-term conditions.

- Some population groups – particularly older people, migrants and ethnic minority groups, disabled people, people with long-term illnesses, and people from disadvantaged socioeconomic backgrounds with limited educational skills - are disproportionately affected by both limited general literacy and health literacy.

- Improving the health literacy of disadvantaged or vulnerable groups can reduce health inequalities because research suggests that health literacy plays a larger role among those with lower education than among those with higher education, in terms of health outcomes.

- To improve the health literacy of people with low literacy, the following strategies are recommended:

  1. Make health information as clear and accessible as possible - simplifying materials using plain and direct language, pictures and symbols.
  2. Use multimedia and verbal presentations.
  3. Invest in community-based initiatives delivered by multi-disciplinary teams, and approaches developed using community involvement, particularly those that incorporate empowerment strategies.

- More evidence is needed on how health literacy can improve health inequalities, particularly among disadvantaged groups, and the cost-effectiveness of general and targeted health literacy initiatives.

Opmerking [A1]: I would suggest to pay separate attention to the skills individual healthcare providers need to recognize low literacy and to communicate effectively with low literate patients: ask one question, the signs that are an indication of low literacy etc and the use of plain and direct language, using pictures and using the teach-back method.
INTRODUCTION

This paper summarises the latest evidence on health literacy. Studies suggest that low health literacy is independently associated with poor health outcomes. It is also a factor known to contribute to health inequalities, because although anyone could be at risk of low health literacy, it is more prevalent among certain disadvantaged or vulnerable groups.

Many health information producers say that they lack the tools and skills to develop appropriate resources and initiatives to meet the need of people with low literacy [1]. The purpose of this paper is therefore to determine which approaches to health literacy are most effective at improving health literacy – by which we mean improving individual skills for use in health settings and ensuring that health information and health services are as clear and accessible for all.

In this review we show that there is currently limited evidence about interventions to improve health literacy. However, we draw on promising health literacy strategies identified in the literature and from leading experts in the field, and look to associated fields, such as health promotion and health education, to identify appropriate reach and engagement health strategies for disadvantaged or vulnerable groups. It is beyond the scope of this report to systematically review all general and targeted health promotion and education initiatives that might impact on health outcomes.

Policymakers, local communities, public health agencies, schools, adult education services, employers, health and social care professionals, the media, and community groups, among others, all play a role in strengthening the health literacy of their local populations. The recent move of public health from the NHS into local authorities [2] should also bring many opportunities for closer working between the NHS, public health, education and social care, to build the health literacy skills of people with low literacy.

This paper is part of a series of publications commissioned by Public Health England (PHE) and written by the UCL Institute of Health Equity. The series is designed for local areas, aimed at health and wellbeing boards and their respective members. The documents provide useful information for health professionals as well as other professionals in local authorities who have responsibility for work that has implications for health about approaches to consider when devising local programmes and strategies to reduce health inequalities.
Throughout the paper, we have highlighted certain evidence and resources in boxes such as this one. These are labelled in the following ways:

**Initiative/Intervention** – An example of a strategy, programme or initiative, undertaken by a local area, organisation or national government, that it is felt may contribute to improving the health literacy of individuals either through: strengthening individual skills; by simplifying and clarifying health information and health systems, or; by reaching and engaging disadvantaged or vulnerable groups with general literacy or health literacy initiatives. It has either been evaluated and shown to be effective, or is considered to be an example of promising action.

**Key Message(s)** – Summaries of the key findings or action proposed in this paper.

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**WHAT IS LITERACY?**

Literacy is the ability to read, write, speak and listen to a level that enables a person to communicate effectively, understand written information and participate fully in society.¹

However, 43% of UK adults have lower than expected literacy levels at the end of full-time compulsory education.²

Low literacy is linked to income and disadvantaged socioeconomic circumstances,³ and can have a negative effect on health.⁴ People with low literacy are generally less responsive to more general approaches to health education, less likely to use disease prevention services, less likely to successfully manage long-term, chronic conditions,⁵ and in conjunction with educational levels, more likely to have negative health behaviours, such as smoking and heavy drinking.⁶

Consequently, people with the lowest level of literacy skills are more likely to have worsening health limiting conditions and to report low health status than people with higher levels of literacy skills.⁷

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Health literacy is the bridge between people and health settings. It is a multifaceted, complex and evolving concept with no universally accepted definition or measure. A systematic review in 2012 identified 17 different definitions of health literacy [3], and there are now more than 50 health literacy measurement tools in the literature [4]. This can make finding and comparing evidence challenging, and in some instances, the term is avoided completely. In the UK, for example, there has been a call for more understandable information, together with increased patient engagement and involvement, yet the term health literacy is not mentioned [5]. Nevertheless, there are many overlapping features used in different definitions, models and measures, which we focus on in this review.
Definitions used in this paper

Literacy – Literacy is the ability to read, write, speak and listen to a level that enables a person to communicate effectively, understand written information and participate fully in society.⁸

Health literacy – Health literacy is the term used to describe the ability to engage with health information and services. It incorporates language, literacy and numeracy skills that are used in health settings and for managing health, as well as the ability to access, understand, evaluate, use and navigate health information and services.⁹ A person’s health literacy depends both on their own abilities, as well as the efforts of health systems to make their services and information clear and accessible.⁹ Health literacy can be broken down into:

Functional health literacy - a person’s ability to read and comprehend information and instructions in health settings.

Interactive health literacy – a person’s ability to be actively involved in decisions about their health and care over time and in changing circumstances.

Critical health literacy – a person’s ability to take control of the wider determinants of health.¹⁰

Although the concepts of health literacy, patient activation, patient empowerment and self-efficacy are distinct, the impacts are often intertwined.⁵ ⁶ ⁷ ¹¹:

1. Patient activation – the knowledge, skills and confidence a person has in managing their own health and care.

2. Patient empowerment – empowering people to make their own healthy choices and decisions about their health and health care. Adequate health literacy without empowerment may result in dependence on health professionals, while a high degree of empowerment without adequate health literacy might mean that a patient makes less suitable health choices.¹²

3. Self-efficacy – the belief in one’s capabilities to achieve a goal or outcome.
Earlier definitions of health literacy drew from the broader study of literacy, and concentrated on what is generally referred to as functional health literacy [8]. Since 2000, a three-level definition of health literacy is now regularly used in the literature to capture common factors. These are - functional, interactive and critical health literacy [8].

FUNCTIONAL HEALTH LITERACY

Functional health literacy is linked with educational attainment [9], and overall literacy [10] [11]. People with inadequate skills in reading and numeracy (generally defined in the literature as below Level 2 skills in the English National Qualifications Framework (NQF)), 13 will have less exposure to universal health information, and less developed skills to comprehend and act upon health information [12]. Thus, low health literacy is most common in people with low basic education and skills [13], and low Information and Communication Technologies (ICT skills), which frequently overlap [14].

A study found that low childhood IQ is associated with poorer health literacy in older adulthood [15]. Strategies to promote health literacy should therefore remain tied to more general strategies to promote literacy, numeracy, ICT and language skills in the population [16].

The Canadian Council on Learning found that daily reading habits (i.e. reading books, emails, newspapers), have the single strongest effect on health-literacy. And the second strongest factor to explain health literacy skills (independent of reading practices) is educational attainment [17].

However, studies have found that functional health literacy is not always equivalent to level of education, despite the correlation [18]. Having adequate or good general literacy and numeracy skills does not necessarily equip a person or community to deal with the complicated literacy demands of health care settings [19]. A well-educated and literate person can have low health literacy when required to understand and act upon unfamiliar terminology and concepts in unfamiliar healthcare settings [20], and when navigating health information online [21], especially when illness makes them more vulnerable. Basic literacy and numeracy skills are therefore fundamental necessities for adequate health literacy, but they are not sufficient.

INTERACTIVE HEALTH LITERACY

Interactive health literacy is defined as patients having more advanced cognitive and literacy skills, as well as confidence, to discuss and actively participate in their health
and treatment options with health professionals. This also involves health systems removing all complexity and barriers to access and engagement. Interactive health literacy is believed to enable patients to be actively involved in decisions about their health care over time and in changing circumstances.

**CRITICAL HEALTH LITERACY**

The highest level cognitive skills are required for critical health literacy, which, with social skills, enables people to take control of the wider determinants of their health. This includes identifying barriers to health in their environment - such as a lack of green, accessible space - and then taking appropriate action [8].

* For all three levels of health literacy, it is also important to understand that a person’s health literacy depends both on their own abilities, as well as health literacy responsiveness - the efforts of health systems to make their services and information clear and accessible, removing barriers to understanding and engagement for all patients [22].

**2. WHY IS HEALTH LITERACY IMPORTANT?**

By enhancing people’s access to and engagement with health information and services, they will be more likely to make effective health decisions, and engage with better health behaviours, disease screening, treatment and management.14

**HEALTH LITERACY AND ASSOCIATED HEALTH OUTCOMES**

Health literacy is associated with a number of health outcomes:

- clinical outcomes (physical or psychological)
- increased use of health services.
- health knowledge, health beliefs and health behaviours
- confidence and resilience in health settings
- self-reported health status

The majority of studies focus on the association between functional health literacy and health outcomes. When we talk of health literacy in this chapter, we therefore refer to *functional health literacy*, unless otherwise stated.
CLINICAL OUTCOMES (PHYSICAL OR PSYCHOLOGICAL)

A study has found that patients with low functional health literacy are generally 1.5 to 3 times more likely to experience increased hospitalisation or death [23]. Some other studies have reported that low literacy is associated with more depressive symptoms, [24], and suggest that literacy interventions might improve depression severity. Patients with low literacy are also less likely to successfully manage long-term diseases such as asthma and diabetes [25].

Although health literacy is associated with educational attainment and other social determinants of health, such as culture and socio-economic position, studies have found an association with health and long-term conditions that persist even when these are controlled for in analyses [26] [27] [28] [29]. For example, a UK study found that older adults with low functional health literacy were more than twice as likely to die within five years as adults with no health literacy limitations [9]. Differences in age, socioeconomic position, baseline health status, and health behaviours explain less than half of the increased risk. And even after adjusting for measures of cognitive function, low health literacy still significantly predicts an early death [9].

INCREASED USE OF HEALTH SERVICES

The association between lower levels of health literacy and outcomes is also thought to be explained by reduced knowledge of and participation in illness prevention activities and use of health services, including lower cancer and mammography screening, immunisation and flu vaccine uptake [29] [30] [31] [32]. Limited health literacy is also associated with less recall and adherence to medical instructions and self-care regimes [33] [34] [35].

A systematic review found that people with lower literacy had less appropriate patterns of health service use and were not always able to secure appropriate treatment [36]. When compared to those with adequate health literacy, studies have also shown that people with limited health literacy generally: enter the health system when they are sicker [37]; are more likely to use emergency services; are more likely to be hospitalised with longer hospital visits; are less likely to use preventive services, and; incur higher health care costs [29].

Furthermore, research has found that people with limited health literacy are more likely to report a sense of shame about their skill level [38], which is likely to impact their use of health services.
HEALTH KNOWLEDGE, HEALTH BELIEFS AND HEALTH BEHAVIOURS

A health-literate person is better able to understand and carry out instructions for self-care [19]. They are also more likely to plan and achieve lifestyle changes to support a healthier life, make informed positive health decisions, share health-promoting messages with others, including their families, friends and communities, and know how and when to access health care, including emergency health care when appropriate [19].

There is evidence that limited health literacy is associated with poor health outcomes via an increase in unhealthy lifestyle behaviours, such as smoking, drinking, insufficient exercise and insufficient fruit and vegetable consumption - major risks to premature morbidity and mortality [39] [40] [41]. The European Health Literacy Survey (EU-HLS), found that across all participating countries, except Spain, the amount of physical exercise people undertook was consistently and strongly associated with health literacy [42]. But this is in contrast to a UK review that found only a weak association between health literacy and physical activity, but found that low health literacy predicted poor diet, smoking, and self-reported health status across a wide age range, which held even after adjusting for personal characteristics, socioeconomic position, baseline health and health behaviours [41]. On the other hand, another study found only a weak association between adequate health literacy and healthy eating practices [43]. One study suggested that the association between health literacy and fruit and vegetable consumption in older adults might be dependent on the level of urbanisation in a specific area [44].

Limited health literacy has also been found to be predictive of greater physician distrust [45] and more general negative attitudes towards health and health care [46]. For example, a recent study found that limited health literacy was associated with more negative medication related beliefs, such as misapprehension about the hazards of medicine use [47].

CONFIDENCE AND RESILIENCE IN HEALTH SETTINGS

Health literacy has been found to build resilience among individuals and communities [19]. Community members can benefit from community support and resources — such as self-help groups and neighbourhood support — in enhancing their own health literacy skills as a form of social capital [19]. Recent research suggests that stress resilience in adolescence - how susceptible the child or young person is to stress and how well they cope with it - predicts mental and physical health in adult men. [17] Low
stress resilience in adolescence is found to be associated with stress and anxiety in males aged 50, and is likely to have a similar effect for women. 18

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Overall, trials examining the relationship between health literacy and health outcomes are more likely to focus on health knowledge and health behaviours. A 2009 systematic review of complex interventions to improve the health of people with limited literacy found that nearly half of the identified reviews (7/15) had not reported any clinical outcomes [48]. Instead, knowledge and self-efficacy – the belief in one’s capabilities to achieve a goal or outcome - were found to be the classes of outcome most likely to improve with increased health literacy skills [48]. It is acknowledged that although improvements in factors such as knowledge and confidence are important, they do not necessarily translate into changes in health [48].

But do these findings also apply when more advanced health literacy is considered? A study examining interactive and critical health literacy skills in the European Union replicated functional health literacy findings in England, identifying that people with low skills in these areas also made more use of hospital services, were less likely to get involved in preventative activities, and were more likely to die at a younger age [49].

Although we can infer that the associations between functional health literacy and health outcomes are likely to persist when interactive and critical health literacy skills are taken into account, more evidence, based on the UK population, is required to provide firm evidence of this association.

** DISTRIBUTION OF RATES OF HEALTH LITERACY IN THE GENERAL POPULATION**

It is difficult to quantify the prevalence of low health literacy in England and the UK because results vary with definition, measure and methodology used in studies, and we have limited information on the prevalence and effects of interactive and critical health literacy.

A recent study on functional health literacy levels across England found that 42% of working-age adults between 16 and 65 years in England are unable to understand and make use of everyday health information, rising to 61% when numeracy skills are also required for comprehension. 19 This means that 15-21 million people in the UK might not have the information needed for a healthy life [50], and it is not yet known how many people additionally have low interactive and critical health literacy skills, so numbers are likely to be even higher [51].
In the European Health Literacy Survey (EU-HLS), which includes measures of all three levels of health literacy – functional, interactive and critical\textsuperscript{23} - it was found that limited health literacy in Europe, based on an assessment of the likelihood of an individual having difficulties with health relevant tasks and situations, ‘is not just a minority problem’, as nearly every second respondent showed limited health literacy\textsuperscript{[42]}: around 12% of respondents were found to have inadequate health literacy and 35% to have problematic health literacy\textsuperscript{[42]}.

THE COST OF LOW HEALTH LITERACY

The World Health Organisation declared that there is a case to be made for viewing inadequate or problematic health literacy – as defined by the EU-HLS - as ‘a key determinant of health, a high-prevalence problem, a drain on human and financial resources and an obstacle to development\textsuperscript{[19]}’. However, the cost effectiveness aspect of health literacy research in England and Europe is missing from the literature.

US research suggests that the cost of poor health literacy is between 3-5% of the health budget each year \textsuperscript{[52]}. The Community Health and Learning Foundation calculated that the economic implication of poor health literacy in England is estimated at between £2.95bn and £4.92bn (based on the NHS budget for 2014/15 being £98.4bn) \textsuperscript{[50]}. However, it is difficult to accurately transfer these cost implication findings to English and European healthcare settings.

3. HEALTH LITERACY AND HEALTH INEQUALITIES

Although anyone in the population could be at risk of limited health literacy, low health literacy is central to health inequalities as disadvantaged or vulnerable groups are most at risk. Furthermore, as health systems, and a person’s literacy, language and numeracy skills are not fixed, health literacy is an amenable social determinant of health. By enhancing people’s access to and engagement with health information and...
services, they will be more likely to make effective health decisions, and engage with better health behaviours, disease screening, treatment and management.\(^{24}\)

A range of groups have been identified as experiencing disproportionately low or inadequate health literacy. These are:

- More disadvantaged socioeconomic groups
- Migrants and people from ethnic minorities
- Older people
- Disabled people (including those who have long-term physical, mental, intellectual or sensory impairment) \(^{53} [54] [12] [55] [56]\).\(^{25}\)

These findings have largely been replicated in the European Health Literacy survey (2012), which identified some vulnerable groups particularly at risk of limited health literacy: 80% of those with no or very little education; more than 75% of persons with very bad health status; more than 70% of those who consider themselves as having a low social status; 60% of people older than 75 years; and more than 50% of unemployed or retired people \(^{42}\).

It is the same disadvantaged or vulnerable population groups that face the biggest barriers to achieving good health literacy that also experience the greatest health inequalities.\(^{19}\) And limited health literacy can further reinforce existing inequalities.\(^{19}\) We will now consider each of the low literacy populations in turn.

**POPULATIONS WITH LOW HEALTH LITERACY**

**A. MORE DISADVANTAGED SOCIOECONOMIC GROUPS**

A person’s social background has been found to have a strong influence on education and skills \(^{57}\), and health outcomes \(^{58}\). Poor basic literacy and numeracy skills are consistently noted in the literature as being a major barrier for people from disadvantaged backgrounds. For example, the OECD’s Survey of Adult Skills (SAS) showed that the relationship between parental background and adult literacy and numeracy among young adults is stronger in England than in all other countries, except the Slovak Republic \(^{59}\). It thus leads that rates of inadequate functional health literacy have been shown to be higher amongst low income adults \(^{60} [61] [62] [63]\), and adults with a low educational level \(^{64} [61] [65] [66]\).

Recent research has found that health literacy interventions in mainland Europe are potentially not adequately focused on disadvantaged people from low socioeconomic
background [67]. And they are similarly under-represented in health literacy research [68].

In 2004, the National Consumer Council in the UK, now known as Consumer Futures, found that people from disadvantaged backgrounds were less likely to seek information or help for their health problems [54]. 35% of lower socioeconomic groups asked their GP questions, compared with 45% of people in the highest social groups. And only 16% of people in lower socioeconomic groups would search the internet for information about their health, compared with 39% of their better off counterparts [54].

There is consistent evidence that health outcomes are also correlated with social position in societies across the Western world. People from disadvantaged backgrounds [69, 70] [71] and with lower education [72] are known to have a lower disability-free life expectancy, and to die younger. And people with low socioeconomic status are disproportionately affected by morbidity and mortality from cardiovascular disease, and receive less patient-centred care [73] [74] [75] [76]. A study by the Department of Business, Innovation and Skills found that people with low adult literacy and numeracy skills – associated with functional health literacy - had worse health limiting conditions, and were more likely to report deteriorating self-rated health [77]. For example, women with lower literacy and numeracy skills are three times and twice more likely, respectively, to have deteriorating health limiting conditions than women with higher skills.

B. MIGRANTS AND PEOPLE FROM ETHNIC MINORITIES

Some studies and surveys have found that migrant communities and some ethnic minority groups generally have lower literacy, health literacy and health outcomes [19]. For example, a systematic review concluded that people in ethnic minority groups often have limited health literacy compared with the general population [29]. However, research is not conclusive. The European Health Literacy Survey found that literacy levels for migrants were only significantly lower in Germany (although Germany had the highest proportion of migrants compared with the other participating European countries) [42].

Low health literacy among migrants and ethnic minority groups is thought to be because they experience more difficulties in obtaining, understanding and implementing health information, and therefore have a higher risk of poorer health outcomes [78] [29]. For example, language is a major barrier for many people from ethnic minority groups, particular asylum seekers and refugees [79]. The ONS report *Focus on Inequalities* found that 41% of people who spoke English as a second
language received no interpretation support when visiting a GP or health centre [80]. A lack of access to health information or inappropriate health information is seen as key drivers of risky behaviour, poor use of health services and generally poorer health outcomes among migrants and some ethnic minority groups [81].

Migrants and ethnic minority groups are also at disproportionate risk of more disadvantaged socioeconomic position [19], and a general lack of affordable English as a Second Language (ESOL) courses have been reported [19]. A lack of information provided in a range of languages in many hospitals outside large urban areas [82], and often a lack of adequate social support [83] are additional factors thought to partly explain why health and education information does not always adequately reach these disadvantaged or vulnerable groups [19].

To compound the problem, recent research has found that health literacy interventions in mainland Europe potentially under-target disadvantaged ethnic minority groups [68]. And disadvantaged ethnic communities are generally underrepresented in health literacy research [68].

Consequently, migrant and some ethnic minority populations have poorer access to and use of health information, and disease prevention and health care services than the general population. Health intervention initiatives, such as cancer screening, smoking cessation and diabetes programmes are also less effective for these particular populations [19].

C. OLDER PEOPLE

Older adults have been found to be disproportionately affected by poor health literacy [84]. A recent meta-analysis reported that older adults (over 65 years) were over four times more likely to have limited functional health literacy than the general population [85]. Adults over the age of 65 years have the lowest levels of health literacy compared with younger age groups, and health literacy skills have been found to rapidly decline from age 55. In the UK, a third of adults aged over 65 are unable to comprehend basic usage instructions on medicine labels, indicating low health literacy. Older adults (over 50 years) with inadequate health literacy are also less likely to participate in cancer screening compared to those with adequate health literacy – 48% and 58% respectively.

Furthermore, e-literacy (computer and internet literacy) skills are lower amongst older adults compared with the general population, and disability, illness or handicaps can make technology difficult to use. This digital divide is likely to disadvantage older adults as health communications and access to health services are increasingly
delivered online, so as technology changes, so do the requirements for health literacy skills. Poor literacy skills, including e-literacy, among older people therefore directly impact their ability to manage effectively in the evolving health system, and thus their health status overall.

Lower levels of health literacy among older people may be as a result of a number of factors, including a decrease in mental processing skills due to advancing age, \(^{31}\) having more long-term health conditions, \(^{32}\) and being a population group who received lower levels of formal education compared with other generations. \(^{33}\)

Limited health literacy among older adults is associated with increased risk of long-term illness, disability and premature morbidity. For example, a study found that older adults (aged 50+), with low health literacy are more than twice as likely to die within five years compared with older adults with good health literacy skills. \(^{34}\) Differences in age, socioeconomic position, baseline health status, and health behaviours have been found to explain less than half of the increased risk. \(^{35}\) And after adjusting for measures of cognitive function, low health literacy still significantly predicts an earlier death, \(^{36}\) although a person’s health literacy might decrease as part of a general decline in cognitive capabilities with age. \(^{37} \) \(^{38}\) People aged 65 years or older, with fewer years of education, are also more likely to report worse perceived health, have higher levels of disability, make more visits to health services, have higher rates of hospitalisation, engage in less activity and are less likely to obtain and adhere to medicines compared with those with more years of schooling. \(^{39} \) \(^{40}\) It is why the World Health Organisation’s Active Ageing Initiative advocates that strengthening health literacy is key to promoting active ageing. \(^{41}\)

**D. DISABLED PEOPLE**

Health literacy research has largely overlooked the experiences of disabled people, \(^{42}\) despite evidence that disabled people are an at risk group for limited health literacy. \(^{43}\)

There is, however, some evidence that low health literacy among people with intellectual disabilities is explained not by the disability itself, but by limited communication skills. This reduces the capacity of disabled people to access and comprehend health information, and to express identified health needs effectively to health professionals and carers. \(^{44}\) The situational and sociocultural context in which general and health literacy occurs is also thought to contribute to the disproportionate burden of limited health literacy among disabled people. \(^{45}\) For example, research has found that only 30% of GPs surgeries have information that is accessible for people with learning disabilities. \(^{46}\) Furthermore, where initiatives aimed at strengthening the
health literacy of people with intellectual disabilities do exist, they can inadvertently reinforce low health literacy skills by adopting a narrow definition of health literacy (functional), and thus ‘largely fail to offer people with intellectual disabilities opportunities to develop capabilities to interact with health information in a more critical manner.’

A number of organisational barriers to accessing healthcare services have also been identified in the literature for people with learning disabilities. These include a ‘failure by health professionals to make reasonable adjustments in light of the literacy and communication difficulties experienced by many people with learning disabilities’.

For example, people with a disability are three times more likely to have never used the internet, and four million people with a disability have never been online. Yet much health information is now found on the internet, and health services promote online GP appointment bookings, which again might have the inadvertent consequence of easing access to health information and professionals for the most advantaged in society, while widening health inequalities.

4. STRENGTHENING HEALTH LITERACY TO REDUCE INEQUALITIES IN HEALTH

Although further research is needed to determine the relative importance of health literacy levels in different population groups, research suggests that improving the health literacy of disadvantaged or vulnerable groups can reduce health inequalities. For example, one study suggests that health literacy plays a larger role among those with lower education than among those with higher education, in terms of health outcomes, while a recent review affirmed that ‘disadvantaged groups may benefit from shared decision-making interventions’ (an outcome of health literacy), ‘more than higher literacy/higher education groups’, and in the long-term, this ‘may reduce health disparities’.

All of the population groups identified as being at risk of low health literacy and thus poor health outcomes are protected by the Public Sector Equality Duty, which means that public authorities must have due regard to advancing equality of opportunity between people who share a protected characteristic and those who do not. This includes:

- Removing or minimising disadvantage experienced by people due to their protected characteristics.
- Taking steps to meet the needs of people with certain protected characteristics where these are different from the needs of other people.
- Encouraging people with certain protected characteristics to participate in public life or in other activities where their participation is disproportionately low.\textsuperscript{53}

However, focusing solely on the most disadvantaged or vulnerable groups will not sufficiently reduce health inequalities. To reduce the steepness of the social gradient in health, health literacy initiatives and actions must be universal but with a scale and intensity that is proportionate to the level of disadvantage – known as proportionate universalism.\textsuperscript{54} We therefore advocate a ‘proportionate universalist’ approach to health literacy. This means:

Adopting a universal approach to:

1. Mitigate for low health literacy throughout the general population, by making all health information and health systems as easy as possible to understand and navigate for everyone.

But with a particular focus on:

2. Reaching and engaging low health literacy populations to strengthen their health literacy, and their general literacy, language and numeracy skills, i.e. through encouraging daily reading practices.\textsuperscript{55}

This is because a one-size fits all strategy will have limited effect among disadvantaged or vulnerable groups.\textsuperscript{56} Public health messages that are not tailored to the individual and the individual’s circumstances are likely to be ignored, so the reality is that general health information often fails to reach those who need to hear it the most.\textsuperscript{57} Health literacy initiatives may run the risk of creating a two-tiered system in terms of access and usage - individuals with already adequate health literacy, or those at lower risk of experiencing health inequalities, are more engaged and able to access and use health information with greater ease, while vulnerable groups fall through the net.\textsuperscript{58}

4. WHAT WORKS TO IMPROVE HEALTH LITERACY AND REDUCE HEALTH DISPARITIES?

At the beginning of this review, we highlighted that a person’s health literacy depends both on their own abilities, as well as the efforts of health systems to make their services and information clear and accessible. A person’s ability to comprehend, use and act on health information, therefore depends on:

\textsuperscript{54} Opmerking [DA7]: In Italy there are some initiatives to strengthen health literacy and the “empowerment” of the citizen and the community: 1) Corporate Communication and Social Marketing, AUSL Modena http://www.ausl.mo.it/pps/doc/doc%20generali/pdf/01/new_cap_17.pdf 2) Italian Group for a participatory health (Istituto di Ricerche Farmacologiche Mario Negri - Centro Cochrane Italiano - Zadig): “5 helpful steps to make good choices for health” http://www.partecipasalute.it/cms_2/
• Their general literacy, language and numeracy skills. An adequate level is necessary to navigate often complex health systems, which involves communicating with health professionals, understanding mass health materials in a variety of formats, and applying health-related knowledge to health care and decision-making.59 Reading on a daily basis has also been found to help improve and sustain health-literacy levels, regardless of a person’s education level. Working age adults who frequently engage in daily reading practices can score up to 38% higher in functional health literacy tests than those who do not read on a daily basis. And older adults (over 65 years) who read on a daily basis can score up to 52% higher than the average for their age. 60

• The complexity of health systems and the information they produce. Inaccessible and unduly complicated systems and information can limit a person’s health literacy.

To date, there have been a number of major reviews of the literature on interventions intended to improve health outcomes for people with low health literacy,61 as well as a number of systematic reviews of health literacy interventions for narrower population groups, including children and young people,62 older adults,63 and populations with musculoskeletal disease.64

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<th>KEY FINDINGS – PROMISING HEALTH LITERACY INTERVENTIONS FOR ALL LOW LITERACY GROUPS:</th>
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<td>• There are large gaps in our understanding of how health literacy levels can be improved. Overall, there is a lack of rigorous evaluation studies and theory-based interventions applying quality research design. Evaluations are thus not definitive. Studies tend to take place in clinical as opposed to practical settings, and are mainly US-based. The vast majority of intervention studies are also focused on written health information and report on health knowledge and health-related self-efficacy outcomes. There is a particular lack of research concerning disadvantaged or vulnerable groups, and targeted at the interactive or critical levels of health literacy. People with low literacy levels are also underrepresented in research. The limited evidence available on the effectiveness of health literacy initiatives therefore makes it difficult to provide firm and generalisable recommendations for practical steps that local authorities can take to improve health literacy and overall health.</td>
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<td>• Some interventions are known to have different effects on those with low and high health literacy,65 indicating that some strategies are better at reducing the gradient in health literacy and health outcomes. However, this may be at the expense of improving the health literacy, and thus health, of the general population. We</td>
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Although we do not yet have clear answers on how best to improve health literacy, both in terms of strengthening people’s abilities and improving the information and systems they are presented with, promising practice is starting to emerge, both in the literature and through the efforts of organisations in the UK and internationally, although more research is needed.

Overall, health partnerships need to ensure that all health information and health services are as accessible and understandable as possible. This will benefit both the general population, as well as targeted groups.

Examples of promising strategies are presented below.

**UNIVERSAL INTERVENTIONS FOR LOW LITERACY GROUPS**

*Making health information clear and accessible*
Some studies have found that health information that only reports essential information is associated with improved comprehension among the general public (an increase of 0.3 on a 3-point health literacy scale), although the improvement is more marked among populations with low numeracy skills (an increase of 0.7 on a 3-point scale). Furthermore, positioning the essential information at the start of the communication has been found to increase comprehension for populations with low numeracy skills (an increase of 0.6 on a 3-point scale), although no effect has been found for populations with already high numerical skills. 66

A number of studies have also found that using icon arrays – pictographics representing, for example, the proportion of people at risk of dying of a heart attack when the drug was and was not taken - is a promising method for communicating medical risk reduction. 67 With the use of such icons, one study found that the percentage of low numeracy participants who estimated the treatment risk reduction incorrectly decreased from 74% to 42%, and from 26% to 15% in participants with high numeracy. 68 This indicates that using icons in health materials has the potential to reduce inequalities in health outcomes, and certainly improve comprehension of health information.

Presenting comparative information on the harms and benefits of two different drugs in tables, as opposed to just text, has been found to improve understanding, especially for low literacy populations (an increase of 2.36 on a five point literacy scale for understanding essential information, and an increase of 2.78 on a 7-point scale for understanding the exact meaning of the entire communication). 69

As well as only presenting essential information, presenting information so that the higher number represents better or good information, has been found to help low numeracy populations choose better quality hospitals for care. 70

Furthermore, medicine labels that state the exact dosing times, as opposed to how many times a day medicine should be taken, has been found to improve understanding of correct medicine use. 71 A recent intervention similarly found that for cardiovascular patients, having health professionals enter medication information into calendars for them, including graphics that showed dosage and the exact dosing times, improved medicine adherence and resulted in a decrease in patients’ average blood pressure (between 0.5 and 1.5mmHG) and body weight (3.6 pounds), six months later. 72

Use of multimedia
One study found that including a video on how to deal with cancer fatigue as part of an intervention, resulted in an improvement of self-care behaviours – and this improvement was seen across all participants, regardless of their health literacy levels (no effect size reported). 73

**Verbal presentations**

An intervention whereby adults with low literacy received verbal medicine dosage instructions by a pharmacy dispenser when their medication was handed over, reported greater understanding of their medication dosage regime, compared with those who did not receive such supporting verbal information (88% of people who received the intervention correctly described their regime, compared with 70% of those who did not receive additional verbal counselling). 74

**Community-based initiatives delivered by multi-disciplinary teams within the community**

A few studies have provided strong evidence that more intensive interventions in community settings reduces the number of hospital visits as well as disease severity.

For example, an evaluation of an intensive disease management intervention delivered by a multi-disciplinary team, involving 8 hours of teaching supported by pharmacist adjustment of medication dose, reported a significant decrease in haemoglobin (a protein in red blood cells that carries oxygen), and blood pressure for low literacy participants. 75 Only blood pressure was lowered for high literacy groups. 76 After 12 months, 42% of those who had received the intervention achieved their haemoglobin level goals, compared with 15% of those who had not received the intervention. 77

Another intervention (the Stanford Nutrition Action Programme), involved six sessions of low fat nutrition group education specially designed for adults with limited literacy, delivered by nutrition professionals, and used an activity-based approach with less emphasis on written materials and focus on links with heart disease. 78 The group-based intervention was supported with follow-up telephone calls on eating patterns, with low fat-related problem solving and goal setting, and also follow-up mailings that included nutrition and goal-setting cards. Adults involved in the intervention, reported significantly reduced percentage calorie intake from total fat (-2.3%) and saturated fat (-0.9%) compared with general intervention participants. Nutritional knowledge, attitudes and self-efficacy also increased.
An intervention for adults with depressive symptoms involved referral to an adult education programme on literacy. This involved an interview with an adult education teacher to determine learning style, followed with literacy and employment skills training via computer assisted or text-based instructions. Participants could also choose whether they worked individually, in small groups or one-to-one with tutors. Participants, after 12 months, reported lower scores on the Patient Health Questionnaire (PHQ-9), indicating improved mental health, compared with those involved in a general intervention (down to an average score of 6 from 12.5 for those involved in the intervention, as opposed to 10 from 14 for those not involved).

Initiative: The Health Literacy Universal Precautions Toolkit

The Universal Precautions approach to health literacy is gaining ground in the USA. The idea is to make all health information and health systems as easy as possible to understand and navigate.

The toolkit is designed to help health professionals and partner services take a systematic approach to reducing the complexity of health information and ensure that patients can successfully navigate the health care system.

The toolkit includes a number of strategies to use with all populations, including the Teach-back method, which involves asking patients to repeat back to health professionals what they have just heard as a way of confirming understanding. Other strategies include advocating follow-up with patients via telephone or written materials between appointments, and a number of approaches to designing easy to understand communication.

Initiative: The Ophelia approach (Australia)\textsuperscript{81}

The OPtimising HEalth Literacy (Ophelia) study in Victoria, Australia involved the collaboration of community leaders, members and health professionals to identify evidence-based health promotion approaches and develop health literacy interventions based on the needs of local communities. They have developed a response framework that outlines the sort of strategies required across the different levels of the health system – regional, organisational and practitioner level - to optimise the health literacy of individuals and communities:

1. Regional level – an integrated service system
2. Organisational level – effective marketing of services; an appropriate mix of services; high level of service accessibility; effective partnerships with local services
3. Practitioner level – effective professional development; effective professional networks; practice guidelines; effective management and mentors; tools, aids and resources.

They have recently collaborated with the World Health Organization to produce a health literacy toolkit for low and middle-income countries.\textsuperscript{82}

Next steps for the study are for the framework to be confirmed and validated, and for tools and resources to be developed to support providers, organisations and governments.

Initiative: Bookstart

Bookstart is a universal programme run by Booktrust that provides free books to families of children before they start school. The aim of the programme is to engage children and families with daily reading practices. Bookstart is delivered via local public service professionals, including library staff, health visitors and early years professionals. Benefits of such a multi-agency approach is that families are encouraged to engage with wider services that can advise about health checks and learning opportunities, such as basic skills courses.

Longitudinal research has found that children who had received Bookstart packs were ahead of other children in both literacy and numeracy upon entering school and that this advantage was maintained through Key Stage 1. Bookstart children were found to outperform their non-Bookstart peers by between 1 and 5%.

In the long-term, it is suggested that Bookstart will demonstrate considerable savings as a result of educational and health gains, economic success, reduced criminal
activity and reduced demand for social services.

For more information see: http://www.bookstart.org.uk/

TARGETED HEALTH LITERACY INITIATIVES

A. DISADVANTAGED SOCIOECONOMIC GROUPS

A (2012) King’s Fund study exploring the impact of health promotion campaigns in England showed little effect on health behaviours among people with few or no qualifications. This clearly demonstrates how a one-size-fits-all approach will not be successful for this specific population group, and will exacerbate existing health inequalities.

Health literacy strategies for people from disadvantaged backgrounds therefore need to be specifically targeted to address the fact that people from disadvantaged backgrounds are:

- Less likely to seek information or help for their health problems.
- Less likely to search the internet for information about their health.
- Less likely to receive patient-centred care.

KEY FINDINGS: PROMISING HEALTH LITERACY INTERVENTIONS FOR DISADVANTAGED SOCIOECONOMIC GROUPS:

- Make further education more accessible. Research has found that making further education more accessible for those whose parents did not have the opportunity to access it themselves will help promote social mobility, and indirectly promote public health. For further information, see the IHE/PHE report - Local action on health inequalities: Adult learning services.
• Combine lifelong skills training with health. A number of studies have found that combining general literacy, language and numeracy skills training with empowerment strategies to increase self-efficacy and attitudes towards health, may be more beneficial in terms of influencing health behaviours of families with lower socioeconomic status and thus reducing inequalities. 89 90 91

• Specific health literacy strategies for disadvantaged socioeconomic groups. Effective interventions include the limiting of teaching objectives and the facilitating of health goal setting – for example, staged tobacco cessation - with people from disadvantaged socioeconomic groups. 92

Demonstrating medical instructions, such as measuring dosages and counting pills, is known to be a more effective strategy than providing written materials or reading out instructions. Repeating health information in different ways also helps to mitigate low health literacy levels, but even better is to involve the patient in learning, through the use of techniques such as Teach Back - where the patient is asked to repeat back the information they have just heard to the health professional. This will enable the health professional to check for understanding (see the Health Literacy Universal Precautions Toolkit above).

• Use trained ‘community workers’ or ‘health champions’ to relay health messages – this has been found to be an effective strategy to reach and engage patients from lower socioeconomic backgrounds, who are less likely to seek out health information. Health professionals should also seek to involve family members or other caregivers in health decisions, and general and health literacy initiatives. 93 This has been found to be an effective way of engaging this particular population group in health discussions and decision-making, and disseminating key health information more widely. 94

• Ensure that health materials are clear and concise. 95 96 97 98 Health information and messages should be presented in a number of different ways to take into consideration the varied ways people learn. Health material providers should also use a range of different mediums to present health information, such as leaflets, the internet and different technologies, to take into account the fact that people from lower socioeconomic backgrounds are less likely to seek out health information online.

Health materials should be written in plain English - simple and short written information, ideally avoiding the use of passive voice and medical jargon. Any written material should be combined with demonstrations and repeated oral instructions, as mentioned above.
Intervention: Bolsover Community Learning Champions (CLCs)

Bolsover Community Learning Champions (CLCs) (Derbyshire) are volunteers who use signposting, mentoring and buddying to encourage people from disadvantaged wards to take part in informal learning to improve their health and wellbeing. The target learner groups are adults without formal qualifications and who are not currently engaged in learning, adults with learning disabilities and/or physical disabilities, and mental health service users. Adult Community Education Centres are used as meeting places, and participants are reached via community settings, such as children’s centres. All CLCs go through an induction programme, and are encouraged to undertake training in skills other than literacy for health that might prove helpful, such as CV writing and communication skills. There is informal evidence that the CLCs are effective at engaging adults in traditionally hard to reach areas, and participants report a new enthusiasm for learning.

For further information see: http://www.communitylearningchampions.org.uk/sites/default/files/downloads/Bolsover_CLCs_draft_vFINAL.pdf

Initiative: Skilled for Health

Skilled for Health is the national programme that combines Skills for Life learning with health improvement topics. It aims to address both the skills and health inequalities prevalent within disadvantaged communities. Skilled for health classes take place in community settings, such as schools, and use general health topics relating to health and healthy living as a lever to engage adult learners and develop their literacy, language and numeracy skills.

The national evaluation of Skilled for Health involved 3,500 people across 157 settings in England. As well as improving community engagement, participants demonstrated increased health knowledge, particularly in the areas of healthy eating, exercising, smoking, drinking and looking after their mental health. By the end of the course, 88% of participants reported to be eating more healthily and 65% reported exercising more. Furthermore, the literacy, language and numeracy skills of participants were found to increase, and 80% of participants said that they intended to take up further education courses (with 29% already having done so).

For further information see: http://rwp.excellencegateway.org.uk/Embedded%20Learning/Skilled%20for%20Health/
B. MIGRANT AND ETHNIC MINORITY GROUPS

Communicating effectively with migrant and some ethnic minority populations can be challenging for some health professionals owing to language and cultural differences. Economic and social barriers can also prevent health materials and education programmes from reaching migrant and ethnic minority groups. Simply accessing information is not enough to improve health outcomes, as once information is received, it then needs to be accurately understood and appropriately acted upon.

There is limited evidence about the clinical effectiveness or cost effectiveness of cultural adaptations of health materials and interventions compared with non-adapted initiatives. This is because the outcome measures used in studies tend to vary extensively. Furthermore, as most studies have been conducted in the United States among African Americans and Hispanics, findings may not be generalisable to other population groups or to other countries.

However, there is evidence of promising strategies to help identify migrant and ethnic minority populations with low health literacy within communities, and engage them with healthcare, and their own health and wellbeing. These strategies will help overcome difficulties migrants and some ethnic minority groups face in obtaining, understanding and using health information, particularly as:

- Health information in hospitals is rarely provided in a range of languages.
- There is a lack of affordable English as a Second Language (ESOL) courses
- Lack of social support can mean that there are fewer options to discuss health concerns and share health messages.

KEY FINDINGS: PROMISING HEALTH LITERACY INTERVENTIONS FOR MIGRANT AND ETHNIC MINORITY GROUPS

- Community involvement in the design of targeted health literacy initiatives are known to be an effective way of building cultural health literacy through empowerment. Such involvement helps ensure effective communication of health information to the local communities by overcoming language differences, integrating patient’s perspectives and securing commitment to health promotion initiatives.

- Initiatives developed and delivered by voluntary and community sector multidisciplinary teams and inter-organisational partnerships, in or through informal community settings such as libraries, churches or English as a Second Language
(ESL) classrooms - although these need to be more accessible and affordable to communities - help to build a climate of trust in which to reach and engage migrants and ethnic minority populations. Careful inquiry and comprehensive knowledge of social circumstances are fundamental to health education programmes targeted at migrant communities.

- Culturally competent community health workers (CHW) and link workers who bring together communities often at risk of limited social support and suitable health care providers, are particularly effective at increasing the understandability of health communications, improving access to health promotion services, and inspiring greater patient engagement among migrants and ethnic minority populations. This suggests that using the evidence-based community health champion model, and particularly health champions from a range of ethnic backgrounds, could be an effective asset-based approach to strengthening the health literacy - and thus health outcomes - of low literacy migrant and ethnic minority people in the UK.

- Culturally tailored health promotion material and interventions, such as smoking cessation, physical activity and health eating initiatives, that include images of people from different ethnic backgrounds and translated information, or are delivered by a person with a common cultural background, are known to be more acceptable to people who are migrants or from ethnic minority groups, and increase intervention uptake.

Cross-cultural communication is about more than using the appropriate language. To make health information truly accessible, it needs to take into consideration idioms, and cultural and social references and visuals – it is a ‘mistake to assume heterogeneity’ across the population. Furthermore, if messages do not translate easily, messages should instead be in plain English.

Information about diet could be the ‘hook’ to better engage migrant and ethnic minority groups with health literacy initiatives. Research has identified a desire among ethnic minority communities for further information related to healthier diet, and that they find it easier to connect with health messages that focus on diet over other health behaviours. Certain ethnic groups including Bangladeshi, Pakistani and Black African communities have been found to prefer more direct and hard-hitting messages about health that also include a clear rationale for behaviour change.

An intervention that included a culturally-tailored disease self-management plan that was developed with and reviewed by a culturally competent nurse via video conference, resulted in a significant increase in participant’s reported knowledge of diabetes (92% of participants involved in the intervention achieved 80% or higher on
the diabetes knowledge scale, compared with 76% of those who had not had access to the intervention (control group)), and adherence to diabetes management practices.\textsuperscript{122} Participants who received the intervention were also 4.58 times more likely to achieve the desired blood sugar levels at the end of the intervention compared with the control group, and there was a significant positive relationship between participation in the intervention and achieving a healthy Body Mass Index (BMI).\textsuperscript{123}

- Health professionals and partners should make appropriate use of interpreters and translators if important health information is to be understood and acted upon within migrant and ethnic minority communities.\textsuperscript{124}

Initiative: Migrants teach migrants - Mannheim Adult Education Centre

This three-year course involved migrant women training to become mentors and to support trainers in German language courses. Trainers received input from experts on various topics, including health, food and education. At the end of the three-year project, the mentors were also involved in developing the concept for an evening course for the target group of migrants with limited language skills. Furthermore, the mentors worked on a concept for a course for elderly migrants and for a course on the recognition of foreign qualifications.\textsuperscript{125, 126}

Intervention: German in the park

The project “German in the park” involved four schools in Germany and originated because it was felt that language courses failed to engage migrants. The public park in Germany was identified as an ideal, neutral, and already well-utilised space in which to hold German language courses. The main aim of the project was to encourage participants to learn a language, but also to show that learning can take place in a relaxed environment, cheaply, and without fear. The courses were found to strengthen learners’ self-esteem and gave them the self-confidence to take part in additional education and learning situations.

Further to this initiative, a course called “German at the hospital”, based on the course design of “German in the park”, was undertaken. However, the project was not as successful as “German in the Park”. This was believed to be because a park is a place where people sit and relax, unlike a hospital where people are constantly moving and
are often anxious. It is also a place where communication does not work easily. Evaluations found that there was no adequate place to advertise the courses, and hospital staff, although they were informed about the courses and considered them important, did not cooperate as they had conflicting duties.  

### Initiative: The Migrant Friendly Hospitals Initiative

The Migrant Friendly Hospital collaboration is a collaboration between health experts, NGOs and a group of hospitals from 12 European countries, including a number of hospitals in the UK. The collaboration aims to put ‘migrant-friendly, culturally competent health care and health promotion higher up on the European health policy agenda and to support other hospitals in their quality development towards migrant friendliness by compiling practical knowledge and instruments’. Specific interventions include the improvement of interpreting services, more migrant-friendly information, such as improved signposts using pictograms, and training for patients and staff training towards cultural competence. This has been translated into improvements such as more accurate transmittance of information and improved understanding amongst health professionals of cultural diversity issues. The overall patient ratings of interpreting services have also improved.  

### C. OLDER PEOPLE

There are limited studies that highlight programmes that examine health literacy outcomes for older adults. For example, systematic reviews of health literacy interventions for older populations reported difficulties in drawing any firm conclusions as standardised, validated tools to measure health literacy were used in very few evaluations. The research suggested that further high quality research is needed to develop evidence-based interactive health literacy programs targeted specifically at older adults, and evaluated using standardised health literacy assessment tools.

Furthermore, despite consistent evidence that older populations have particularly low e-literacy, recent reviews have found a significant gap in the literature for interventions to help people find health information online. And where such interventions do exist, health outcomes studied are predominantly focused on knowledge or critical health literacy, and have been evaluated via self-report methods. However, findings are largely positive.
Nevertheless, there are a number of practical steps that health practitioners can adopt with older adults to help improve and mitigate the effect of limited health literacy. Recent research suggests that older patients with cognitive dysfunction have the greatest need for health literacy interventions.\textsuperscript{134}

**KEY FINDINGS: PROMISING HEALTH LITERACY INTERVENTIONS FOR OLDER PEOPLE:**

- Where possible, older people should try to remain with the same, trusted GP, as research has found that for older patients with limited health literacy, having a good relationship with their doctor helped them to feel more involved in their care.\textsuperscript{135}

- Interventions involving group-based education sessions, delivered by a health educator, using simplified language and picture-based educational materials and regularly scheduled telephone follow-ups have been found to lower the rate of hospitalisations and death. For example, an evaluation of a heart failure self-management programme for older adults found that in the 12 months further to the intervention, 61\% of patients in the control group had at least one hospitalisation or died, compared with 42\% of patients in the intervention group.\textsuperscript{136}

- Careful attention to style and format of written health information can increase impact. Studies have found that for older adults, graphics may be helpful but should only be included if they add clarity to the written content. Older adults benefit from health materials that use larger font (14 point or above). And blue, green and lavender font has been identified as colours older adults find difficult to differentiate and should therefore be avoided.\textsuperscript{137} Good practice initiatives have made use of simplified language styles, avoiding technical jargon, and have included diagrams, cartoons and step-by-step detailed instructions to accompany large print to help facilitate understanding.\textsuperscript{138}

- Interactive workshops that include instruction (i.e. hand-outs of credible health information websites), but that have a greater focus on group collaboration help to improve the interactive health literacy of older adults using the internet. Interactive sessions based in libraries and other community settings, which encourage participants to discuss issues, pose real-life scenarios and problem-solve together, have been evaluated with positive results. For example, one study found that more than 80\% of participants could search health databases without assistance post intervention (no baseline comparison), and that the majority of participants (n=\textendash?) reported that they were still using the internet to search for health information six months later.\textsuperscript{139}
• Collaborative health literacy initiatives that also incorporate tailored individual learning strategies are beneficial to older population groups with limited health literacy.\textsuperscript{140} Such initiatives benefit from being developed further to involvement from the target population, and delivered in informal settings such as local libraries or senior citizens centres, and early in the morning, which has found to generally be the optimal and preferred time of learning for older adults.\textsuperscript{141} A study that examined the impact of such a tailored approach to an e-health literacy intervention – learning how to access and use a health website - found that overall, participants’ knowledge, skills and eHealth literacy efficacy improved significantly post intervention.\textsuperscript{142}

• Targeted strategies for conveying health information to older populations with low health literacy include aiming for face-to-face communication, and repeating information, giving the patient time to hear and absorb information. Health practitioners should also try to personalise health information and keep information focused.\textsuperscript{143}

Initiative: Age UK booklets for older population
In 2012, Age UK won the Plain English award for their booklets adapted specially for older populations - including ‘staying steady’ and ‘healthy living’. The judges said that the information was clearly presented, attractive and informative. They address the reader directly, using an upbeat tone, and the information is easy to understand. They have good contents pages, and the page and section headings are clear. The list of useful organizations at the back of each booklet is arranged in alphabetical order and is an excellent guide to further sources of information.

The Learning in Later Life Programme in Strathclyde
The Learning in Later Life Programme in Strathclyde, run by Strathclyde University, started in 1987 and is one of the largest programmes of its kind in the world. Classes, aimed at older people, are accessible to all older people regardless of previous educational experience. They are offered during the day and cover an array of topics, including health and computer studies.

D. DISABLED PEOPLE

Owing to the dearth of research on health literacy among disabled people, there is little evidence on what works to strengthen health literacy among this group and whether this improves health outcomes.
However, certain health education strategies are known to more effectively increase the ability of disabled people to use and access health literacy-related material, and to strengthen literacy skills more generally.

### KEY FINDINGS: PROMISING HEALTH LITERACY INTERVENTIONS FOR DISABLED PEOPLE

- Targeted health education strategies for people with intellectual disabilities include using concrete instructions, repetition of what’s been done so far and what to expect as part of the initiative, and pictorial instructions and interactive activities.\(^{144}\)

- Specialist communication training is preferable, but all health professionals or those involved with the health of disabled people should be mindful of a number of strategies when relaying health messages to people with sensory impairments:
  - Speak clearly and slowly, making lip patterns clear without over-exaggerating
  - Keep your face visible – don’t smoke, eat, or cover your mouth
  - Use gestures and facial expressions to support communication
  - Repeat phrases or re-phrase the sentence
  - Write things down in varied sizes of letters and different coloured paper and pens.\(^{145}\)

- Assistive technology – both hardware and software – is believed to help people with physical disabilities and visual impairments, such as adaptive keyboards, voice recognition software, eye tracking or head wands, screen magnification software or text-based browsers.\(^{146}\)

- Additional facilitating factors include: the appropriate communication skills of the GP; doubling appointment time, and; nurturing long-term relationships between the GP and/or carer and the person with intellectual disabilities.\(^{147}\)
6. AREAS FOR FURTHER RESEARCH

A systematic review noted that although there have been great advancements in the field of health literacy; there remains many areas for improvement\textsuperscript{148}.

Most importantly, there is insufficient evidence on effects of health literacy approaches, both in terms of their impact on clinical and other health outcomes, and their cost-effectiveness. This is largely because where studies do exist, they vastly differ in the health literacy measurement tools that they use, how they define health literacy and related concepts, and how they determine and set thresholds for distinguishing between health literacy levels.\textsuperscript{149} Furthermore, owing to the complexity of health literacy and behavioural interventions, some studies have found a lack of robust evidence from which to make firm conclusions as to what is known and what works in this field,\textsuperscript{150} while others have concluded that evaluations lack rigour and sufficient statistical power to detect differences among groups.\textsuperscript{151} For example, many studies have been found to be conducted in just one clinic or in narrowly defined patient populations, attempting to measure very specific health outcomes. This therefore means that reviews are unable to suggest broad replication or be considered representative and applicable in other settings, or with different population groups.\textsuperscript{152} It is also evident from the literature that studies rarely provide adequate detail about the health literacy or associated interventions used, which makes it challenging to unpick and share learning.\textsuperscript{153}

More larger-scale, robust and clearly defined health literacy studies are therefore needed on how to improve health literacy both in terms of people’s abilities and the information and systems we present them with, as well as the cost-effectiveness of health literacy interventions. We also need to better understand the economic and health effects of innovative local approaches to improve the health literacy of low literacy groups.

Further research is also needed into the prevalence and effects of low \textit{comprehensive} health literacy (to also include measures of interactive and critical health literacy skills), in England and the UK. To date, most of the research is based on small populations with a focus on functional health literacy, and occurs in clinical settings. The European Health Literacy Survey (HLS-EU) Consortium is the first large-scale study to address comprehensive health literacy. It would greatly help our understanding of Health Literacy in the UK if we joined efforts and undertook a health literacy population study.
CONCLUSION

Inadequate or problematic health literacy is estimated to affect nearly 1 in 2 of all people.\textsuperscript{154} And there is evidence that health literacy is independently associated with poor health and long-term conditions. Although anyone can have low health literacy, low health literacy is central to health inequalities as disadvantaged or vulnerable groups, particularly those from disadvantaged socioeconomic backgrounds, disabled people, older populations, and migrants and ethnic minority groups are most at risk.

As a person’s literacy, language and numeracy skills are not fixed and health systems can be improved, health literacy is an amenable determinant of health. There is therefore an opportunity for local authorities to address the gradient in health literacy and reduce social disparities in health outcomes through adopting a proportionate universalist approach to improving health literacy. This means investing in initiatives and strategies to make all health information and health systems as easy as possible to understand and navigate for everyone, as well as targeted initiatives to improve the literacy, language and numeracy skills of low literacy populations, and strategies to reach and engage targeted populations.

Debate continues on how best to measure health literacy, and additional evidence is needed to determine which interventions are most effective at improving health literacy levels for the general and targeted populations, and which provide value for money.\textsuperscript{155}

Nevertheless, there are some promising examples of local and international initiatives to improve health literacy, including the use of health champions in the community and informal settings, described in this review, that local authorities can learn from and emulate to start improving the health literacy of their populations and thus reduce health inequalities.
REFERENCES (IN DRAFT FORM)


50. Protheroe, J.R., G., Health Literacy – the agenda we cannot afford to ignore. 2014, Community Health & Learning Foundation.


42


---


3 Lunze & Paasche-Orlow 2014: Limited Literacy and Poor Health: The Role of Social Mobility in Germany and the United States


8 [http://www.literacytrust.org.uk/](http://www.literacytrust.org.uk/)

9 Raynor (2012) Health literacy - is it time to shift our focus? BMJ 2012;344:e2188

11 Bohanny et al. (2013) Health literacy, self-efficacy, and self-care behaviors in patients with type 2 diabetes mellitus


13 Rowlands, G., Protheroe, J., Richardson, M., Seed, P., Winkley, J. and Rudd, R. (2014) The health information gap: the mismatch between population health literacy and the complexity of health information; an observational study. BJGP. Accepted for publication


16 The eight participating countries in the EU-HLS are Austria, Bulgaria, Germany NRW, Greece, Ireland, the Netherlands, Poland and Spain


19 Rowlands, G., Protheroe, J., Richardson, M., Seed, P., Winkley, J. and Rudd, R. (2014) The health information gap: the mismatch between population health literacy and the complexity of health information; an observational study. BJGP. Accepted for publication

20 Hain et al. (2014) Health literacy measurement: An inventory and descriptive summary of 51 measurement instruments


23 Health literacy levels were determined in the European study by measuring the perceived difficulty of health-relevant tasks such as: understanding what your doctor says to you; assessing whether the information about illness in the mass media is reliable; finding information on how to manage mental health problems such as stress or depression; understanding information on food packaging; or participating in activities that improve health and well-being in your community.


25 Rowlands, G. et al. (2012) Defining and describing the mismatch between population health literacy and numeracy and health system complexity 2014 – submitted for publication – a note of

26 Rowlands, G., Protheroe, J., Richardson, M., Seed, P., Winkley, J. and Rudd, R. (2014) The health information gap: the mismatch between population health literacy and the complexity of health information; an observational study. BJGP. Accepted for publication


30 Watkins & Xie (2014) eHealth Literacy Interventions for Older Adults: A Systematic Review of the Literature

31 Pettigrew (2004): Creating Text for Older Audiences


33 i.e. Kondilis et al. 2008; Tooth, Clark, and McKenna 2000 in Quyne et al. (2013) Current Programs and Future Needs in Health Literacy for Older People: A Literature Review

34 Bostock & Steptoe (2012) Association between low functional health literacy and mortality in older adults: longitudinal cohort study


37 Von Wagner et al. (2009) Health literacy and health actions: a review and a framework from health psychology

38 Zamora and Clingerman 2011 Health literacy among older adults: a systematic literature review.

39 Tooth et al. (2000) Poor Functional Health Literacy: the Silent Disability for Older People


42 Strydom and Hall 2001 Randomized trial of psychotropic medication information leaflets for people with intellectual disability.

43 WHO (2012) Health literacy: The solid facts

See: Emerson & Baines


47 Strydom & Hall, 2001, randomized trial of psychotropic medication information


51 Heide et al. 2013 The Relationship Between Health, Education, and Health Literacy: Results From the Dutch Adult Literacy and Life Skills Survey

52 Durand et al. 2014: Do Interventions Designed to Support Shared Decision-Making Reduce Health Inequalities? A Systematic Review and Meta-Analysis


59 See Rowlands, G., Protheroe, J., Richardson, M., Seed, P., Winkley, J. and Rudd, R. (2014) The health information gap: the mismatch between population health literacy and the complexity of health information; an observational study, BIGP. Accepted for publication


Kobayashi et al. (2014) Internet use, social engagement and health literacy decline during ageing in a longitudinal cohort of older English adults

Lowe et al. (2013) Effectiveness of Musculoskeletal Education Interventions in People With Low Literacy Levels: A Systematic Review

Greene et al 2008, comprehension and choice of a consumer-directed health plan; Peters et al. (2007) Less is more in presenting quality information to consumers

Peters et al. (2007) Less is more in presenting quality information to consumers


Tait et al. (2010) Presenting research risks and benefits to parents: does format matter?

Peters et al. (2007) Less is more in presenting quality information to consumers

Wolf et al. (2011) Effect of standardised, patient-centred label instructions to improve comprehension of prescription drug use

Zullig et al. (2014) A health literacy pilot intervention to improve medicine adherence using Meducation technology.


Rothman et al. (2004) influence of patient literacy on the effectiveness of a primary care-based diabetes disease management program

Rothman et al. (2004) influence of patient literacy on the effectiveness of a primary care-based diabetes disease management program

Rothman et al. (2004) influence of patient literacy on the effectiveness of a primary care-based diabetes disease management program


DeWalt et al. (2011) Developing and testing the health literacy universal precautions toolkit

Batterham RW, Buchbinder R, Beauchamp A, Dodson S, Elsworth GR and Osborne RH. The Optimising Health Literacy (Ophelia) process: study protocol for using health literacy profiling and community engagement to create and implement health reform. BMC Public Health 2014, 14:694;

82 Dodson S, Good S, Osborne RH. Health literacy toolkit for low and middle-income countries: a series of information sheets to empower communities and strengthen health systems. New Delhi: World Health Organization, Regional Office for South-East Asia, 2015.


84 Sihota & Lennard (2004) Health literacy, being able to make the most of health, National Consumer Council

85 Sihota & Lennard (2004) Health literacy, being able to make the most of health, National Consumer Council


87 Lunze & Paasche-Orlow 2014: Limited Literacy and Poor Health: The Role of Social Mobility in Germany and the United States


89 Bull et al (2014) Are interventions for low income groups effective in changing healthy eating, physical activity and smoking behaviours? A systematic review and meta-analyses


92 Mitchie et al. (2008): LOW-INCOME GROUPS AND BEHAVIOUR CHANGE INTERVENTIONS, The King’s Fund


WHO (2013) Health literacy- the solid facts


WHO (2013) Health literacy


Kreps & Sparks (2008): Meeting the health literacy needs of immigrant populations.

Netto et al. (2010) How can health promotion interventions be adapted for minority ethnic communities? Five principles for guiding the development of behavioural interventions

The Tavistock Institute, 2009, Skilled for Life evaluation


Santos et al (2014) ESL participation as a mechanism for advancing health literacy in immigrant communities.


Ochieng (2012) Black African migrants: the barriers with accessing and utilizing health promotion services in the UK


Atri et al. (1997) Improving uptake of breast screening in multiethnic populations: a randomised controlled trial using practice reception staff to contact non-attenders BMJ 1997; 315: 1356-1359

Kreps & Sparks (2008): Meeting the health literacy needs of immigrant populations.

Documents written in plain English have been found, in some situations, to be more beneficial than translated material, particularly when languages are difficult to translate effectively.


Kreps & Sparks (2008): Meeting the health literacy needs of immigrant populations.


Manafo & Wong (2012) Health literacy programs for older adults: a systematic literature review;

Quyne et al. (2014) Current programs and future needs in health literacy for older people

Manofo & Wong (2012) Health literacy programs for older adults: a systematic literature review

Watkins & Xie (2014) eHealth Literacy Interventions for Older Adults: A Systematic Review of the Literature


Kaphingst et al. (2014) Effect of cognitive dysfunction on the relationship between age and health literacy.


Dewalt et al. (2006): http://www.biomedcentral.com/content/pdf/1472-6963-6-30.pdf

Tooth et al. (2000) Poor Functional Health Literacy: the Silent Disability for Older People


Xie (2011) Effects of an eHealth Literacy Intervention for Older Adults; Watkins & Xie (2014) eHealth Literacy Interventions for Older Adults: A Systematic Review of the Literature

Xie (2014) eHealth Literacy Interventions for Older Adults: A Systematic Review of the Literature


See: http://www.sense.org

Mastebroek et al. (2014) Health information exchange in general practice care for people with intellectual disabilities-A qualitative review of the literature.


i.e. Liu et al. (2012): Adapting health promotion interventions to meet the needs of ethnic minority groups: mixed-methods evidence synthesis


Bergstrom et al (2014) Barriers and facilitators in health education for adults with intellectual disabilities-a qualitative study

Based on estimates from the EU-HLS

WHO: http://www.who.int/healthpromotion/conferences/7gchp/Track1_inner.pdf