Director of Public Health

Annual Report

2017

Obesity
HPV
Early Intervention Transformation Programme
Lifestyle intervention
Meningococcal disease
Physical activity
Choose to Live Better
INCREDIBLE YEARS
Welcome Here
Breastfeeding
Home safety check scheme
Family Nurse
Partnership
If I were Jack
Making Life Better
Antimicrobial resistance
#STILLME
Early Intervention
Support Service
Home
Accident
Prevention
Supporting
families
Cessation
Smoking
Roots of Empathy
Dementia Together NI
Antenatal care
Mental health
and wellbeing
AAA screening
Sector
Voluntary
Youth Engagement
Service
Thrombectomy
Bowel cancer screening
Type 2
diabetes
Stroke
Mindset
Adolescent
Outbreak
control
Diabetic eye
screening
First Aid
Mental Health
Want2Stop
Early intervention
Human
papillomavirus
vaccine
Baby
Friendly
Initiative
education
and sexuality
Relationships
Relationships and Future
Fatherhood Programme
Thrombolysis
Suicide prevention
Smokebusters
#NotSorryMums
Weigh to a Healthy Pregnancy
Give it a Go!
Newborn Blood spot Screening Programme
Thrombolysis
Cervical cancer
Adverse childhood experience

Contents

Foreword

Foreword

Dr Adrian Mairs

Public health is defined as *'the art and science of preventing disease, prolonging life and promoting health through the organised efforts of society'.*[1] Early intervention to prevent disease, prolong life and promote health is a fundamental cornerstone of effective public health practice.

In the early 20th century Thomas Edison, inventor of the light bulb, is reported to have predicted the need for greater focus on prevention and early intervention in health. He is quoted as suggesting that *'the doctor of the future will give no medication, but will interest his patients in the care of the human frame, diet and in the cause and prevention of disease'.*[2] Inherently, logic implies that the earlier action is taken to prevent or resolve a problem the better the outcome.

In more recent decades, governments and policy makers across the globe have increasingly recognised the need to intervene early, both in the life course and early in the stage of disease, to effectively improve the public's health and wellbeing. For example, in the UK in 2010 the publication of the *Fair society, healthy lives* report on reducing health inequalities, shone a spotlight on the significance of development in the early years of life.[3]

In Northern Ireland, the principles of prevention and early intervention are firmly embedded in the Executive's draft Programme for Government and *Making Life Better*, the strategic framework for public health.[4, 5] These focus on a collaborative cross governmental approach to early intervention and recognise *'the importance of what happens in the early years of life for future experience of*

health and well-being and other life outcomes, such as educational attainment'.[3] Two key themes of *Making Life Better*, 'giving every child the best start' and 'equipped throughout life' take account of needs across the life course, with emphasis given to children and young people, and to supporting individuals' transitions into and through adulthood and older age.[5]

Furthermore the Programme for Government, the *Systems, not structures* review of health and social care in Northern Ireland, and the *Health and wellbeing 2026: delivering together* strategy all recommend early intervention in healthcare outlining that health *'services must be designed and delivered in ways that support people to manage their own care... and enable early intervention to prevent and delay illness.'* [4, 6, 7]

The Public Health Agency (PHA) works in partnership with regional and local government, health and social care professionals, communities and the public to deliver on these important strategic objectives, 'through the organised efforts of society'. This, the ninth annual report of the Director of Public Health, provides a brief snapshot of such work undertaken in 2017. A wide range of projects and ongoing research is described. These include programmes to give children the best start in life, such as the Breastfeeding Welcome Here and Smokebusters schemes, population interventions to detect and protect from ill health at an early stage, such as the human papillomavirus vaccination and newborn blood spot screening programmes, and the development of safe high quality healthcare services to allow early diagnosis and treatment, including effective stroke services.

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Overview

Overview

Early intervention

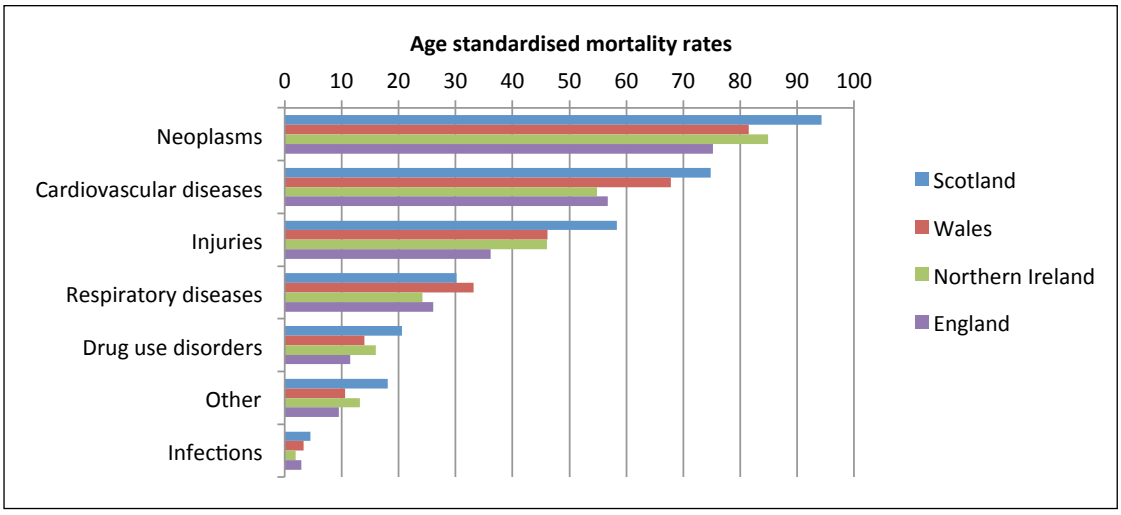
Waiting for problems related to health and social care to occur, treating those problems when they become apparent, and then hoping for a successful outcome is not a satisfactory strategy. The benefits of early intervention are numerous and the traditional model of treating problems as they arise is now too costly to our health service and detrimental to the health and social wellbeing of our population. It is vital that Health and Social Care (HSC) recognises this issue and responds in a proactive manner by embedding early intervention programmes into our public health agenda.

Early intervention is by no means a modern undertaking – one of the earliest examples dates back to the 1800s when English physician John Snow removed the handle from the Broad Street water pump and stopped a cholera outbreak in its tracks. A more recent example of a high-profile early intervention campaign was the 'back to sleep' campaign of the early 1990s when parents were urged to change the sleeping position of babies, which resulted in dramatic decreases in the number of sudden infant death syndrome (SIDS) cases.[8]

For the purposes of this report, early intervention does not simply refer to 'early years' intervention – it can be intervention at an early age or intervention at an early stage, for example in a disease process. Evidence highlights the economic benefits of early intervention, which can reduce or prevent the need for a range of costly and complex remedial interventions. Indeed, the Allen Report recognises that too much reliance is placed on late intervention, which tends to be more costly and sometimes less effective.[9]

In 2016, approximately 24% of all deaths in the UK (141,101 deaths out of 597,206) were from causes considered avoidable through good quality healthcare, earlier diagnosis and wider public health interventions (Figure 1). This included 4,002 people in Northern Ireland who died of illnesses that could either have been prevented in the first place (84%) or that could have been treated successfully if detected early enough.[10]

Figure 1: Avoidable mortality rates by broad cause group UK, 2016.[10]



Note: Age-standardised mortality rates are expressed per 100,000 population and standardised to the 2013 European Standard Population. Age-standardised mortality rates are used to allow comparison between populations which may contain different proportions of people of different ages.

Evidence demonstrates that preventative approaches are cost-saving in both the short and long term and that investing at an early stage is likely to lead to cost-effective health outcomes, contributing to wider sustainability, with economic, social and environmental benefits.[11] The PHA has acknowledged the importance of early intervention and as such the agency's Corporate Plan 2017–2021, which sets out the strategic direction for the PHA for the next four years, specifies that early intervention and prevention will continue to be core to its agenda.[12] The remainder of this report highlights a selection of the early intervention approaches being undertaken by the PHA.

Early intervention in early years

It is widely recognised that intervening early in the lives of children and their families can pay dividends in preventing longer term problems which, left untreated, can escalate in severity. By supporting families and generating positive intergenerational interactions, later onset difficulties can be avoided and substantial public spending savings can be made.[13] The PHA is responsible for a number of programmes aimed at early intervention in the early infant years.

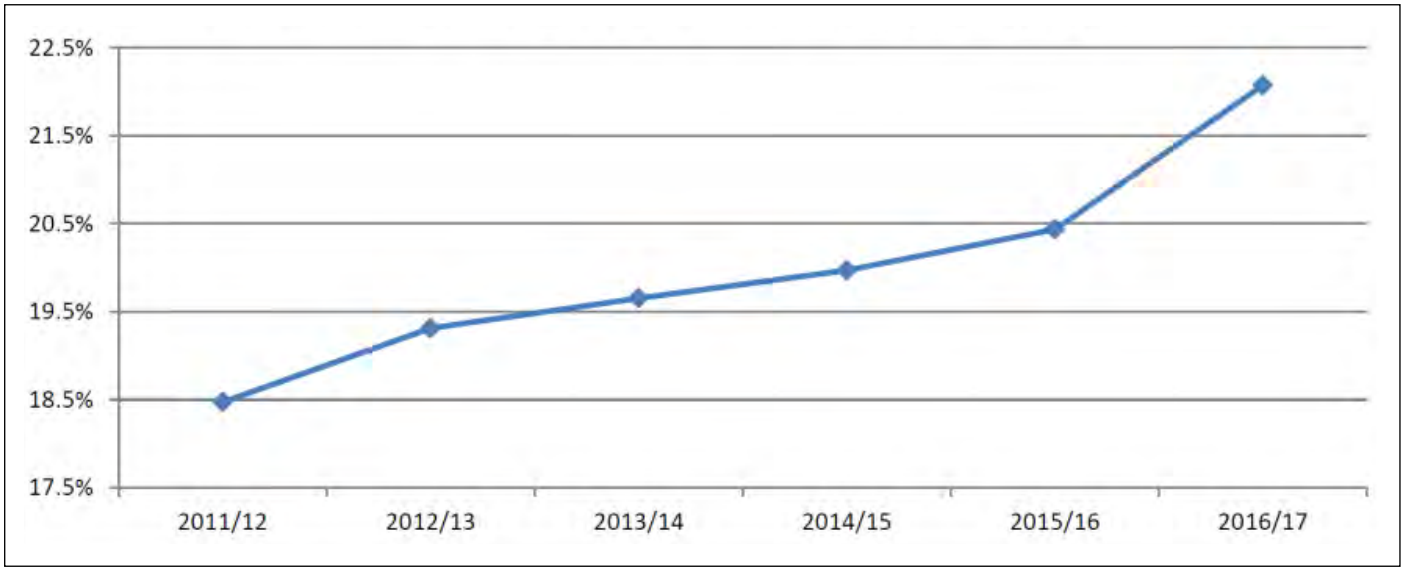
Early Intervention
Transformation Programme

As part of the Delivering Social Change and Atlantic Philanthropies Signature Programme, jointly funded over three years by the Department of Health, Department of Education, Department of Justice, Department for Communities, Department for the Economy, the Delivering Social Change fund and The Atlantic Philanthropies, the Early Intervention Transformation Programme (EITP) in Northern Ireland aims to help improve outcomes for children and young people by embedding early intervention approaches. The programme, which seeks to transform services for children and families in order to deliver a long-term legacy of improvement, has been informed by existing policies such as the Bamford Action Plan (2012-2015), *Breastfeeding – a great start* (2013-2023) and *Healthy child, healthy future* (2010) amongst others.[14-16] A small EITP research fund has also been allocated in order to complement the measurement of project outcomes being undertaken through the implementation of outcomes based accountability within the programme. Further information about these projects can be found in the Research and Development division section of this report.

Pre-pregnancy and pregnancy

Intervening early in the life of a child, even before they are born, can have positive long-term benefits. The PHA advises that all women should aim to be in good health before they become pregnant by making positive lifestyle choices about food, exercise and reducing or stopping alcohol. The Weigh to a Healthy Pregnancy project was developed to address maternal obesity as part of the wider public health obesity prevention agenda in Northern Ireland. Over 22% of mothers giving birth in Northern Ireland during 2016/17 were measured as obese at the time of booking appointment. This proportion has increased year-on-year since 2011/12 (Figure 2).[17] Maternal obesity carries a number of risks to the mother and child, and there is also the economic cost – Morgan et al demonstrated a strong association between healthcare usage cost and BMI, with mean total costs 23% higher among overweight and 37% higher among obese women compared with women with normal weight.[18]

Figure 2: Percentage of mothers classed as obese (I, II and III), Northern Ireland, 2011/12 – 2016/17.[17]

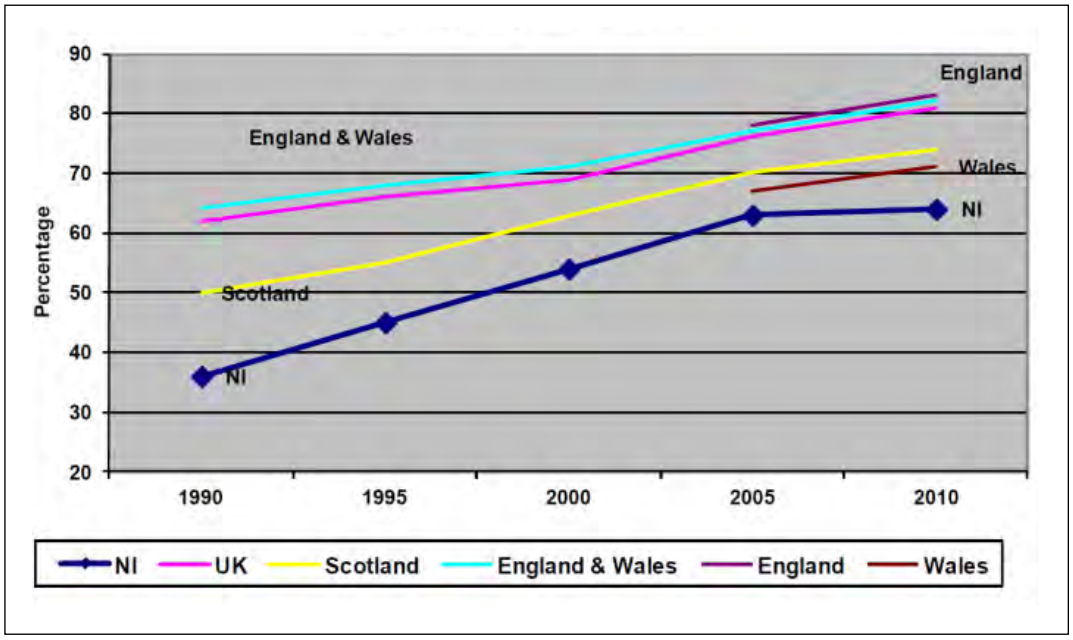


Post-pregnancy

Early intervention and support for families is at the heart of many of our health and social care strategies. It is central to the 'Delivering Together' approach to the transformation of our health and social care system.[7] Breastfeeding is a prime early intervention with benefits for both mother and baby. Improving breastfeeding rates links directly to the Programme for Government outcomes that 'We give our children and young people the best start in life' and 'We enjoy long, healthy, active lives'.[4]

Results from the Infant Feeding Survey (IFS) 2010 show that the breastfeeding initiation rate in Northern Ireland at that time was 64%, similar to the rate five years previously.[19] Despite the breastfeeding initiation rate almost doubling in the last 20 years, the rate in Northern Ireland has consistently remained the lowest in the UK (Figure 3).[19]

Figure 3: Breastfeeding initiation rates in the UK.[19]



Breastfeeding – a great start: A strategy for Northern Ireland (2013-23) was introduced in 2013 with the aim of improving the health and wellbeing of mothers and babies in Northern Ireland through breastfeeding.[15] The PHA led on the implementation of the strategy's actions including the 'Breastfeeding Welcome Here' scheme and the #NotSorryMums campaign. In terms of economic benefits it is suggested that if 45% of women exclusively breastfed for four months, and if 75% of babies in neonatal units were breastfed at discharge, every year there could be an estimated total saving of £17 million as a result of fewer hospital admissions and GP consultations from four acute infant diseases.[20]

The social circumstances of a mother can adversely affect the outcome of pregnancy both for them and their baby, and what happens during pregnancy and in the first years of a baby's life has a major influence on his or her subsequent behaviour, education, employment, health and other life chances.[21] From international research on child development, the PHA identified and subsequently introduced the Family Nurse Partnership (FNP) programme in Northern Ireland. FNP offers intensive and structured home visiting, delivered by specially trained 'family nurses', from early pregnancy until the child is two. The aim of the programme is to improve the health and wellbeing of our most disadvantaged families and children, and to prevent social exclusion. By December 2017 in total some 785 young women had been enrolled into FNP in Northern Ireland.

Family Nurse Partnership

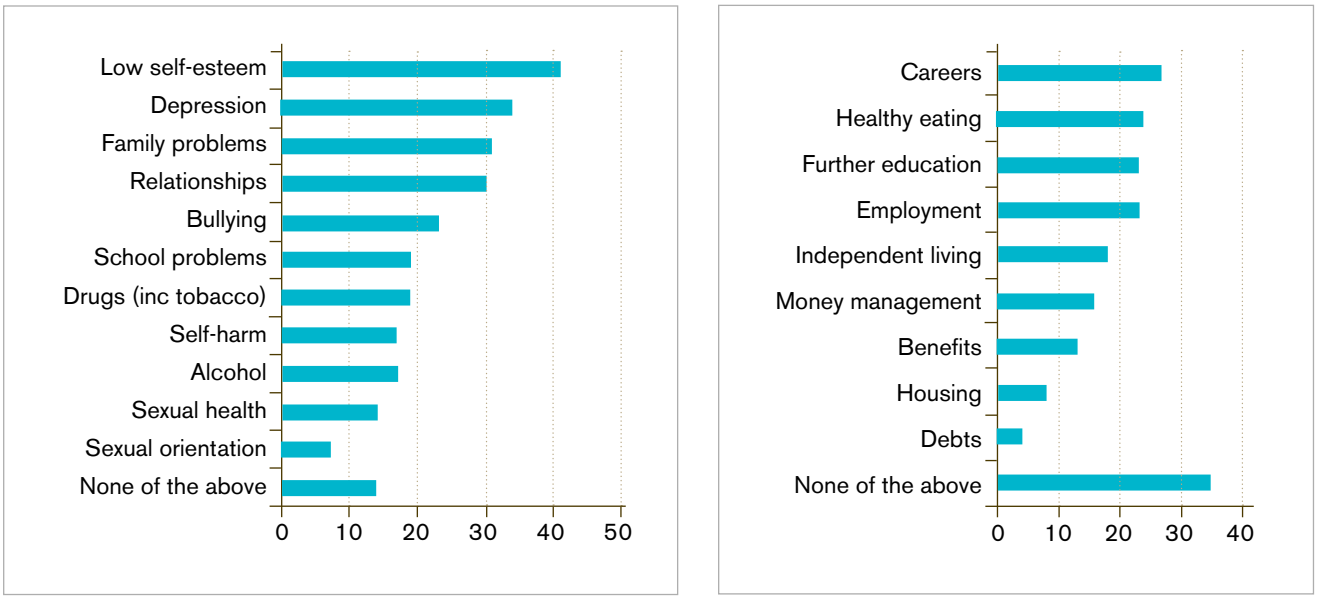
Early intervention for young people and teenagers

Evidence-informed prevention and early intervention programmes have been shown to produce positive impacts throughout childhood and into young adulthood. Allen identifies the need to use evidence-based interventions throughout the first 18 years of life to intervene early before problems escalate and become more expensive to deal with, and difficult or impossible to rectify.[9]

Intervening early can improve outcomes for children, young people and their families and it can be seen as a means of tackling the intergenerational cycle of disadvantage, social deprivation and lack of opportunity. We all want to ensure that all of our children and young people grow up in a society that provides the support they need to achieve their potential, and securing a strategic approach to early child development and family support is a key priority for the PHA. As such the PHA and its partners have implemented schemes which include the Youth Engagement Service (YES) and the Relationship and Sexuality Education (RSE) programme.

YES (formerly known as One Stop Shops) was established to support the health and social wellbeing of young people aged 11-25 years in a youth-friendly and holistic way. YES makes a significant contribution to prevention and early intervention in what can be costly conditions or circumstances if only addressed at later, progressively worse stages. YES provides resources such as social/recreational facilities in a drug and alcohol-free environment, information and advice sessions, informal support and referral to specialist services when needed.

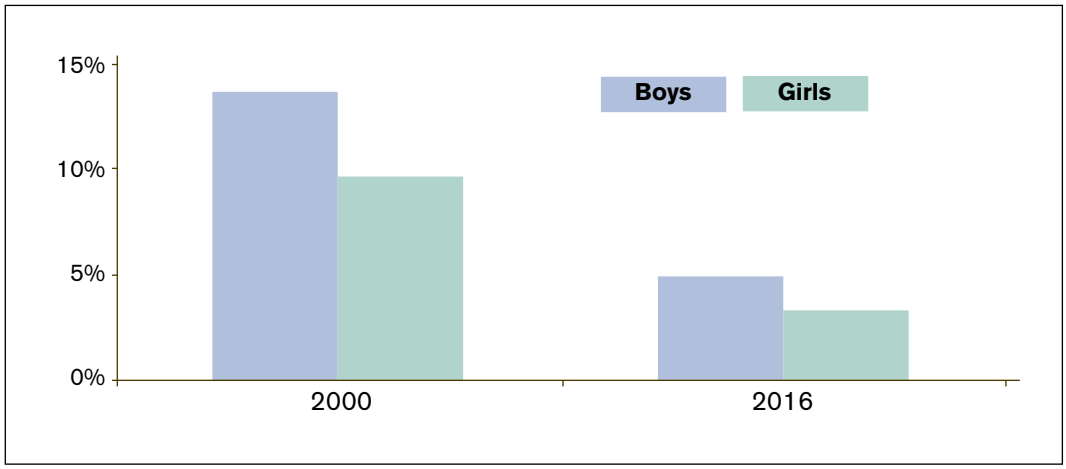
Figure 4: Percentage of young people attending YES who received help with any of the following.[22]



Underage sexual activity is a concern in Northern Ireland and although fewer of our young people report having had sexual intercourse compared with the rest of UK, a recent school-based survey of Year 11 and 12 pupils found 4% have had sexual intercourse, and of those pupils over half (58%) were aged 14–15 when they first had intercourse (Figure 5).[23] The UK has the highest teenage birth and abortion rates in Western Europe and although the rate of teenage pregnancies has reduced in Northern Ireland (from 1,334 babies born to teenage mothers in 2009 to 791 in 2016), early intervention approaches have the potential to reduce these numbers even further.[24, 25]

The PHA commissioned the delivery of the RSE programme in community settings and schools across Northern Ireland. The scheme aims to improve the health and wellbeing of young people aged 11-25 years by enabling them to make healthier choices and to contribute to the reduction in the numbers of young people having underage sex, incidence of sexually transmitted diseases (STIs) among young people and the number of teenage pregnancies.

Figure 5: Proportion of young people in Years 11 and 12 reporting having had sexual experience, including sexual intercourse.[23]

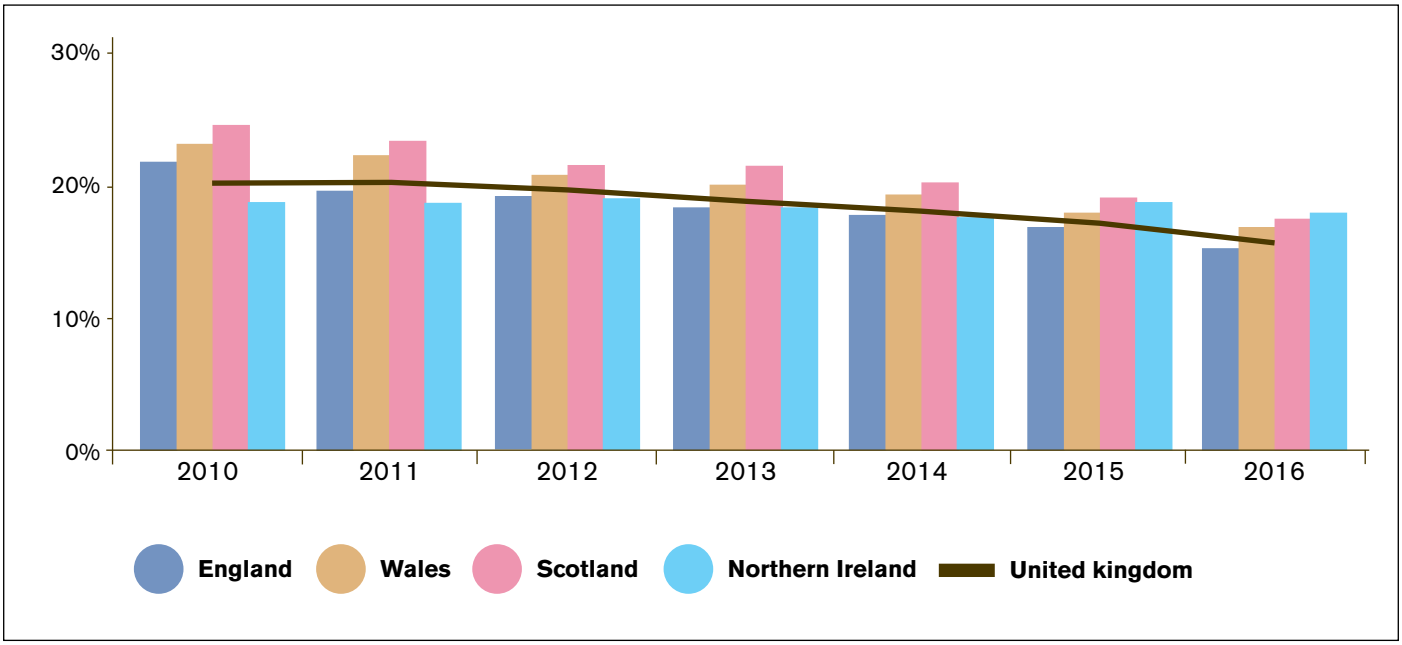


Early intervention in the adult population

Early intervention does not simply apply to the younger generation, it is also about preventing problems from developing in adults. The PHA has a number of early intervention approaches aimed at improving the health and wellbeing of our adult population.

In Northern Ireland smoking is the single greatest cause of preventable illness and premature death, with approximately one in six deaths every year attributable to smoking.[26] In 2016, the proportion of current smokers in the UK was 15.8%, which equates to around 7.6 million in the population, a statistically significant decline of more than 4 percentage points since 2010; Northern Ireland had the highest proportion of current smokers (18.1%, around 243,000 people) (Figure 6).[27] It has been estimated that the cost of treating smoking-related illness in Northern Ireland hospitals alone is around £164m a year.[26]

Figure 6: Smoking prevalence throughout the UK.[27]



If we can intervene and reduce the prevalence of smoking, there are wide-ranging benefits such as improved health and wellbeing, improvement in general fitness, and protecting non-smokers by not exposing them to second-hand smoke.

In 2012, the Department of Health (DoH) published the *Ten-year tobacco control strategy for Northern Ireland*, the overall aim of which is to create a tobacco-free society.[26] The Health survey Northern Ireland (2016/17) demonstrated that 62% of smokers surveyed wanted to stop smoking and 75% had tried to stop.[28]

The PHA has implemented prevention and smoking cessation programmes which include specialist quality-assured stop smoking services as recommended by the National Institute for Health and Clinical Excellence and the 'Want2Stop' website (www.want2stop.info) which includes a wealth of resources for those who wish to quit smoking.[29,30]

Of those surveyed in 2016/17 for the Health survey Northern Ireland, 36% were overweight and 27% were obese.[28] The levels of overweight and obesity have steadily increased over the last decade with more than three in five adults in Northern Ireland now overweight or obese. Early intervention in obesity is crucial to tackle the problem before physical activity becomes severely limited by morbid obesity and conditions such as coronary heart disease, severe chronic obstructive pulmonary disease (COPD), severe osteoarthritis or other such diseases that prevent physical exertion.

The PHA has developed a multifaceted implementation programme addressing the issue of overweight and obesity. This has included public information, nutritional standards in schools and other public providers, education programmes for children and adults, professional training and development, and support for changes to the workplace and other environments. These initiatives have included the Choose to Live Better website (www.choosetolivebetter.com) and the Give it a Go! initiative.

Early intervention for older people

One of the major public health challenges facing our society is how we help older people to live well independently. We live in an ageing population – it is estimated that there were 36,500 people aged 85 and over living in Northern Ireland in June 2016, an increase of 1,000 people (2.8%) since mid-2015. In the decade since mid-2006, the number of people aged 85 and over has increased by 34.8%, almost six times faster than the population aged under 85 (6.4%). The population aged 65 and over is projected to increase by 65.1% to 491,700 people from mid-2016 to mid-2041, with the result that almost one in four people (24.5%) will be in this age category. The population aged 85 and over is projected to increase by 127.2% to reach 82,800 people over the same period, which will see their share of the population doubling from 2.0% to 4.1% (Figure 7).[31] Data also demonstrate that the prevalence of limiting long-term illnesses increases with age, with 53% of males and 64% of females aged 75 and over in Northern Ireland affected (Figure 8).[32]

Figure 7: Estimated and projected population aged 85 and over alongside the number of births, years ending mid-1999, mid-2021, and mid-2033.[31]

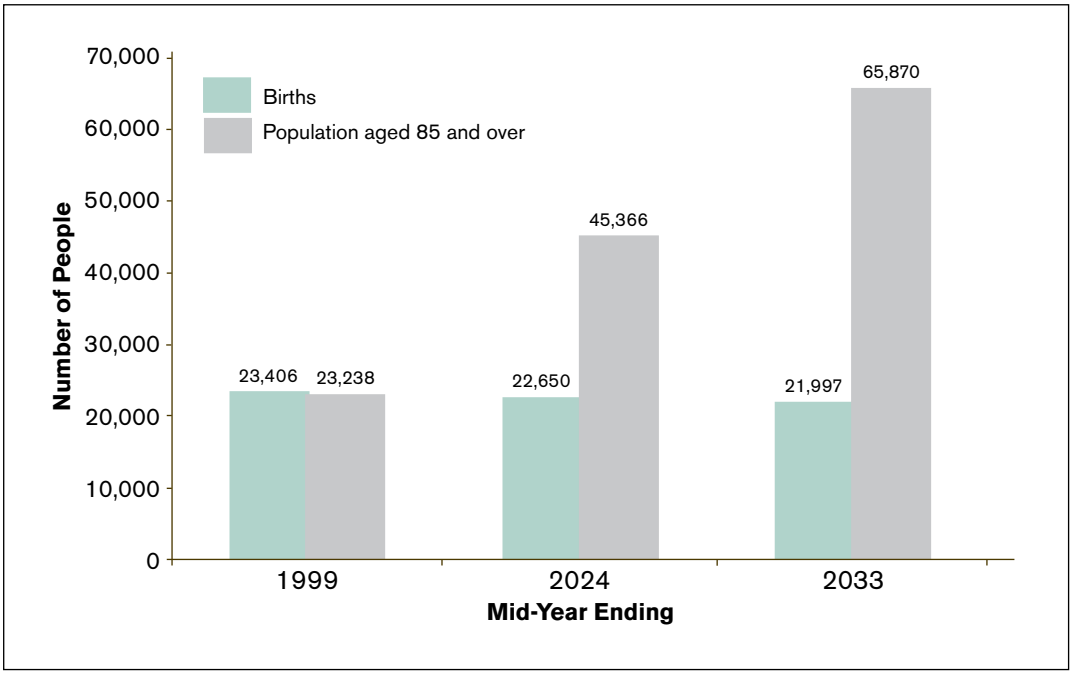
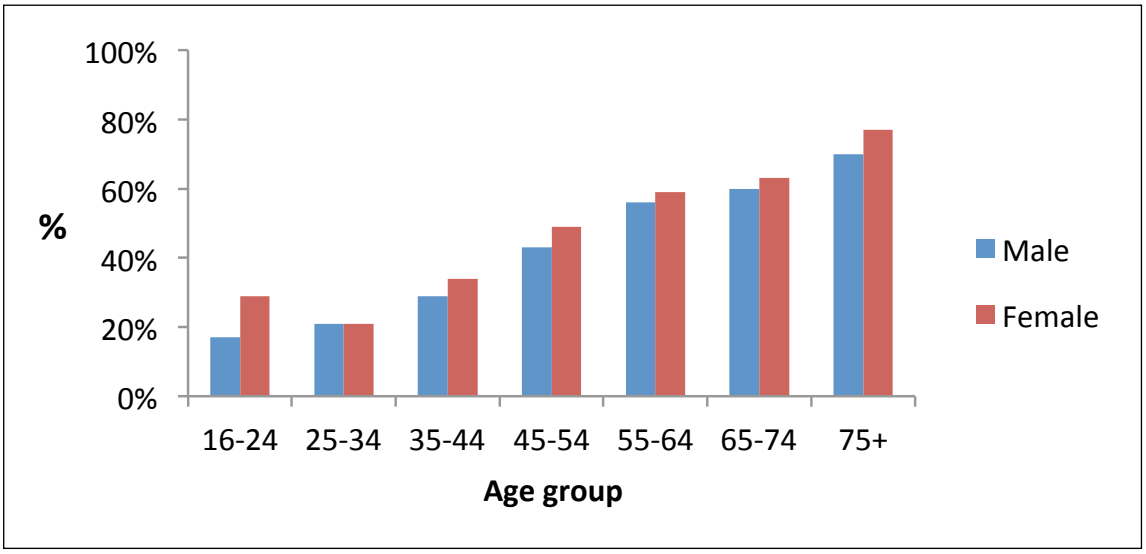


Figure 8: Percentage of people who report having a limiting long-term illness by age and gender.[32]



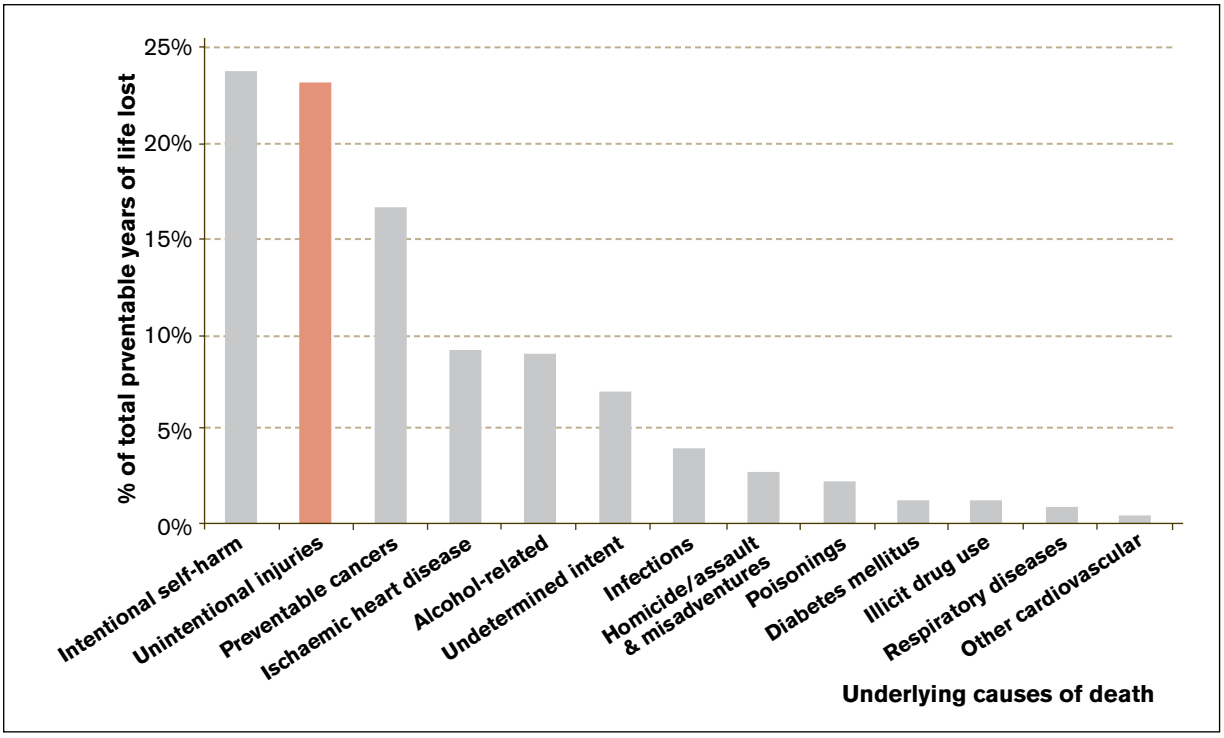
An ageing population is a significant achievement, reflecting advances in healthcare and quality of life, but a key challenge will be to enable older people to remain in good health for as long as possible. It is therefore crucial that our public health agenda addresses the issue of the ageing population, embracing the skills and abilities of older people as a positive resource for the future. There are a number of schemes and campaigns implemented by the PHA and partner organisations aimed at improving the lives of older people through early intervention approaches.

Accidents are the main cause of premature, preventable death for most of a person's life. The human cost of premature deaths can be expressed as preventable years of life lost (PrYLLs); in Northern Ireland unintentional injuries in general (not just from accidents in the home) account for almost a quarter of PrYLLs (Figure 9).[33] The risk of falling increases with age and falls account for 71% of all fatal accidents in those over the age of 65.[34] Between 2001 and 2011 there were 480 deaths (288 male; 192 female) due to falls, equating to just under half (47%) of all unintentional injury and deaths at home.

Data collected through home safety checks of people over 65 and vulnerable adults between April 2012 and March 2014 show that 25% had a home accident in the 12 months before their check and that 94% of these accidents were falls.

In an effort to make people's homes safer and to reduce the numbers of accidental home injuries, the PHA, in partnership with Belfast City Council, Belfast Health and Social Care Trust and Bryson Energy, offers free home safety checks to the over-65s to provide advice and support on how to make their homes safer. The Regional In-Patient Falls Group has also been established to provide multidisciplinary advice and support across HSC in preventing harm to patients who fall while in hospital.

Figure 9: Preventable Years of Life Lost (PrYLLs) in Northern Ireland in 2011 for people up to the age of 60.[33]



Source: RoSPA/Northern Ireland Statistics and Research Agency

It is estimated that by 2050, 135 million people worldwide will have dementia. In 2010 the global cost of dementia care was estimated at $604bn (£396bn; €548bn) and it was projected that this would increase to $1tr by 2030.[35] There is increasing evidence to show that dementia may be preventable and this has led to an international focus on earlier diagnosis and intervention.[36-38] If intervention takes place before cognitive function and mental capacity are affected, it gives people and their families the chance to plan ahead and make important decisions regarding their health behaviours and care arrangements.

In 2014, the Dementia Together NI project was launched by the Executive Office to transform the commissioning, design and delivery of dementia services for people in Northern Ireland and to improve the quality of care and support for people living with dementia. The Health and Social Care Board (HSCB) and the PHA were tasked with jointly taking forward this work.

The HSCB and the PHA introduced the '#STILLME' campaign which was initiated to raise awareness of the signs of dementia, and to reduce stigma and fear about the condition. It is hoped that early diagnosis and support can enable people to plan for the future and to make their own decisions about their care.

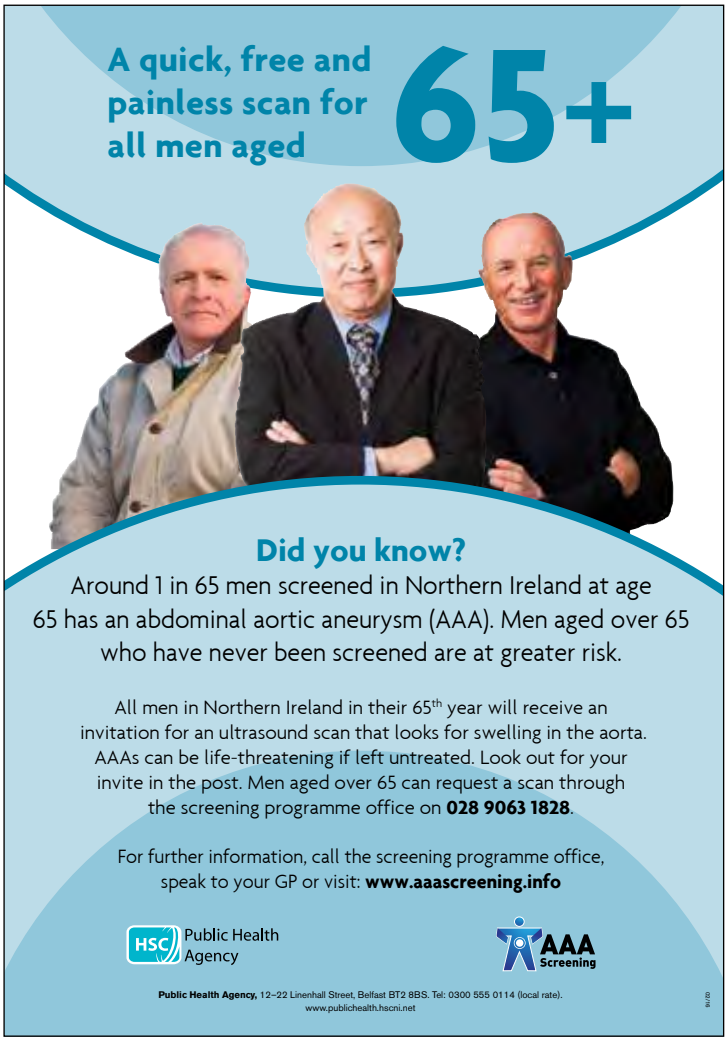
Early intervention in disease prevention: screening and vaccination programmes

The PHA is responsible for a number of screening and vaccination programmes. Screening is important because early detection of disease often produces better outcomes for patients as at this stage treatment may be more effective, avoiding significant ill health and in some cases premature death. Likewise, vaccination against specific diseases is vital, and over the years vaccines have prevented countless cases of disease and have saved millions of lives.

Northern Ireland **Diabetic Eye Screening** Programme

Early diagnosis through screening can lead to improved outcomes for a number of health conditions, and for older people living in Northern Ireland there are a range of screening programmes available including: abdominal aortic aneurysm (AAA) screening offered to all men aged 65 years and over; diabetic eye screening which is currently offered every year to people with diabetes aged 12 years and over; and bowel cancer screening which is offered to women and men aged 60-74 years.

One example of how successful early intervention can be is our childhood vaccination programme. After clean water, vaccination is the most effective public health intervention in the world for saving lives and promoting good health. The WHO has stated that "overwhelming evidence demonstrates the benefits of immunisation as one of the most successful and cost-effective health interventions known".[39]



In Northern Ireland we have a comprehensive vaccination programme in place right through the life-course, from the pertussis vaccine in pregnancy providing protection to the newborn, to the shingles vaccine for 70-79 year olds.

Ehreth estimates that around 6 million deaths are prevented worldwide every year because of vaccines.[40] The vaccines not only protect against the diseases themselves but they also provide protection against various complications associated with them.[40]

Early intervention to prevent disease through the childhood vaccination programme undoubtedly requires resources and funding, however, the long-term benefits and cost-savings through a reduction in mortality and morbidity are unquestionable. Globally, the direct savings from vaccines were estimated by Ehreth in 2003 to be of the order of tens of billions of US dollars.[40]

Public health programmes in Northern Ireland are based on scientific and economic evidence where it exists, or on innovative practice if evidence is limited.

Our public health programmes aim to:

- Protect health
- Improve health and reduce inequalities
- Improve health through high quality services
- Invest in high quality research and development

The next sections provide examples of early intervention schemes and programmes of work that have been undertaken or funded by the PHA. Many of the projects presented were carried out in collaboration with other government departments, public and private sector bodies, community and voluntary organisations and members of the public.

Further information

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Health improvement

Introduction

Supporting breastfeeding in Northern Ireland

Supporting early intervention in the early years

Early intervention to prevent accidental injuries to children in the home

Mental health and suicide prevention training for young people

Early intervention to prevent children starting to smoke

Introduction

Introduction

The following articles represent a number of examples of ongoing dynamic health improvement work. They give clear insights into the contributions being made supporting the PHA's role in improving the health and social wellbeing of our population and reducing health inequalities through strong partnerships with individuals, communities and other key public, private and voluntary organisations. Most importantly they support the achievement of improved outcomes in health and wellbeing.

Supporting breastfeeding in Northern Ireland

Public health challenge

Breastfeeding – a great start. A strategy for Northern Ireland 2013-2023 is the framework to improve breastfeeding outcomes in Northern Ireland.[15] The PHA leads the Breastfeeding Strategy and works with key stakeholders to improve outcomes across a wide range of settings, including health and social care, education, workplace and in the community.

Recent research has provided further evidence on the positive effects of breastfeeding on the health of both women and children.[41] These include protection against childhood infections and orthodontic problems, increases in intelligence and probable reductions in overweight and diabetes. Sudden infant death and certain types of leukaemia are also less likely among children who have been breastfed. Breastfeeding mothers benefit from reduced risk of breast and ovarian cancer and a likely reduction in the risk of type 2 diabetes.[41]

The World Health Organization recommends exclusive breastfeeding for the first six months with continued breastfeeding into the second year of life and beyond. In Northern Ireland we have the lowest breastfeeding rates in the UK and Ireland. In 2015/16, 45% of infants were breastfeeding at discharge from hospital, but this decreased to 28% at 6 weeks and declined further to 8% at 12 months.[42] Those least likely to breastfeed include young mothers and those living in areas of significant deprivation.[42]

Actions

The PHA is leading actions to improve breastfeeding through the multi-agency Breast Feeding Strategy Implementation Steering Group. These include:

- support for UNICEF UK Baby Friendly Initiative (BFI) standards across maternity, health visiting, neonatal, Sure Start and university settings;
- promotion of the PHA 'Breastfeeding Welcome Here' scheme;
- investment in mother to mother peer support training;
- support for breastfeeding in neonatal units;
- training of health professionals;
- provision of information for parents;
- capacity building in voluntary breastfeeding support;
- raising public awareness;
- developing research.

Baby Shannon McCarthy with mum Emma helps celebrate the MAC Belfast becoming the 500th member of the PHA's Breastfeeding Welcome Here scheme, with Mary Black, Assistant Director for Health and Social Wellbeing Improvement at the PHA, and Lyndsey-Anne Murphy and Julie Stewart from the MAC.

Outcomes

- All maternity units in Northern Ireland have now reached BFI recognised best practice standards.
- The midwifery training programme at Queen's University Belfast achieved BFI accreditation in July 2017.
- In 2017 the PHA provided UNICEF BFI training for 150 health professionals, including midwives, neonatal nurses, health visitors and Sure Start workers.
- The PHA's 'Breastfeeding Welcome Here' scheme grew to over 500 members in 2017 and our website now includes a map to signpost families to members and support.

Next steps

- A review of the Breastfeeding Strategy commenced at the end of 2017.
- The PHA's social media has been strengthened to share mothers' breastfeeding stories and raise awareness, and we are exploring how we can best use social media to further support breastfeeding.
- The 'Breastfeeding Welcome Here' scheme creates supportive environments for breastfeeding. We will continue to grow this initiative across all premises open to the public and community facilities.
- Further research is being developed to inform how best to promote and support breastfeeding in Northern Ireland.

Key facts

- Breastfeeding can significantly improve the health and wellbeing of both mother and baby.
- By 6 weeks of age 72% of all babies born in Northern Ireland are formula fed.
- Improving breastfeeding outcomes involves evidence-based approaches to information and support within the health service setting.
- To be able to breastfeed, women also need support from partners, family, peers, health professionals, employers and the wider community.

Further information

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Supporting early intervention in the early years

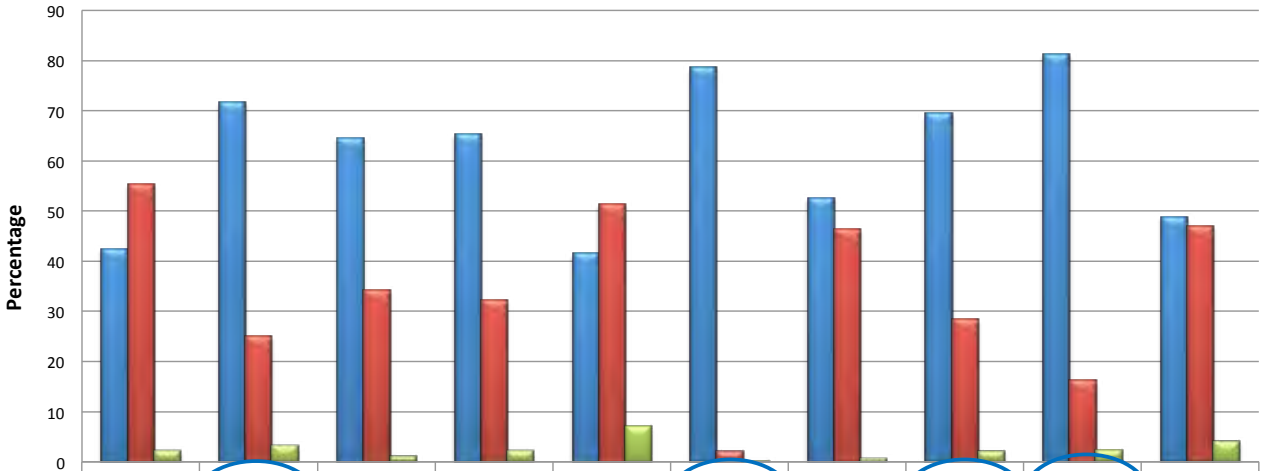
Public health challenge

The profound impact of adverse childhood experience (ACE) is now clear. For example, the likelihood of an adult developing cardiovascular disease increases with each ACE experienced in early years (abuse, neglect and witnessing traumatic events like domestic abuse), with those experiencing seven ACEs or more three times more likely to suffer cardiovascular disease than peers without such experiences.[43] Impacts are also seen in relation to drug and alcohol misuse, mental health, crime and educational performance.

Children who experience maltreatment and grow up without positive and stable relationships, such as children who end up in care, are at greater risk of mental health problems and other poor outcomes throughout their lives.[44] As of March 2016, some 2,890 children were looked after in Northern Ireland.

Early intervention with families and children to prevent problems emerging and positively address the consequences of adversity is therefore of critical importance.

Figure 10: Overall Family Star Plus (cumulative from April 2016-March 2018, n=944 families).



	Physical Health #304	Your Wellbeing #744	Social Networks #501	Education & Learning #600	Progress to Work #142	Emotional Needs #735	Keeping Children Safe #344	Family Routine #632	Boundaries & Behaviour #861	Home & Money #44
% Increased	42	72	64	65	42	79	53	69	81	49
% Same	55	25	34	32	51	2	47	28	16	47
% Decreased	2	3	1	2	7	0	1	2	2	4

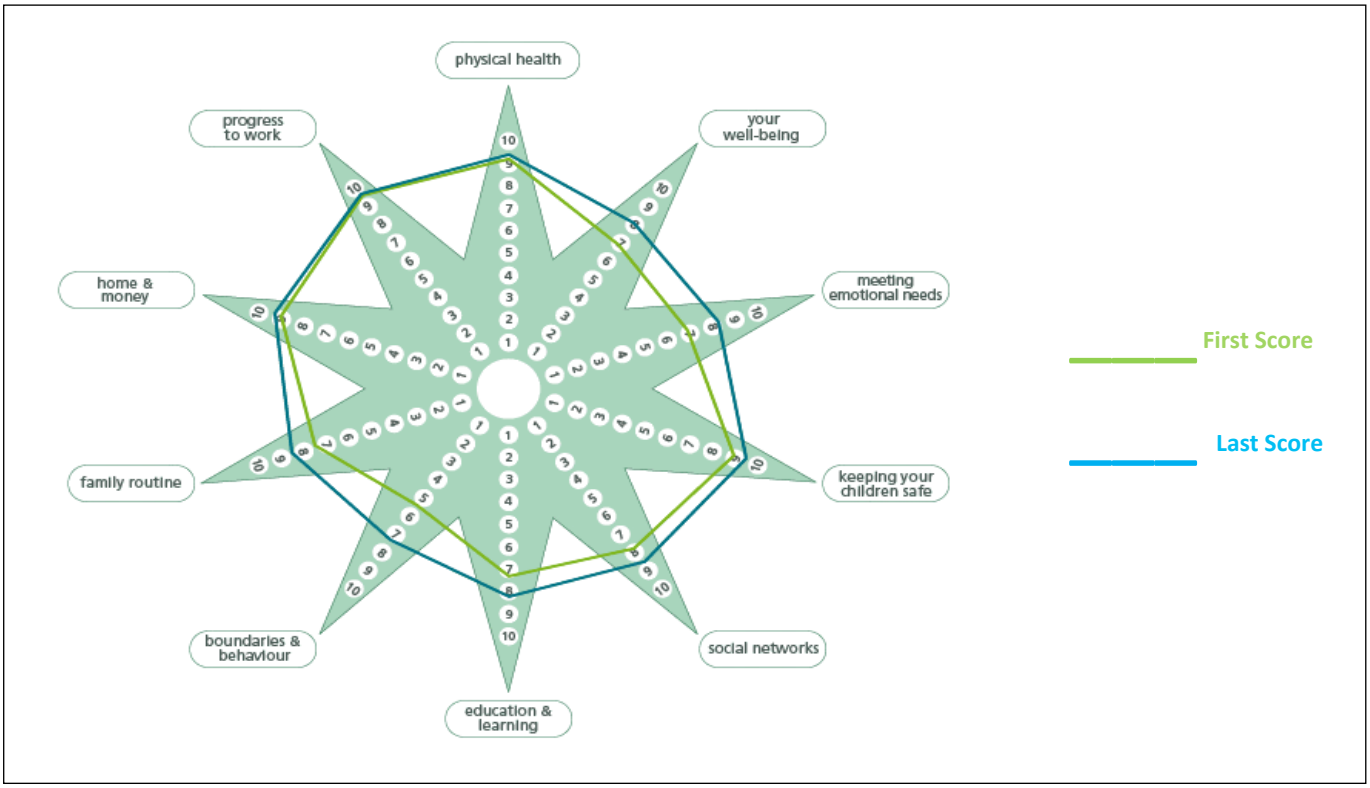
Note: The Family Star Plus focuses on ten core areas that have been found to be critical in enabling children and young people to thrive. Interventions would generally be focused on a maximum of three areas, boundaries and behaviour; emotional needs; family routine and your wellbeing are the most common areas for interventions. Improvement is shown when there is an increase in the area; the chart shows the progress made by families in each of the core areas.

Actions

The PHA, through the Child Development Programme Board, actively supported or initiated a number of key evidence-based programmes including the following:

- The Early Intervention Support Service (EISS) has been developed by the PHA under workstream 2 of the Department of Health led inter-departmental Early Intervention Transformation Programme (EITP). The EISS aims to support and empower families with emerging vulnerabilities by intervening early with evidence-informed services before difficulties become intractable.
- The Incredible Years Coordination Programme has increased the number and capacity of organisations delivering the family support programme, which has achieved high quality and fidelity standards.
- An Infant Mental Health (IMH) Action Plan has been developed and implemented. The IMH Implementation Group has supported workforce training to enable staff within HSC and Early Years settings to improve assessment and intervention with families with infants, when problems emerge.
- A number of high quality parenting support programmes have been developed and resourced, to increase the availability and access by parents to support and guidance.
- Coordinated action to improve levels of breastfeeding has been implemented.
- A total of 118 Roots of Empathy programmes, which support social and emotional learning, have been delivered to 2,950 primary school children.
- Regular and relevant research and evaluation has been carried out for the various interventions.

Figure 11: Family Star Plus (data from April 2016-March 2018, n=944 families).



Note: The data on the Family Star Plus shows the average first and last scores for 944 families: a "big" increase or decrease is defined as more than one point up or down the scale (1 is the lowest score and 10 the highest score).

Impacts

- 1,712 families were supported through the Early Intervention Support Service between August 2015 and March 2018.
- Families supported through EISS report an 81% increased improvement in boundaries and behaviour, 79% improvement in meeting emotional needs and 69% improvement in family routine.
- The PHA design, commissioning and implementation of EISS has contributed to the transformation theme by effectively establishing a coherent regional service.
- Children receiving the Roots of Empathy programme showed a reduction in difficult behaviour and an increase in pro-social behaviour.
- 92% of parents undertaking the Odyssey Parenting Programme (202 out of 220) improved their skills in resolving problems and 26% of young people (78 out of 300) reported their levels of emotional distress had improved.
- 110 Early Years and HSC staff have completed Infant Mental Health Training, including 25 staff who have undertaken a 2 year Infant Mental Health Diploma

Next steps

The Child Development Programme Board will continue to drive action across a range of areas to improve outcomes for children and families.

Key facts

- What happens to children in their earliest years is key to outcomes in adult life.
- Ensuring that children have good parenting and positive early life experiences are key factors enabling the achievement of potential in later life and optimising health and wellbeing outcomes.
- The first three years of a child's life are particularly important due to the social and emotional learning and related brain development that takes place.
- Recovery from the effects of adversity in childhood is possible through support for the parent/carer child relationship.

Further information

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Early intervention to prevent accidental injuries to children in the home

Public health challenge

In a typical week in Northern Ireland two people will die due to a home accident.[34] In addition, there are approximately 17,000 admissions to hospital each year as a result of unintentional injuries.[45] One of the most vulnerable groups are the under fives, who depend on others for their safety. Preventing injuries in this age group involves creating safer environments and products, as well as positively influencing those caring for children.

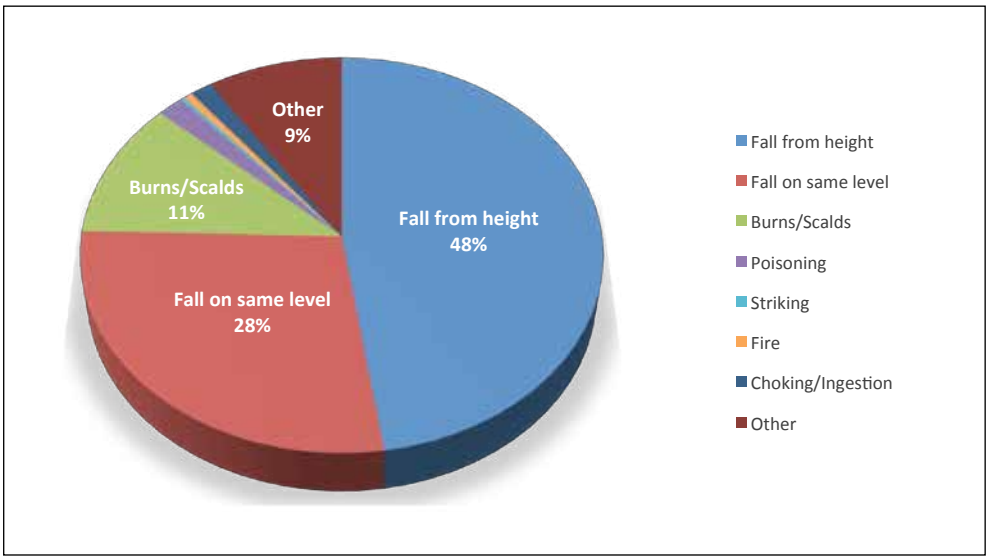
Actions

A Home Accident Prevention Strategy Implementation Group (HAPSIG) consisting of 24 key statutory and voluntary sector partners is working to deliver the Home Accident Prevention Strategy 2015-2025.[34] The strategy's vision is that the Northern Ireland population has the best chance of living safely at home and where the risk of unintentional injury is negligible.

An action plan and three regional sub groups support implementation of the plan. Key actions include:

- the development of two social media campaigns highlighting the dangers associated with blind cord safety (www.nidirect.gov.uk/articles/blind-cord-safety) and burns and scalds (www.nidirect.gov.uk/keeping-children-safe-burns-scalds);
- production of an annual calendar of events supported by partners, including all 11 local councils;
- a successful public information stand at the Balmoral Show on home accident prevention, focusing on blind cord safety;
- a 'Take Action Today' campaign highlighting the dangers of poisonings in the home;
- delivery and monitoring of a regional home safety check scheme.

Figure 12: Types of accidents recorded among the under fives in the Home Safety Check Scheme database, 2016-17 (based on 3,256 home safety checks).[46]



Impacts

- 3,256 home safety checks were delivered to households with under fives in 2016-17.
- Over 28,000 items of equipment were issued to vulnerable families in 2016-17.
- Data collected from home safety checks will inform future actions of all partners.
- The 'Blind Cord Safety' social media campaign has reached 731,487 people, had 235,000 views and been shared 5,100 times via the PHA's Facebook page. It was shared on the Australian national news Facebook page where it has been viewed 4,700,000 times. The campaign was shortlisted for the UK Chartered Institute of Environmental Health Excellence Awards.
- The burns and scalds social media campaign 'Scarred for Life' has reached 107,260 people, had 42,000 views and been shared 399 times.

Next steps

All partners will continue to prioritise home accident prevention and improve the sharing of information and resources across agencies. A further social media campaign is planned for autumn 2018.

Key facts

- Accidents are the main cause of preventable premature death for most of a person's life.[34]
- Falls account for the majority of non-fatal accidents in babies and children under five years.[34]
- Statistics from the home safety check scheme in 2016-17 found that in the under fives:
  - 5% had an accident in the 12 months before their check
  - 76% of accidents were falls
  - 21% visited their GP
  - 59% went to hospital
  - 48% of accidents were falls from a height and the majority occurred in the porch/ hall/stairs area
  - 7% of homes which required stairgates did not have them
  - 66% of homes did not keep blind cords out of reach in the living area
  - 60% of homes did not keep blind cords out of reach in the bedroom
  - 59% of homes did not keep blind cords out of reach in other areas of the home.[46]

Further information

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Mental health and suicide prevention training for young people

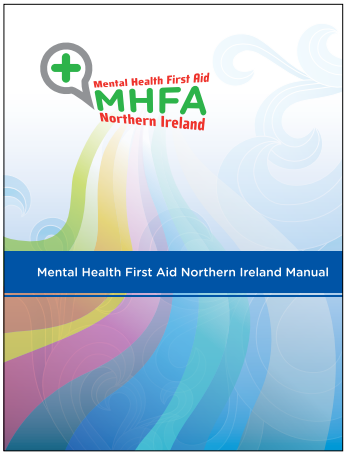
Public health challenge

The PHA continues to implement a multi-agency approach to suicide prevention, working closely with government departments, statutory, community and voluntary organisations, to promote emotional health and wellbeing and reduce the risk of suicide. An important part of this work has been to implement and grow evidence-based training programmes which meet the needs of young people. This training is a recognised intervention to prevent suicide and enables young people to:

- become more aware of their emotional wellbeing and take small steps to improve their mental health;
- learn about mental illnesses and develop appropriate skills to engage with a person experiencing mental illness or having thoughts of suicide, keeping them safe and signposting to appropriate services.

Actions

The PHA commissions a range of training programmes addressing mental and emotional health and wellbeing, and suicide prevention, which are delivered across Northern Ireland. These programmes range from raising awareness about mental health through to crisis intervention.



Mental health training

The aim of mental health training is to enhance protective factors and mitigate risk factors at both individual and community level by focusing on:

- de-stigmatising mental health;
- strengthening young people through opportunities for participation, personal development and problem solving which enhance control and prevent isolation;
- community empowerment and interventions to improve physical and social environments, and strengthen social networks.

An example of this training is the programme Mindset Adolescent, a mental health awareness course which is delivered to young people aged 14–17 and aims to:

- raise awareness and increase understanding of mental and emotional health and wellbeing;
- raise awareness of the signs and symptoms of mental illness;
- promote self-help/resilience techniques and how to maintain a safe level of positive mental and emotional health and wellbeing;
- provide information and resources on local and regional mental health support organisations.

Another example is Mental Health First Aid (MHFA). This is a two day programme which takes participants through a five step approach to become a trained first aider in mental health. MHFA was introduced to Northern Ireland in 2006 and approximately 12,000 people have now achieved their Mental Health First Aider certificate.

Other training courses include programmes using art to encourage positive mental health, which have been provided to schools and youth groups.

Outcomes

In 2017/18

- 4,838 young people participated in mental and emotional wellbeing programmes, which enable them to be more aware of their mental health and take small steps to live emotionally healthy lives.
- 188 teaching and non-teaching staff completed and achieved their Mental Health First Aider certificate. This enables them, within a school or university environment, to confidently approach, support and signpost young people to appropriate help and services.
- 285 teaching and non-teaching staff completed training in suicide awareness and/or suicide intervention training.

Next steps

- A PHA training framework will be developed. This framework will provide information on training opportunities addressing mental and emotional health and wellbeing, and suicide prevention, available throughout Northern Ireland and allow individuals and/or organisations to make informed choices on the most appropriate training.
- We will continue to promote mental and emotional health and wellbeing, and suicide prevention training to young people.
- We will continue to work with the education sector to encourage positive mental and emotional health and wellbeing in pupils and teachers, including conducting a review of current practice in all schools and developing an agreed framework and programmes with the Department of Education.

Key facts

- Mental health problems affect about 1 in 10 children and young people. These include depression, anxiety and conduct disorder and are often a direct response to what is happening in their lives.[47]
- Good mental health allows children and young people to develop the resilience to cope with what life throws at them and grow into well-rounded, healthy adults.[47]

Further information

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Early intervention to prevent children starting to smoke

Public health challenge

Smoking is the single greatest cause of preventable illness and premature death in Northern Ireland, killing about 2,400 people each year.[48] The hospital cost of treating smoking related illnesses in Northern Ireland is estimated to be about £164m each year.[5]

Tobacco control is a key priority of the PHA in addressing the causes and associated inequalities of preventable ill health and meeting the targets of the *Ten-year tobacco control strategy for Northern Ireland*.[26] The overall aim is to create a tobacco-free society in Northern Ireland with three main objectives:

1. Fewer people starting to smoke
2. More smokers quitting
3. Protecting people from tobacco smoke.

The Tobacco Strategy Implementation Steering Group drives a wide range of actions to meet these objectives, including reducing uptake of smoking in children and young people.

Actions

A primary school education and awareness raising programme called 'Smokebusters' is funded by the PHA and offered to all primary school children in Years 6 and 7. Originally developed as a community based smoking prevention initiative for young people, the programme has been refined to be delivered within the school setting in Northern Ireland, as opposed to being delivered in a community setting. The programme, first implemented in 1988, is freely available to all primary schools within Northern Ireland and teachers are able to enrol Year 6 and 7 classes in the Smokebusters programme.

The programme can be delivered either by Cancer Focus or teachers, and explores:

- the tobacco industry's tactics to recruit young smokers;
- the chemicals in a cigarette, the dangers of second-hand smoke and the effects of smoking on the body; and
- how to say 'no' to cigarettes.

Each year group receives information in age appropriate format which uses a character called 'Smoky Sam' to highlight the dangers of smoking. The aims of the programme are:

- to provide a means of conveying information to children about the harmful consequences of smoking;
- to encourage children to reject the smoking habit by increasing their defences against pressure to experiment with cigarettes;
- to promote 'fun' ways of involving children in activities to promote a smoke-free environment in their schools, homes and communities.

The political element of smoking legislation is also covered and children are encouraged to write to MLAs to seek their support in enacting protective legislation.

Impacts

- In 2016/17 the programme was delivered to 602 primary schools across Northern Ireland, representing a 72% uptake with over 35,000 Year 6 and 7 pupils participating. There is a particular emphasis on schools serving disadvantaged areas.
- Resources for teachers have been developed to support the programme, including a PowerPoint presentation, activity worksheets, sample letters of encouragement for ex-smokers and a series of DVDs produced by local schools which show the pressures children typically experience relating to smoking and strategies to deal with these.

An evaluation of the programme in early 2018 by the PHA Health Intelligence Unit showed that:

- teachers are keen to deliver tobacco education and support the Smokebusters programme;
- the vast majority of teachers (81%) feel the dangers of tobacco use are an essential topic to teach;
- children who participated in the programme report more self-efficacy to refuse cigarettes, less experimentation and lower future intention to smoke compared to those who did not participate.[49]

Next steps

A review highlighted a number of measures which will enhance the programme and make it more interesting for children. We plan to use the Cancer Focus website to highlight the Smokebusters brand, making it easier to enrol and download materials. Continued success in reducing smoking levels in Northern Ireland (see Figure 6) has been due to effective smoking prevention programmes alongside other measures including cessation services.[27] These efforts should be redoubled to realise the goal of a smoke-free society.

Key facts[50]

- Smoking prevalence among 11-16 year olds has declined over the last seven years from 8.7 % in 2007 to 5% in 2013.
- Cigarette smoking is recognised as a major cause of health inequalities in lower socioeconomic groups and is estimated to account for around 50% of the health inequalities gap.
- Smokers in Northern Ireland spend on average 15% of their income on their habit.
- Pregnant women who smoke are more likely to have a miscarriage, ectopic pregnancy or stillbirth, and are more likely to have a baby with low birth weight.

Further information

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Health protection

Introduction

Introduction

The PHA Health Protection Service has a lead role in protecting the population from threats to health, such as infectious disease outbreaks and major incidents. We carry out this role through a range of core functions including surveillance and monitoring, operational support and advice, education, training and research. The service is delivered by a multi-disciplinary team of doctors, nurses, emergency planners, and scientific, surveillance and administrative staff.

Early intervention is fundamental to protecting the public's health. This is demonstrated in the Health Protection Service through strategic preventative work, for example public awareness campaigns and vaccination programmes, as well as through the acute response, where the aim is to detect and respond rapidly to public health threats when they occur. This year's DPH report includes three articles that demonstrate the breadth of strategic and acute health protection work undertaken by the PHA and exemplify how early intervention protects the health of the population of Northern Ireland.

Vaccination is one of the most effective public health interventions in the world for saving lives and promoting good health. The PHA provides regional oversight and support to the delivery of childhood and adult vaccination programmes, and also coordinates the surveillance and control of vaccine preventable diseases. The current human papillomavirus (HPV) vaccination programme is given as an example of how early intervention through vaccination can prevent serious diseases such as cervical cancer.

Antimicrobial resistance (AMR) is currently a major threat to global public health, and an article is included which describes partnership working to intervene early to tackle this threat by educating children and young people about AMR and how to reduce the risk of spreading infections and protect antimicrobials.

Finally, the PHA response to a cluster of meningococcal disease in a secondary school is described, which illustrates how notification of infectious diseases led to rapid detection of a cluster and enabled early intervention and control measures to prevent further spread.

HPV vaccination programmes

Public health challenge

The human papillomavirus (HPV) is a virus that can infect the skin and ano-genital tracts. There are many different HPV types, the majority of which don't cause human disease. However, there are two high risk types (types 16 and 18) that can be sexually transmitted and are linked to cancers of the female and male ano-genital tract. HPV viruses (types 6 and 11) can also cause genital warts in men and women.

Around 90 women in Northern Ireland are diagnosed with cervical cancer each year, with 22 women dying from the condition annually. The HPV vaccine was introduced in 2008 for girls in Year 9 and 10 and protects against the two types of HPV that cause over 70% of cervical cancers. In 2012 the vaccine used was changed to one which also provides protection against genital warts.

Since the introduction of the girls' programme, evidence has emerged suggesting that other cancers are also linked to HPV infection, including anal, oropharyngeal and penile cancers, with men who have sex with men (MSM) at disproportionately higher risk. The girls' programme has been shown to also provide indirect protection to heterosexual boys when there is high vaccine coverage in girls. However, MSM, who are a group at high risk of HPV infection and associated disease, received very little indirect health benefit. As a result, in 2016 the HPV vaccine was introduced for MSM up to and including 45 years of age attending genitourinary medicine (GUM) clinics. The aim of the programme was to provide direct protection against HPV infection, HPV associated cancers and genital warts to the MSM population up to the age of 45 years.

Figure 13: HPV vaccination uptake rates, Year 9 and 10 girls completing full course, 2009-17, Northern Ireland.[51]

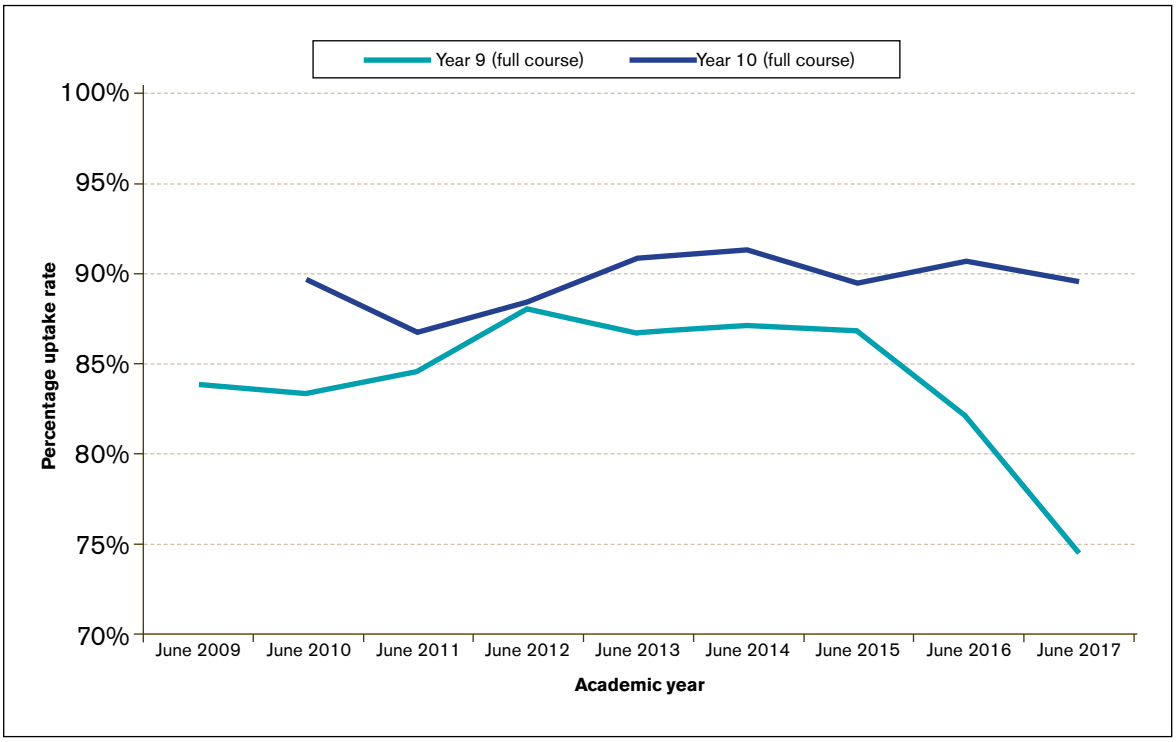
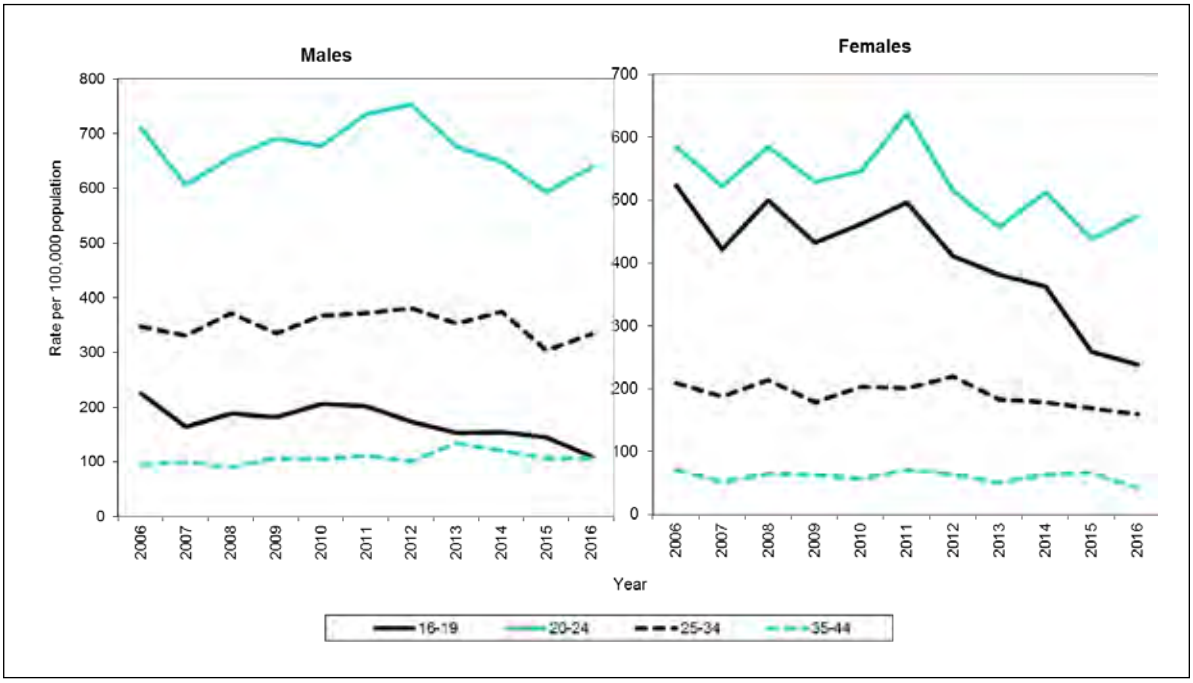


Figure 14: Rates of diagnosis of genital warts (first episode) in Northern Ireland, by age and gender, 2006–2016.[52]



Actions

School health provides the HPV vaccine to girls in Year 9 and 10 at school with catch up available in general practice for those who miss out in school.

GUM health professionals offer the full course of HPV vaccine (3 doses) to all MSM up to and including the age of 45 years attending the clinic regardless of risk, sexual behaviour or disease status. Administration of doses is aligned with recommended GUM appointments in order to reduce introducing additional visits for vaccination only.

Outcomes

The uptake of a completed course by the end of Year 9 has fallen somewhat since a peak in 2012, but due to further clinics being offered in Year 10, nearly 90% of girls had completed the course by the end of Year 10 in June 2017. Disappointingly there was a continued decrease in uptake of the HPV vaccine in Year 9 for the academic year 2016-17 (Figure 13).[51]

Due to routine cervical screening tests being carried out from the age of 25 years, it is still too early to show a decrease in the number of cervical cancer cases. However early indications from Australia and Scotland show decreases in precancerous lesions.

Cases of genital warts in young people, particularly young girls, are also falling, showing early effects of the vaccine programme (Figure 14).[52]

The HPV vaccine programme for MSM has been operational since October 2016. The programme has been welcomed by health professionals and voluntary organisations, and has been well received by patients.

Figures provided by GUM clinics for the first year of the programme (1 October 2016 to 30 September 2017) show that just over 2,000 MSM up to and including 45 years of age attended GUM clinics in Northern Ireland. Of these individuals, 72% received the first dose, 43% received dose 1 and dose 2, and 17% had completed the three dose schedule.[53] The vaccine schedule should ideally be given within one year, although a two year period is clinically acceptable. It is therefore too early to expect higher uptake completion after this first year.

It is also too early to see decreases in incidence of genital warts and other HPV-related disease in the MSM population specifically due to this programme.

Next steps

The PHA is investigating the reason for the decrease in uptake of the HPV vaccine in Year 9 girls. These girls are offered the chance to be immunised in Year 10 and PHA are working with communications colleagues and school health to improve the uptake for the current 2017-18 campaign.

The PHA is continuing to monitor the HPV MSM programme at least until the programme has been offered for two years, after which vaccine coverage will be recalculated. We have shared the uptake information and received feedback from GUM professionals and plan to present the information to a wider group of GUM health professionals. Sharing the information provides an opportunity to work with GUM staff to improve the coding of vaccine administration at clinics to ensure more accurate coverage information.

Key facts

- Around 90 women in Northern Ireland are diagnosed with cervical cancer each year, with 22 women dying from the condition annually.
- HPV vaccine protects against the two types of HPV that cause over 70% of cervical cancers. HPV is offered to girls in Year 9 and 10 through a school-based programme and provides the best protection against the disease.
- Men who have sex with men (MSM) bear a significantly increased burden of HPV infection and related cancers compared to heterosexual men. The incidence of anal cancer is also highest in HIV positive MSM.
- HPV vaccine is offered to all eligible MSM attending GUM and/or HIV clinics across Northern Ireland.
- 90% of genital warts are due to HPV types 6 and 11, which the HPV vaccine protects against.

Further information

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Engaging children and young people on antimicrobial resistance

Public health challenge

Antimicrobials are essential medicines for treating bacterial infections in both humans and animals, but are losing their effectiveness at an increasing rate due to the development of antimicrobial resistance (AMR). The consequences of AMR include increased treatment failure for common infections and decreased treatment options where antimicrobials are vital, such as after major surgery and during chemotherapy. AMR was recognised by Northern Ireland's Chief Medical Officer (CMO) in his annual report as one of the greatest dangers to human health and to medicines worldwide.[54]

Overuse of antibiotics is a major factor in the rise of drug-resistant infections, and Northern Ireland has the highest consumption of antibiotics per head of population in the United Kingdom. Engagement with the public is vital to raise awareness and change behaviour with regard to antibiotic use.

Actions

As part of the PHA's strategy to work with the public to increase awareness of the risks of AMR, the PHA and the Centre from Excellence for Public Health Northern Ireland have partnered with the STEM Ambassador Hub, which promotes Science, Technology, Engineering and Maths education and is based at W5, to educate children and young people about infections and antibiotic use. By engaging with children and young people, we can help to develop a new generation who understand prevention and help us tackle the global AMR challenge. Two of the main activities have been the launch of 'e-Bug' resource and the delivery of interactive events.

e-Bug resources

Public Health England's 'e-Bug' resources have been launched in Northern Ireland. These include multiple teaching sessions on antimicrobial resistance delivered to a range of schools – primary, post-primary and special educational needs. In partnership with the Department of Education and CCEA, the e-Bug resources are being mapped against the Northern Ireland curriculum for all key stages. Training events on e-Bug are being delivered for all teachers in Northern Ireland with the support of the national e-Bug team.

'Become an Antibiotic Guardian' event

This interactive event took place on European Antibiotic Awareness Day 2017 at the W5 interactive science discovery centre, and was aimed at children and their families. Activities included:

- Visual and interactive demonstrations showing children what different microbes are and how antimicrobial resistance develops.
- An interactive game to help older children decide do they need an antibiotic or not.
- Engagement with parents and younger children to discuss antibiotics and when they are needed.
- 'Design your own Microbe' colouring in activities.
- The use of iPads and tablets for children to play antimicrobial resistance games.
- Various antimicrobial resistance videos and cartoons on display throughout event.

Impacts

Feedback from the W5 event was extremely positive – 89% of those who completed evaluation forms would attend this event again and 89% felt that the information provided had given them a better understanding of when antibiotics are necessary. Overall 91% reported they knew more about antibiotic resistance after attending the event. A video showing the highlights of the event released on social media has reached 4,635 people (as of 9 March 2018). The e-Bug resources have been well received and both activities have been nominated for entry to the Antibiotic Guardian Awards 2018.

'Become an Antibiotic Guardian' event at W5, held on European Antibiotic Awareness Day 2017.

Next steps

With the success of the e-Bug material evident, the PHA will continue to work with Public Health England (which developed e-Bug) to support its implementation in Northern Ireland and train teachers in how to deliver the material. The aim is that this resource will be available for teachers to use to help teach children about microbes and the appropriate use of antibiotics. We will continue to make the most of opportunities such as World Antibiotic Awareness Week and European Antibiotic Awareness Day to promote important AMR messages and hold events which engage the public and lead to changes in behaviour that can help to tackle the development of AMR.

For further information on e-Bug, visit http://www.e-bug.eu/

Key facts

- Antimicrobial resistance is a serious threat to public health.
- Overuse of antibiotics is a major driver of resistance.
- PHA has worked with partners to educate children and young people around the risks of AMR and to promote appropriate use of antibiotics.

Further information

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Management of an outbreak of Meningococcal B disease

Public health challenge

During the peak of Storm Ophelia in October 2017, the PHA Health Protection Service investigated and managed a cluster of Meningococcal Group B disease in secondary school aged children attending the same high school. Meningococcal bacteria can cause meningitis (inflammation of the lining of the brain) and septicaemia (blood poisoning). Both diseases are very serious and, especially if not diagnosed early, can be fatal. The majority of cases of meningococcal disease are not associated with further cases, however clusters and outbreaks can occur. In educational settings, once a second case has occurred, the risk of a third case may be as high as 30-50% with the risk being highest in the week after the second case.[55] In these circumstances, early detection and intervention is key to preventing spread. Meningococcal disease is a notifiable disease which means that when a doctor suspects that a patient is suffering from a notifiable disease, he or she is legally required to inform the Director of Public Health. The prime purpose of the notifications system is to trigger investigation, detect possible outbreaks and initiate contact tracing.

Actions

In October 2017, the PHA Duty Room was notified of two probable cases of meningococcal disease in individuals in the same class of a local high school. Microbiological results subsequently confirmed both cases as indistinguishable serotype B meningococcus. Chemoprophylaxis (antibiotics to eradicate carriage of meningococcal bacteria) was arranged for the household contacts of both cases, in order to prevent onward spread and written information on signs and symptoms was provided.

An Outbreak Control Team (OCT) was convened to assess risk of spread within the wider school group and implement control measures. Letters were sent to out of hours GP and emergency departments to notify them of the cluster and in conjunction with the school headmaster, communication was made with the wider school group. A risk assessment was carried out and 37 pupils and 17 teachers were identified as being at higher risk of meningococcal transmission based on the extent of their contact with the cases.

There were no other extracurricular or social links identified between the cases. Arrangements were made to offer chemoprophylaxis and two doses of Bexsero (Men B) vaccine one month apart to these contacts.

It can be logistically challenging to administer chemoprophylaxis and information to a risk group, and Storm Ophelia made this more complicated. As the school was closed, communication with parents of pupils was carried out by the headmaster through the school texting service. Arrangements were initially made with Trust school nursing teams and pharmacy to attend the school. However, due to adverse weather conditions, the school remained closed. As an alternative, the next day PHA nursing and medical staff spoke to parents of pupils and the teachers by telephone and GP colleagues administered chemoprophylaxis.

Impacts

Within one week of declaring the cluster, the PHA with the assistance of primary care, identified, phoned and administered chemoprophylaxis and the first dose of Men B vaccine to all contacts. This occurred despite additional challenges associated with school closures due to Storm Ophelia. There have been no further cases of meningococcal disease linked to the cluster.

Next steps

PHA will continue to promote vaccine programmes that reduce the risk of meningococcal disease and will follow up cases notified to take the necessary actions to reduce onward spread.

Key facts

- Meningococcal bacteria can cause meningitis (inflammation of the lining of the brain) and septicaemia (blood poisoning).
- In October 2017, the PHA Health Protection Duty Room was notified of two probable cases of meningococcal group B disease in individuals in the same class of a local high school.
- An outbreak control team was convened to manage the cluster, chaired by PHA.
- PHA, with the assistance of primary care, identified, phoned and administered chemoprophylaxis and Men B vaccine to all close contacts identified to prevent onward spread.
- Primary care played a key role in delivering the response during an unusual weather situation which resulted in school closures.
- PHA will continue to promote vaccine programmes that reduce the risk of meningococcal disease.

Further information

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Screening and service development

Introduction

The Newborn Blood spot Screening Programme

Primary prevention of type 2 diabetes

Early intervention and stroke

Introduction

Introduction

Safe, effective, high quality health care services are critical to ensuring early intervention and management of illness and disease. The PHA provides professional expertise on service evaluation and review, assessment of the health and wellbeing needs of the population, and evidence-based practice. The PHA also plays a key role in supporting the development, implementation and evaluation of regional service frameworks.

Population screening programmes provide an important opportunity for early detection of disease, which can allow early intervention and improved outcomes for patients. Screening is not suitable for every condition, however, and organised screening programmes are only established on the recommendation of the UK National Screening Committee according to the best available evidence. Any condition being considered as a screening programme must meet a number of stringent criteria before it is recommended by the Committee.

In Northern Ireland the PHA has responsibility for commissioning, coordinating and quality assuring eight population screening programmes. These programmes cover the entire population, from birth through to older age. They include screening for infectious diseases in pregnancy, newborn blood spot and newborn hearing screening, diabetic eye screening, cervical screening, breast cancer screening, bowel cancer screening and abdominal aortic aneurysm screening.

The Newborn Blood spot Screening Programme

Public health challenge

The Newborn Blood spot Screening Programme (NBSP) aims to identify babies who may have one of a range of rare but serious inherited conditions so that early intervention can improve their health. It is an important public health screening programme which supports 'giving every child the best start in life', a key objective of the Department of Health's *Making Life Better* strategy.[5]

Newborn blood spot screening is a complex programme, involving a wide range of services, from highly specialised laboratories through to individual staff in the community and in hospitals, working closely together.

As part of the programme, in the first week after birth, all babies in Northern Ireland are offered screening for a range of inherited conditions including phenylketonuria (PKU), congenital hypothyroidism (CHT), cystic fibrosis (CF), medium chain acyl coA dehydrogenase deficiency (MCADD) and sickle cell disorders (SCD). This is often referred to as the 'heel prick' test. The purpose of screening is to identify babies more likely to have these conditions. Screening is not 100% accurate.

If the screening test is positive, a baby will be offered further tests or investigations to confirm the diagnosis. Where one of these conditions is confirmed as present, effective interventions are available to prevent subsequent illness and/or disability arising. Most babies screened will not have any of these conditions but, for the small number who do, the benefits of screening are substantial. The programme makes a major contribution to the prevention of disability and death in our community, through early diagnosis and effective early interventions.

Actions

Current actions for the NBSP in Northern Ireland include the following:

- Ensuring that robust and regionally consistent 'failsafe' practices are in place, to enhance programme quality and safety (the purpose of a failsafe is to identify babies with outstanding blood spot results).
- A drive to improve the rate of Health and Care Number (HCN) completion, by the health professional conducting the screening test. Every person who is born or resident in Northern Ireland should be assigned a unique HCN. This number can be used to link health and social care records and provides an important safety and quality mechanism for identifying and matching baby records in the NBSP. This has resulted in a progressive reduction in the proportion of test samples without a HCN from 11.5% in January 2016 to 2.4% in October 2017.[56]

Outcomes

The PHA and partner organisations are responsible for ensuring that the population has access to safe, effective, high quality and equitable screening programmes. As part of this function for newborn blood spot screening, the Northern Ireland programme participates in a national (UK) system of quality assurance and performance management.

The most recently published national and regional reports show that the NBSP in Northern Ireland is of high quality and is performing well against national standards.[57] Key findings show that during 2016-17 the Northern Ireland programme:

- achieved more than 99.9% of 'born in and resident' babies having a conclusive result recorded on the Child Health information System for all conditions, at the end of the reporting period;
- was the best performing UK region in relation to timely receipt of samples in the newborn screening laboratory, with 99.5% of samples received within 4 working days of collection.

The primary outcome and benefit of the NBSP is early detection of and appropriate intervention to treat conditions that would otherwise cause serious and permanent harm to babies. In 2016-17 in Northern Ireland over 24,000 babies were screened as part of the programme and in total 32 children were diagnosed as having one of the conditions.

Next steps

In line with recommendations from the UK National Screening Committee, the Department of Health has advised that screening of additional selected Inherited Metabolic Disorders is added to the NBSP in Northern Ireland. Plans are underway to facilitate this. The following four additional conditions will form part of the expanded programme:

- Glutaric aciduria type 1 (GA1)
- Isovaleric acidaemia (IVA)
- Maple syrup urine disease (MSUD)
- Homocystinuria (pyridoxine unresponsive) (HCU)

Key facts

- The NBSP plays an important role in early intervention and improved health outcomes for babies.
- Latest figures (2016-17) show that the coverage (ie percentage of babies with a conclusive result for PKU recorded on the Child Health information System by 17 days of age) is 98.9% in Northern Ireland.[57]
- Future plans include testing for an additional four Inherited Metabolic Diseases.

Further information

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Primary prevention of type 2 diabetes

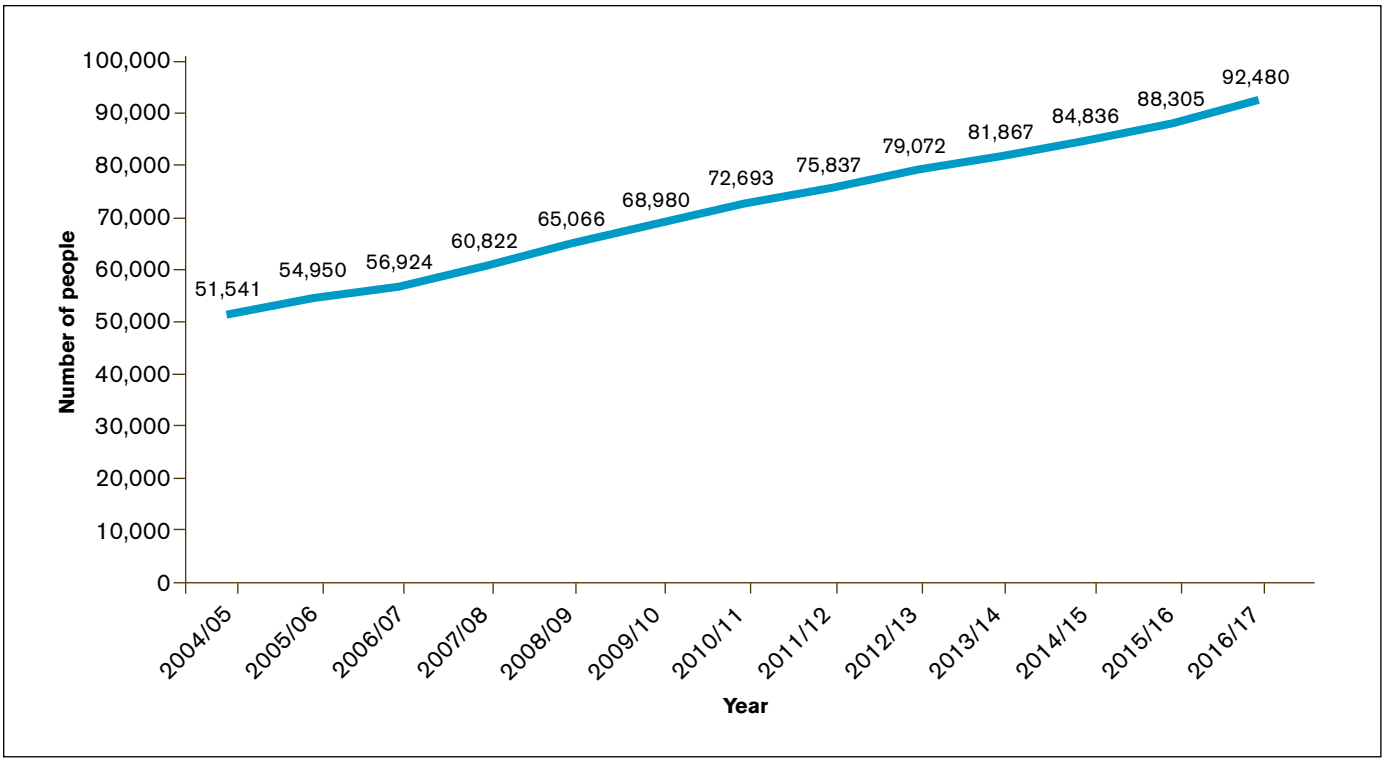
Public health challenge

Diabetes is a metabolic condition in which the body does not produce sufficient insulin to regulate blood sugar levels or where the insulin produced is unable to work effectively. There are two main types of diabetes:

- Type 1 diabetes is an auto-immune condition in which the cells that produce insulin are destroyed so lifelong treatment with insulin is required.
- Type 2 diabetes occurs when the body either stops producing enough insulin for its needs or becomes resistant to the effect of insulin produced. The condition is progressive requiring lifestyle management (diet and exercise) at all stages. Over time most people with type 2 diabetes will require oral medication and or insulin. Type 2 accounts for 90% of all cases of diabetes.

Type 2 diabetes mellitus (T2DM) is one of the most common long-term health conditions in Northern Ireland, associated with significant morbidity, mortality and healthcare costs. The number of people living with diabetes continues to increase as shown in Figure 15. The Health and Social Care Board estimates that by 2027 there will be a further 45,000 cases of type 2 patients across Northern Ireland. It is known that the risk of developing T2DM is strongly linked to modifiable health behaviours, in particular diet and weight.[58]

Figure 15: The number of people (aged 17 years and over) registered as having diabetes by GP practices in Northern Ireland from 2004-2017.[59]



Actions

'Pre-diabetes' is an umbrella term for impaired fasting glycaemia (IFG) and impaired glucose tolerance (IGT), conditions which are not diagnosed as T2DM but are also not considered to represent normal sugar regulation. The condition, however, increases the risk of developing diabetes. Evidence has shown that modest changes in diet and physical activity levels can reduce incidence of T2DM by more than 50% for individuals with pre-diabetes.[60] This offers an important opportunity for early intervention to reduce the number of people developing T2DM.

Support has been sought from the Department of Health's Transformation Implementation Group (TIG) for a proposal to develop a regional programme for the identification and management of individuals at high risk of developing T2DM in Northern Ireland. These individuals have a high risk score and fasting plasma glucose of 5.5–6.9 mmol/l or HbA1c of 42–47 mmol/mol [6.0–6.4%]. The programme will aim to prevent or delay the onset of T2DM in the identified group.

Next steps

There will be two main components to the programme – the identification of high risk individuals, through primary care, and the development and delivery of a lifestyle intervention programme to which high risk individuals will be offered referral. The programme will reflect the National Institute for Health and Care Excellence guidelines on the prevention of T2DM in people at high risk.[61]

Eating healthily and being more active can reduce your risk of developing type 2 diabetes.

Key facts

- The prevalence of T2DM is increasing with estimates that by 2027 there will be a further 45,000 cases of Type 2 patients across Northern Ireland.
- The risk of developing T2DM is strongly linked to modifiable health behaviours, in particular diet and weight.
- A lifestyle intervention programme will be offered to individuals at high risk of developing type 2 diabetes.

Further information

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Early intervention and stroke

Public health challenge

A stroke is caused by an interruption in the blood supply to the brain either by a blockage (ischaemic stroke) or a bleed (haemorrhagic strokes). The majority of strokes are ischaemic strokes.

Every year in Northern Ireland there are approximately 2,700 emergency hospital admissions due to stroke. Death rates from stroke have declined by around 50% in the past 20 years. While strokes are more common in older age groups, one in 10 strokes happen in people aged under 55.[62]

There has been a rapid expansion in the last 10 years in research evidence for preventing and treating strokes. This provides services with an opportunity to lessen the impact of stroke on our population particularly in view of the expected increase in the number of elderly people in the next few years.

Actions

Prevention and early intervention

Addressing lifestyle factors such as stopping smoking, healthy eating, maintaining a healthy body weight and taking regular exercise are all important in preventing stroke.

People at a higher risk of stroke include those with high blood pressure, irregular heartbeat such as atrial fibrillation, heart disease and diabetes. If an individual has any of these risk factors it is important that they are treated effectively to reduce their risk of stroke.

Another high risk group for stroke are patients who have suffered a transient ischaemic attack (TIA) or 'mini stroke'. The symptoms of TIA are the same as a stroke, but with a TIA these symptoms usually resolve within 30 minutes and always within 24 hours unlike a stroke where symptoms persist. TIA patients are at a much higher risk of experiencing a stroke in the following days and weeks. If TIAs are treated quickly (within 24 hours) the risk of a stroke occurring can be greatly reduced.

Treatment and early intervention

The PHA-led FAST public awareness media campaign has raised awareness in the general population of the symptoms of stroke. The campaign outlines for the public what to do if they think someone is having a stroke and to seek help immediately by dialling 999. Promoting earlier intervention aims to improve outcomes.

Thrombolysis

Following medical assessment at hospital, if an ischaemic stroke is confirmed, the patient will be assessed for thrombolysis, a treatment which dissolves blood clots in the brain. Up to 20% of ischaemic stroke patients are suitable for this treatment and the sooner it is given after a stroke the more likely it is to be effective. Thrombolysis can be provided up to four and a half hours after the first symptoms of stroke.

Thrombectomy

Thrombectomy is a procedure which can remove a large clot from the brain following an ischaemic stroke. People with this type of stroke often have the most severe disabilities after a stroke and the most limited recovery. This procedure involves the insertion of a small tube into the blood vessel combined with a special type of brain scan to remove the blood clot. Thrombectomy can be delivered up to six hours or more after the onset of the stroke and in some cases even up to 24 hours. This treatment is highly effective in reducing disability and can more than double the chances of a good recovery in suitable patients.

The PHA played a key role in developing a thrombectomy service in Northern Ireland. It is provided by interventional neuroradiologists in the Belfast HSC Trust and is operational on weekdays from 9am to 5pm. The PHA continues to support the Trust with plans to gradually expand its availability in the next few years, starting in 2018 with expansion of the service to 8am to 8pm on weekdays.

Outcomes

Thrombolysis

Thrombolysis may benefit up to 20% of ischaemic strokes. For every 100 patients that are treated with thrombolysis within three hours of stroke onset 32 people achieve a better recovery. This number reduces to 16 people when treatment is given between three and four and a half hours of stroke onset.

Pictured at the launch of the public conversation on Reshaping Stroke Services in Northern Ireland are (from left) Fedelma Carter and Neil Johnston NI Chest, Heart and Stroke; Dr Brid Farrell, Public Health Agency; Dr Enda Kerr, Stroke Physician, Western and Belfast Health and Social Care Trusts; Nicola Moran, Chair NIMAST and Barry MacAulay, Stroke Association.

Thrombectomy

Thrombectomy may benefit up to 5% of ischaemic strokes. For every 100 people who receive thrombectomy, 20 more survivors will be independent and 38 will be less disabled after stroke.[62]

Next steps

The PHA is working in partnership with the HSCB, those who provide stroke services, and the public on an extensive project to reshape stroke services in Northern Ireland. The first phase of this work involved a pre-consultation exercise in summer 2017 which allowed the public a chance to have their say on this important issue.

Key facts

- Each year in Northern Ireland there are approximately 2,700 emergency hospital admissions due to stroke.
- The FAST media campaign increases public awareness of the signs and symptoms of stroke and how to access help quickly.
- In ischaemic strokes early intervention by timely thrombolysis and thrombectomy, if indicated, can reduce death and disability.

Further information

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Research and development

Introduction

Introduction

The HSC Research and Development (R&D) division of the PHA aims to fund research that can secure lasting improvements in the health and wellbeing of the entire Northern Ireland population.

In partnership with The Atlantic Philanthropies, the HSC R&D division funded a number of research projects during 2017 under the Early Intervention Transformation Programme (EITP) workstreams 1, 2 and 3. The projects are aimed at informing the process of continuous improvement of EITP workstreams, informing the development of any subsequent EITP interventions, and informing future strategy for EITP for children and young people and their families in Northern Ireland. The following section provides an overview of the three funded EITP research projects as well as the 'If I were Jack' trial, a project set out to develop an evidence-based relationship and sexual health education (RSE) for young people in schools and men in prisons.

Evaluating the Early Intervention Support Service

Public health challenge

Early intervention can be a key mechanism in helping to improve outcomes for children, young people and families: intervening early and equipping families with the skills they need (and helping to build resilience) can help prevent emerging problems. The Early Intervention Support Service (EISS) was established as part of the EITP in 2015. It was formed under the umbrella of the Northern Ireland Executive/Atlantic Philanthropies 'Delivering Social Change Signature Programme', and is jointly funded by the Delivering Social Change fund, five government departments and The Atlantic Philanthropies.

Early Intervention
Transformation Programme

To address the lack of inter-agency collaboration within services in Northern Ireland, EITP uses a collaborative preventative model which uses partnership working to work towards three central goals: equipping parents with the skills needed to give their children the best start in life; supporting families outside of the statutory system when problems first emerge; and positively addressing the impact of adversity on children by intervening both earlier and more effectively to reduce the risk of poor outcomes later in life. The aim therefore of EITP is to improve outcomes for children and young people in Northern Ireland through establishing a range of early intervention, and importantly, collaborative approaches.

EISS is a short-term, home-based intervention, delivered to families with a child between the ages of 0-18 and with no contact with statutory services. EISS aims to support families before or when problems arise, and before there is a need for statutory involvement, ie Tier 2 families. There are five services currently operating in each of the Health and Social Care Trust areas, which deliver a range of practical and therapeutic support to families. Each EISS was aligned closely with Family Support Hubs and existing services in the pilot area, and aimed to provide a range of practical and therapeutic support to families; however, duplication of existing services was to be avoided.

Pictured at the EISS local stakeholder event in Belfast on 19 October 2017 are the Belfast EISS team, members of the Public Health Agency and the QUB research team.

Actions

To provide an evidence base and to evaluate the effectiveness of EISS in supporting families, a research team from Queen's University Belfast designed and undertook a mixed methods evaluation in 2017. Each EISS asked parents referred to their service for consent to participate in the evaluation. The researchers:

- carried out pre/post-test measures with 80 families in contact with EISS;
- conducted a process evaluation involving interviews with managers, stakeholders, practitioners and families in contact with EISS;
- submitted a draft report to funders at the end of March 2018 (summary and recommendations are pending).[63]

Outcomes

The draft report indicated that there were statistically significant differences in two of the outcomes measured with small effect sizes; an increase in parenting confidence around 'empathy' (Sig=0.014, d=0.67) and 'play' (Sig=0.039, d=0.56) with children. While these differences are by no means generic enough to comment on with certainty, the results are certainly encouraging and a step in the right direction.

The output from the process evaluation was extremely positive and helpful in interpreting the results:

- The nature of the short-term intervention (12 weeks) only feasibly allowed for small changes to be observed. However, short-term small changes have the potential to lead to longer term positive outcomes.
- The home visiting aspect was particularly beneficial for families for practical reasons, as was the non-judgemental approach of the key worker. This could have led to greater parental engagement with the service.
- Based on the evidence base for early intervention, the lack of adherence to fidelity to the intervention may have impacted on the effectiveness of the evaluation and the target population (0-18) was possibly too wide.

Key facts

- Families and children who experience multiple deprivation are at higher risk of developmental problems. Northern Ireland is the most deprived area of the United Kingdom, with 37% of the population living in an area that is within the 20% most deprived across the UK.[64]
- Early intervention now is a central concept worldwide across a wide range of family support research and service developments, and is critical in helping to improve outcomes for families, children and young people.
- However, consensus on 'what works' in early intervention approaches is still contested.

Next steps

The research team have submitted the final draft of the report to the funders and are awaiting feedback. It is expected the evaluation will go some way to providing justification, an evidence base and empirical support in deciding whether to continue EISS and/or a roll-out to more areas throughout Northern Ireland.

Further information

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Using the voluntary sector to provide services to children and families with complex needs: benefits and risks

Public health challenge

The voluntary sector is often involved in providing services and supports to families and children with complex needs due to its particular expertise and ability to engage service users. The services provided by the voluntary sector usually complement existing statutory social work services rather than duplicate or compete with them. However, in times of contracting State welfare services and neoliberal policies emphasising using the free market to provide more economical services, the voluntary sector is increasingly being commissioned by the State to provide services to families and children with complex needs. Despite the role of the voluntary sector in providing these services, there has been a lack of robust research examining if the commissioning of the voluntary sector affects family outcomes and how this compares to the use of statutory social work services. Dr Michelle Butler, Dr Aisling McLaughlin, Dr David Hayes and Dr Andrew Percy of Queen's University Belfast sought to address this gap in our knowledge by conducting two rapid reviews of the international literature on the commissioning, governance and delivery of services by the voluntary sector, if these services affect outcomes and how these services compare to statutory social work services.

Actions

Two rapid reviews of all English language papers, from 2000 onwards, using the terms 'voluntary sector,' 'social work services,' 'complex needs' and 'children and families' were conducted. The first review focused on the commissioning of voluntary sector services while the second focused on family outcomes. How voluntary sector services compare to statutory social work services was explored in both reviews. All papers were screened and excluded if they did not discuss voluntary and social work service provision to families and children with complex needs or were not relevant to the research questions (see Figure 16). See Figure 17 for the variety of complex needs referred to in the literature.

Figure 16: Screening of papers.

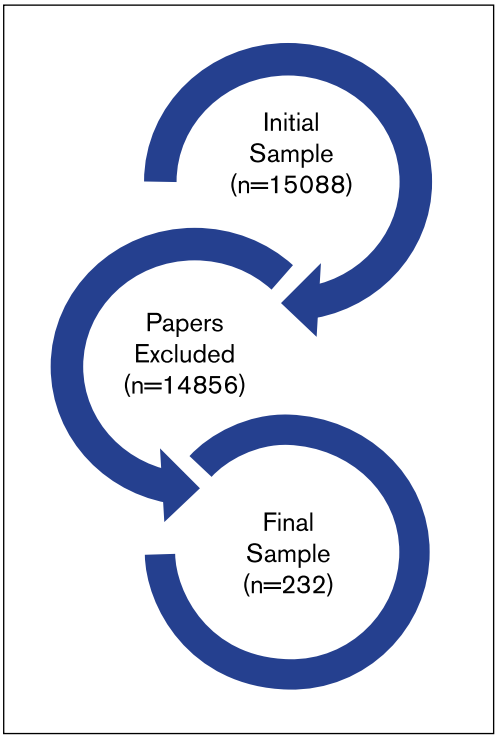
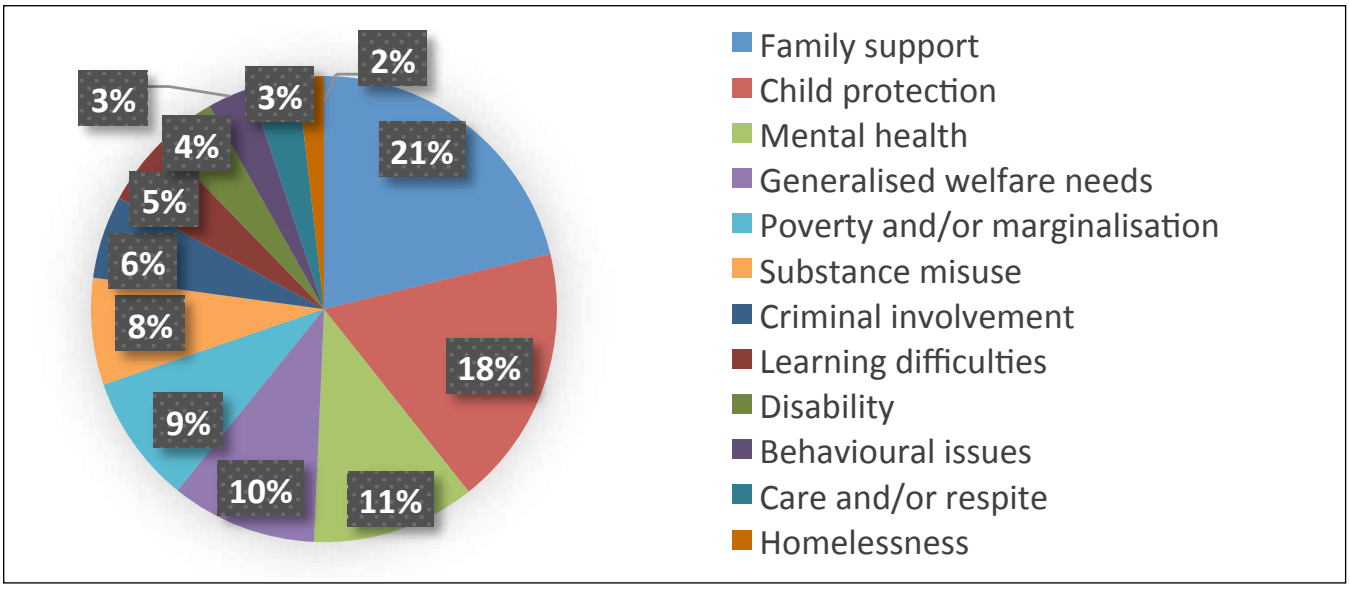


Figure 17: Range of complex needs referred to.



Outcomes

A key benefit of the voluntary sector is its flexibility and ability to engage hard to reach groups. However, no consistent differences in outcomes were found between the voluntary sector and statutory social work services. Instead, individual organisational culture, staff practices and the commissioning process shaped outcomes. A commissioning process which under-costed services and adopted a short-term, fragmented approach to service delivery hindered effective interagency collaboration and the development of trusting relationships, which were key to improving outcomes for children and families with complex needs. In addition, a competitive tendering commissioning process did not result in a more cost-effective, efficient service compared to a non-competitive process due to limited alternative providers, disruption to service users and shortcomings in the governance of service contracts.

Key facts

- No consistent differences between the voluntary sector and statutory social work services were found as individual organisational culture, staff practices and the commissioning process were more important in shaping outcomes and users' experiences of service provision.
- A competitive tendering commissioning process does not always result in a more cost-effective, efficient service and can complicate interagency collaboration and hinder outcomes for children and families with complex needs.
- Regardless of whether services are delivered by the voluntary sector, statutory social work services or a combination thereof, effective interagency collaboration and the development of trusting relationships were key to improving outcomes for those with complex needs.

Next steps

The next stage of the project will examine the extent to which these findings are applicable to the Northern Ireland context.

Further information

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Improving relationships and sexual health in schools and prisons

Public health challenge

The right to high quality relationships and sexual health education (RSE) is enshrined in the United Nations Rights of the Child and, in Northern Ireland, in the *Sexual health promotion strategy and action plan, 2008-13* extended to 2015 with an addendum.[65,66]

Rising to these challenges, a group of researchers based at Queen's University Belfast, working in partnership with the PHA and a wide range of stakeholders, set out to develop evidence-based RSE for young people in schools and men in prisons.

Actions

Our work in Schools: We developed 'If I were Jack'. This is a schools-based RSE intervention which especially emphasises the role of teenage men in preventing teenage pregnancy and promoting positive relationships and sexual health. It is delivered to both males and females aged 14-16 (https://www.qub.ac.uk/sites/if-i-were-jack/).

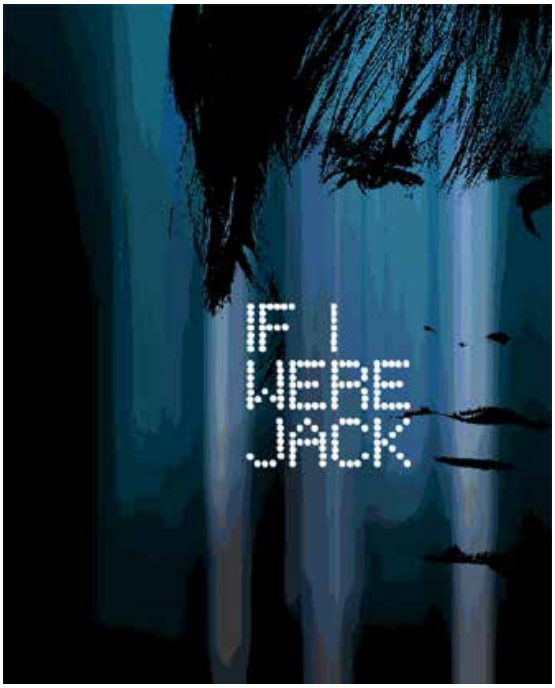
Our work in Prisons: Dr Michelle Templeton delivered 'If I were Jack' with young men in Hydebank Wood College (HWC) together with Barnardo's NI and used this opportunity to better assess their RSE needs (https://goo.gl/bHfMkx).

Dr Carmel Kelly led our team to develop nurse-led asymptomatic screening of sexually transmitted infections (STIs) within prison healthcare, and together with Dr Templeton, used a participatory approach with the young men in HWC to co-produce a sexual health promotion video.

We are now developing a bespoke RSE programme for young incarcerated men. The objective of the Relationships and Future Fatherhood programme is to help men have healthy respectful relationships. It will cover sexual and mental health, the characteristics of forming healthy relationships, and hopes and intentions for future parenthood.

Impacts

A cluster randomised controlled trial (cRCT) of 'If I were Jack' among 831 pupils in eight post-primary schools in Northern Ireland demonstrated that this RSE programme is acceptable to schools, pupils, teachers and parents (including in faith based schools), can be feasibly implemented and is cost-effective (under £14 per pupil). The trial was funded by the National Institute for Health Research (NIHR) and HSC R&D.



'If I were Jack' is a unique relationship and sexuality education intervention which was developed collaboratively with scientific experts, government bodies, pupils and teachers over several years in the UK, Ireland and Australia. https://www.qub.ac.uk/sites/if-i-were-jack/

Launch of *Improving sexual health of men in NI prisons* at Hydebank Wood College (March 2018) Included from L-R Catherine Baxter, Jaqueline Magennis (Nurses at HBW), Dr Michael Mc Bride (Chief Medical Officer), Professor Maria Lohan (School of Nursing and Midwifery QUB), Dr Carmel Kelly (Clinical Nurse Lead for sexual health SET, QUB), Dr Michelle Templeton (Research Fellow QUB), Professor Donna Fitzsimons (Head of School), Rachel Gibbs (Assistant Director Prison Health SET), Tracey Heasley (Clinical Nurse Lead for prison healthcare SET), Governors Richard Taylor and Austin Treacy (NIPS) and William Halligan (Nurse – Maghaberry prison).
https://daro.qub.ac.uk/improving-sexual-health-of-northern-ireland-prisoners

We are underway with a UK-wide cRCT providing evidence of if, and how, 'If I were Jack' might reduce unprotected sex, and promote respectful relationships (funded by NIHR and supported by HSC R&D).

'If I were Jack' is being rolled out to schools in the Republic of Ireland through the Department of Education and Science.

Nurse-led sexual health services have been established in each of the prisons, delivered by the South Eastern Health and Social Care Trust (SET). A health promotion video made with men in prison, for men in prison, is available on YouTube at https://goo.gl/iZf4qJ Both these projects were funded by the Burdett Trust.

Next steps

Working with our partners and stakeholders we will:

- further enhance nurse-led sexual health services in prison healthcare;
- develop a Relationships and Future Fatherhood Programme for young incarcerated men (in Scotland and Northern Ireland) based on the strongest international evidence and young men's views;
- complete our UK-wide trial of 'If I were Jack';
- deliver a systematic review of the evidence on engaging men in sexual and reproductive health globally for the World Health Organization.

Key facts

- The UK has the highest rates of teenage pregnancy in Western Europe.
- The children of a parent who has been imprisoned are three times more likely to be involved in offending.
- The key to young male offenders' rehabilitation, alongside enhancing education and employability, is to develop their relationships and parenting skills by helping them understand the importance of fatherhood and the difference 'good fathering' can make to their future children.

Further information

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The APPLE Project

Public health challenge

Current evidence suggests that all facets of child development (physical, intellectual and emotional) are influenced significantly by the foundations laid in early childhood. This begins during pregnancy, continuing through the early years and is reflected in children's readiness for school and subsequent educational outcomes. In Northern Ireland significant changes following the introduction of policies including *Families Matter* and *Healthy child, healthy future* have paved the way for the transformation of services which integrate health and education in the early years.[67,16] The implementation of new initiatives under EITP requires evaluation to ensure services are evidence-based and impact on the desired outcomes. Antenatal care and education are generally recognised as the mechanisms through which improved maternal and infant outcomes are achieved both in the short and long term. Changes to universal services are currently being rolled out by Health and Social Care Trusts here and include the introduction of:

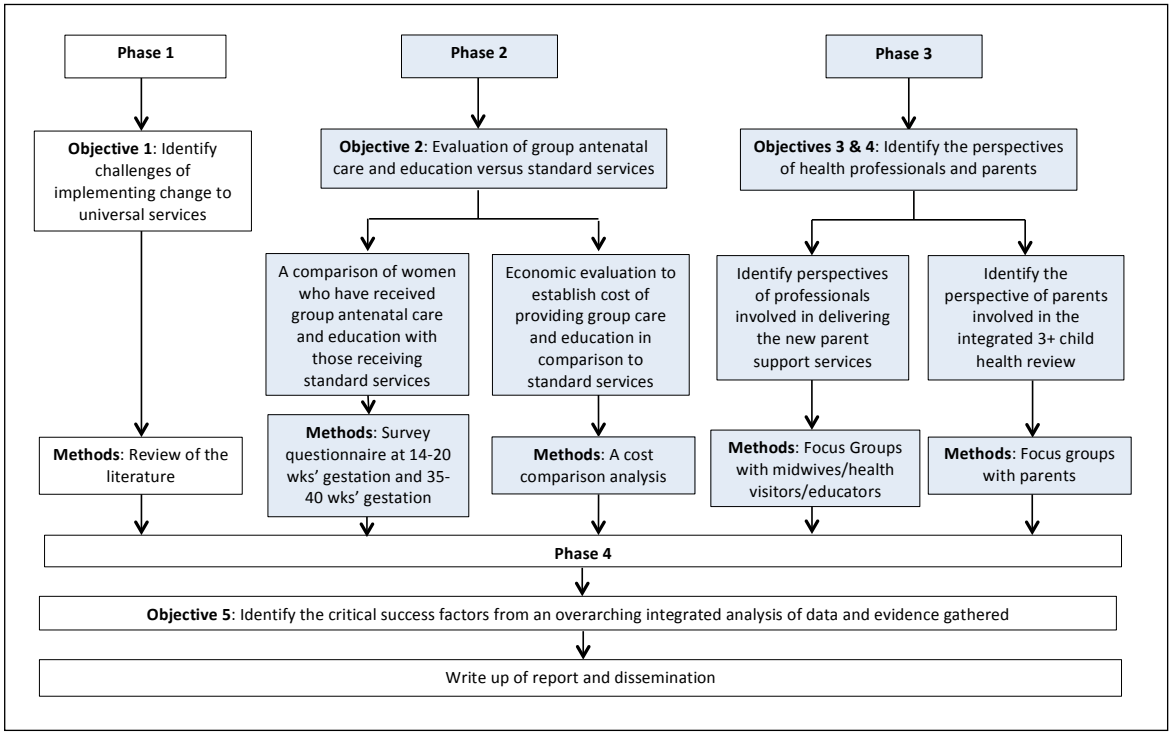
- group based antenatal care and education to first time mothers with uncomplicated pregnancies and their partners;
- a named health visitor to pre-school education settings;
- an integrated 3+ years child health review within pre-school education settings.

Actions

The APPLE (A Parent and Professional Learning Evaluation) Project is evaluating the changes to the provision of antenatal care by comparing outcomes for women who are receiving *group* antenatal care and education with women who are receiving *routine* antenatal care and education services. The APPLE Project will also seek to gain a better understanding of the process of introducing changes to universal services by discussing the implementation of changes and the delivery of group based antenatal care and education with health care professionals, and by asking parents about their experiences of the 3+ child health review.

Members of the APPLE Project Team L-R Ms Aideen Gildea, Dr Jenny McNeill, Dr Fiona Lynn, Dr Lorna Lawther all QUB. Missing members: Prof Fiona Alderdice, NPEU/QUB, Dr Sharon Millen, QUB.

Figure 18: Flow diagram for the APPLE Project.



Outcomes

The APPLE Project is focused on evaluating ongoing initiatives within EITP and therefore seeks to meet the overarching aims of The Atlantic Philanthropies in Northern Ireland through supporting the healthy development of children by giving them the best start in life, striving not only to improve outcomes in the short term but also those in the long term. As a consequence, the findings of this evaluation will directly impact on both the provision of health and education services in Northern Ireland with the ultimate aim of identifying best practice leading to optimal outcomes for parents and children.

Next Steps

The APPLE Project is currently ongoing and results are not yet available. Preliminary work with health professionals involved across all health and social care trusts in Northern Ireland has been undertaken in preparation for the collection of data. Results of the project will be used to inform the direction of future antenatal and early years' service provision.

Key facts

- The introduction and evaluation of group antenatal care and education is novel to Northern Ireland.
- Group antenatal care and education has been shown to positively impact on social and clinical outcomes.
- Preliminary feedback from service users suggests pregnant women and their partners are responding positively to the changes to care provision.

Further information

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References

1. Acheson Sir D (Chairman). Public Health in England: the Report of the Committee of Inquiry into the Future Development of the Public Health Function. London: Department of Health and Social Security, 1988.
2. https://www.goodreads.com/quotes/13639-the-doctor-of-the-future-will-give-no-medication-but Accessed 3 July 2018.
3. Marmot M et al. Fair society, healthy lives: the Marmot review. London: The Marmot Review, 2010. Available at http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-full-report-pdf.pdf Accessed 3 July 2018.
4. Northern Ireland Executive. Programme for Government consultation document. Belfast: Northern Ireland Executive, 2016. Available at: https://www.northernireland.gov.uk/consultations/programme-government-consultation Accessed 3 July 2018.
5. Department of Health, Social Services and Public Safety. Making Life Better. A whole system strategic framework for public health 2013-2023. Belfast: DHSSPS, 2014. Available at: https://www.health-ni.gov.uk/publications/making-life-better-strategy-and-reports Accessed 3 July 2018.
6. Department of Health. Systems, not structures: changing health and social care. Belfast: DoH, 2016. Available at https://www.health-ni.gov.uk/sites/default/files/publications/health/expert-panel-full-report.pdf Accessed 3 July 2018.
7. Department of Health. Health and wellbeing 2026: delivering together. Belfast: DoH, 2016. Available at: https://www.health-ni.gov.uk/sites/default/files/publications/health/health-and-wellbeing-2026-delivering-together.pdf Accessed 3 July 2018 Accessed 3 July 2018.
8. Sudden infant death syndrome: after the 'back to sleep' campaign, BMJ 1996;313:180.
9. Allen G. Early Intervention: The Next Steps. An Independent Report to Her Majesty's Government, 2011. Available at: https://www.gov.uk/government/publications/early-intervention-the-next-steps--2 Accessed 3 May 2018.
10. Office for National Statistics. Avoidable mortality in the UK: 2016 Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/avoidablemortalityinenglandandwales/2016#avoidable-mortality-rates-for-the-uk-and-constituent-countries-by-sex-and-cause Accessed 3 May 2018.
11. World Health Organization, Regional Office for Europe. The case for investing in public health. A public health summary report for EPHO 8. Available at: http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/publications/2015/the-case-for-investing-in-public-health Accessed 3 May 2018.
12. Public Health Agency. PHA corporate plan 2017-2021. Belfast: PHA, 2017.
13. Allen G. Early intervention: smart investment: massive savings. The second independent report to Her Majesty's Government, 2011. Available at: https://www.gov.uk/government/publications/early-intervention-smart-investment-massive-savings Accessed 3 May 2018.
14. Delivering the Bamford vision. The response of the Northern Ireland Executive to the Bamford Review of Mental Health and Learning Disability. Action plan 2012-2015. Available at: https://www.health-ni.gov.uk/publications/bamford-action-plan-2012-15 Accessed 3 May 2018.
15. Department of Health, Social Services and Public Safety. Breastfeeding - a great start. A strategy for Northern Ireland 2013-2023. Belfast: DHSSPS, 2013. Available at: https://www.health-ni.gov.uk/publications/breastfeeding-strategy Accessed 3 May 2018.

16. Department of Health, Social Services and Public Safety. Healthy child, healthy future. Belfast: DHSSPS, 2010.

17. http://www.publichealth.hscni.net/sites/default/files/RUAG%20Childrens%20Health%20in%20NI%20-%202016-17%20-%20FINAL%20-%20Dec%202017.pdf Accessed 18 June 2018.

18. Morgan KL, Rahman MA, Macey S et al. 2014 Obesity in pregnancy: a retrospective prevalence-based study on health service utilisation and costs on the NHS. BMJ Open 2014;4: e003983. doi:10.1136/ bmjopen-2013-003983

19. Infant Feeding Survey 2010. Available at: https://data.gov.uk/dataset/c941b6d8-bfd1-4ca8-9687-73b1a8f1b59a/infant-feeding-survey-2010 Accessed 8 May 2018.

20. Renfrew M, Pokhrel S, Quigley M, McCormick F, Fox- Rushby J, Dodds R, Williams A. Preventing disease and saving resources: the potential contribution of increasing breastfeeding rates in the UK (Report). London: UNICEF UK, 2012. Retrieved from http://www.unicef.org.uk/Documents/Baby_Friendly/Research/Preventing_disease_saving_resources.pdf Accessed 5 July 2018.

21. National Institute for Health and Clinical Excellence. Pregnancy and complex social factors: a model for service provision for pregnant women with complex social factors. London: NICE, 2010.

22. Public Health Agency. One Stop Shops. Findings from the three-year evaluation period: Briefing paper. Available at: http://www.publichealth.hscni.net/sites/default/files/OSS%20summary%20eval%20period%202014-17%20with%20case%20studies%20final.pdf Accessed 3 May 2018.

23. Northern Ireland Statistics and Research Agency. Young Persons' Behaviour & Attitudes Survey 2016. Prepared by Central Survey Unit. Available at: https://www.nisra.gov.uk/publications/ypbas-publications Accessed 3 May 2018.

24. Avery L and Lazdane G, What do we know about sexual and reproductive health of adolescents in Europe? European Journal of Contraception and Reproductive Health Care vol 13, no 1, March (2008) pp 58-70.

25. https://www.nisra.gov.uk/publications/registrar-general-annual-report-2016-births Accessed 18 June 2018.

26. Department of Health, Social Services and Public Safety. Ten-year tobacco control strategy for Northern Ireland. Belfast: DHSSPS, 2012. Available at: https://www.health-ni.gov.uk/publications/tobacco-control-strategy-and-reports Accessed 28 June 2018.

27. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2016 Accessed 18 June 2018.

28. Department of Health. Health survey Northern Ireland: first results 2016/17. Available at: https://www.health-ni.gov.uk/publications/health-survey-northern-ireland-first-results-201617 Accessed 23 May 2018.

29. Public Health Agency/Health and Social Care Board. Quality Standards for the Delivery of Specialist Stop Smoking Services in Northern Ireland. September 2011. Belfast: PHA/HSCB, 2011.

30. NICE Public Health Guidance 10: Smoking cessation services in primary care, pharmacies, local authorities and workplaces, particularly for manual working groups, pregnant women, and hard to reach communities, February 2008.

31. https://www.nisra.gov.uk/statistics/population Accessed on 10th May 2018.

32. https://www.health-ni.gov.uk/topics/doh-statistics-and-research/health-survey-northern-ireland Accessed 10 May 2018.

33. Northern Ireland's Big Book of Accident Prevention. RoSPA, 2013. Available at: http://www.rospa.com/rospaweb/docs/campaigns-fundraising/big-book-ni.pdf Accessed 5 July 2018.
34. Department of Health, Social Services and Public Safety. The Northern Ireland Home Accident Prevention Strategy 2015-2025. Belfast: DHSSPS, 2015. Available at: https://www.health-ni.gov.uk/publications/home-accident-prevention-strategy-and-reports Accessed 11 May 2018.
35. Prince M, Albanese E, Guerchet M, et al. World Alzheimer report 2014. Dementia and risk reduction: an analysis of protective and modifiable risk factors. Alzheimer's Disease International, 2014.
36. Matthews FE, Arthur A, Barnes LE, et al. A two-decade comparison of prevalence of dementia in individuals aged 65 years and older from three geographical areas of England: results of the Cognitive Function and Ageing Study I and II. Lancet 2013;382:1405-12
37. Prince M, Albanese E, Guerchet M, et al. World Alzheimer report 2014. Dementia and risk reduction: an analysis of protective and modifiable risk factors. Alzheimer's Disease International, 2014.
38. Prince M, Bryce R, Ferri C. World Alzheimer report 2011: the benefits of early diagnosis and intervention. Alzheimer's Disease International, 2011
39. World Health Organization. Global Vaccine Action Plan 2011-2020. Geneva: WHO, 2013. http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en Accessed 4 July 2018.
40. Ehreth J. The global value of vaccination. Vaccine 2003; 21: 596-600
41. Cesar G, Bahl R, Barros AJD et al. Breastfeeding in the 21st century: epidemiology, mechanisms and lifelong effect. Lancet 2016; 387: 475-490. Available at: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01024-7.pdf Accessed 5 July 2018.
42. Public Health Agency. The statistical profile of children's health in Northern Ireland, 2016/17. Table 10.4. Available at: http://www.publichealth.hscni.net/statistics Accessed 28 June 2018.
43. Public Health Wales. Welsh Adverse Childhood Experiences (ACE) Study: adverse childhood experiences and their impact on health-harming behaviours in the Welsh adult population. Cardiff: Public Health Wales, 2015.
44. NSPCC/PHA. Looking after infant mental health in Northern Ireland: our case for change. NSPCC, 2017.
45. Data from the Hospital Inpatient System, Department of Health (unpublished).
46. Data from the Northern Ireland Home Safety Check Scheme Database (unpublished).
47. https://www.mentalhealth.org.uk/a-to-z/c/children-and-young-people Accessed 3 July 2018.
48. Northern Ireland Statistics and Research Agency. Registrar General Northern Ireland Annual Report 2014. Belfast: NISRA/National Statistics, 2015.
49. Public Health Agency. An evaluation of the Public Health Agency 'Smokebusters' 2016-17 smoking prevention programme. (Unpublished).
50. Public Health Agency, Health Intelligence Unit. Tobacco Control Northern Ireland. Belfast: PHA, 2015. Available at: http://www.publichealth.hscni.net/publications/tobacco-control-northern-ireland Accessed 28 June 2018.

51. Public Health Agency. Annual immunisation and vaccine preventable diseases report for Northern Ireland 2016-17. Belfast: PHA, 2017. Available at: http://www.publichealth.hscni.net/sites/default/files/Annual%20Immunisation%20and%20VPDs%20Report%20for%20NI%202016-17.pdf Accessed 2 July 2018.
52. Public Health Agency. Sexually transmitted infection surveillance in Northern Ireland 2017. An analysis of data for the calendar year 2016. Belfast: PHA, 2017. Available at: http://www.publichealth.hscni.net/sites/default/files/STI%20surveillance%20report%202017%20_0.pdf Accessed 2 July 2018.
53. Genito-Urinary Medical Clinic Activity Dataset (provisional data).
54. Department of Health. Your health matters: the annual report of the Chief Medical Officer for Northern Ireland 2016/2017. Belfast: DoH, 2017. Available at: www.health-ni.gov.uk/topics/professional-medical-and-environmental-health-advice/chief-medical-officer Accessed 2 July 2018.
55. Guidance for the public health management of meningococcal disease in the UK. Updated February 2018. London: PHE, 2018. Available at: https://www.gov.uk/government/publications/meningococcal-disease-guidance-on-public-health-management Accessed 2 July 2018.
56. Data provided by Regional Newborn Screening Laboratory, March 2018.
57. Public Health England. Newborn Blood Spot Screening Programme in the UK. Data collection and performance analysis report 2016 to 2017. London: PHE, 2018. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/709367/Newborn_blood_spot_screening_data_collection_and_performance_analysis_report_2016_to_2017.pdf Accessed 28 June 2018.
58. Public Health England. Adult obesity and type 2 diabetes. London: PHE, 2014.
59. Department of Health, Quality and Outcomes Framework. Available at: https://www.health-ni.gov.uk/publications/quality-and-outcomes-framework-qof-achievement-data-201617 Accessed 3 July 2018.
60. Public Health England. A systematic review and meta-analysis assessing the effectiveness of pragmatic lifestyle interventions for the prevention of type 2 diabetes mellitus in routine practice. London: PHE, 2015.
61. NICE. Public Health Guideline PH38. Type 2 diabetes in people at high risk. Available at: https://www.nice.org.uk/guidance/ph38 Accessed 28 June 2018.
62. Health and Social Care Board. Reshaping Stroke services: for better recovery and more lives saved – pre-consultation. Belfast: HSCB, 2017. Available at: http://www.hscboard.hscni.net/download/Consultations/reshaping_stroke_services_in_ni_pre-consultation_-_june_2017/Reshaping-Stroke-Services-in-NI-Pre-consultation-Document.pdf Accessed 28 June 2018.
63. Winter K et al. Draft report on the evaluation of the Early Intervention Support Services. (Unpublished)
64. Abel GA, Barclay ME, Payne RA. Adjusted indices of multiple deprivation to enable comparisons within and between constituent countries of the UK including an illustration using mortality rates. BMJ Open, 6(11), [e012750]. (2016). DOI: 10.1136/bmjopen-2016-012750
65. Department of Health, Social Services and Public Safety. Sexual health promotion strategy and action plan 2008-2013. Belfast: DHSSPS, 2008. Available at: https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/sexual-health-promotion-strategy-and-action-plan-2008-13.pdf Accessed 28 June 2018.

66. Department of Health, Social Services and Public Safety. Progress and priorities: addendum to the Sexual health promotion strategy and action plan (2008 – 2013) to December 2015. Belfast: DHSSPS, 2014. Available at: https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/sexual-health-promotion-strategy-and-action-plan-addendum-2015_0.pdf Accessed 28 June 2018.

67. Department of Health, Social Services and Public Safety. Families matter: supporting families in Northern Ireland. Belfast: DHSSPS, 2009.

Page 65

List of figures

List of core tables 2016

List of core tables

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