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INNOVATIONS IN PREVENTION

Ruth Puttick, October 2012

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INNOVATIONS IN PREVENTION

Despite widespread recognition that more preventative investment could reap great benefits to society and the public purse, it remains a marginal component of expenditure.

At Nesta we want to apply an innovation lens to prevention, helping to understand the different stages involved and the resources available to enable the benefits to be more effectively realised. We also want to identify the areas where innovation is lacking, such as in prediction tools, financing or implementation, helping prompt further work in this space.

This paper starts by introducing prevention, outlining the current spending on preventative measures, the benefits of these, and also potential limitations. The second section of the paper outlines the stages involved in developing a preventative strategy. These are introduced sequentially, but care should be taken not to interpret them as a fixed chronology, there is no blueprint available for developing and implementing a successful preventative strategy. Instead we hope these can act as a prompt to stimulate debate with the ultimate goal of increasing spending on prevention in the areas where it is appropriate. In addition, we would like to emphasise that the paper is not complete and the resources not exhaustive, therefore we hope this document will be a live set of resources that we can add to, amend and adapt going forward.

We'd now like to work with others, including policymakers, commissioners, investors, programme developers, service managers, practitioners, researchers and more besides to ensure the resources are appropriate and useful for different audiences.

In summary, the issues we have encountered and need further exploration include:

- Who is defining harm? Who decides when to intervene?
 - What drives decision making?
 - Which areas could benefit from greater preventative investment?
 - Why don't we act on the data we already have?
 - Is prevention being done with people or for them? Are there limits to the appropriateness and legitimacy of intervening in people's lives?
 - What are the cut-off points for targeted prevention? When does 'high risk' become 'normal'?
 - Equally, when should preventative interventions be universal?
 - We can identify different finance mechanisms, which are the most effective when financing prevention, and under what conditions?
 - When should there be a focus on building resilience rather than preventing harms?
 - What are the limits to prevention?
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PART 1: INTRODUCTION TO PREVENTION

“It is better to be healthy than ill or dead. That is the beginning and the end of the only real argument for preventative medicine. It is sufficient”¹

Prevention is not new. There is a long history of the state, communities and individuals enacting sanctions against perceived ‘harms’, ‘risks’, ‘issues’ or ‘problems’. From Bazalgette’s work to improve sanitation in Victorian London preventing cholera outbreaks,² to the more recent programmes like Justice Reinvestment which aims to reduce recidivism, there are numerous examples of effective preventative policies, programmes or interventions spanning a range of public policy areas.

Over the past few decades interest in the potential of acting earlier has grown, particularly in whether there could be more deliberate reactions to prevent certain issues and problems developing in the first place. This has accelerated even further over the past few years.

This new focus can be attributed in part to the emergence of different pressures colliding, involving the need to ensure in these austere times what money is available is well spent, recognition that responding to harm may no longer be affordable, the growing interest in evidence of effectiveness, and a movement in academia of what has been termed ‘prevention science’.³

Despite this interest, and in a lot of cases real effort and willingness, prevention remains a small part of public expenditure. There is a need for preventative investment to be more strategic, moving from a part of service delivery, to an explicit, deliberate and integral part of the policymaking and commissioning process, to identify where harm can be prevented and cost savings realised.

Definition of key terms

Prevention

There are many who try to implement prevention strategies, from individuals to protect themselves, parents looking after their children, public services trying to intervene before problems arise and escalate, and many others alongside.

We have defined a preventative strategy as one which disrupts, mitigates or eliminates causes of harm through the identification, implementation and diffusion of effective interventions.

In healthcare, for instance, prevention is typically seen as intervening to moderate or prevent major human dysfunctions, with an important corollary of this goal being to mitigate or eliminate the cases of harm. This means prevention in health is typically seen before illness is fully manifested, so here the focus of prevention research is primarily on the systematic study of potential precursors of dysfunction of health, called risk factors and protective factors, respectively.⁴ Alternatively, in criminology, crime prevention has been defined as ‘the disruption of mechanisms which cause crime events’.⁵

Early Intervention

A number of initiatives, such as the recent Allen review⁶ and the Early Action Taskforce,⁷ have drawn attention to the concept of early intervention. Graham Allen has defined early intervention as *“intervening before damage takes place in a way that avoids later costs in both human and financial terms of handling the consequences of the symptoms of that damage”*.⁸

Whilst early action, although similar, operates at a higher, societal level, and has been defined as setting out to answer the question: *“how well do we build a society that prevents problems from occurring rather than one that, as now, copes with the consequences”*.⁹

Taxonomy of prevention

As shown in our earlier definition, we view prevention as multifaceted, spanning intervening before a problem has arisen, to mitigating the consequences or avoiding its reoccurrence. This means our definition of prevention encompasses what others may view as early intervention.

To help provide clarity on its different dimensions, prevention can be viewed as:

- Preventing harm emerging in the first place i.e. vaccinating against disease, a patient not developing Type 2 diabetes, preventing a young person becoming ‘NEET’ (not in education, employment or training).
- Preventing an existing harm from getting worse i.e. overweight not becoming obese, reducing the number of traffic accidents.
- Preventing an existing harm from recurring i.e. reducing recidivism.

Within each of these categories an intervention can be aimed at the population, community or person at risk of harm to themselves, or causing harm to others. Interventions can be direct or instead change can be indirect, such as through altering the environment (such as in suicide prevention; see the text box).

As well as direct intervention to change behaviour or physical conditions, there can be more holistic interventions to build resilience. For instance, it can be more beneficial for children to walk to school and learn about the dangers of roads, rather than parents and other adults being their constant chaperones, enabling young people to learn road sense for themselves.

Alongside these categories there is then an additional axis to indicate whether prevention is targeted, such as at a high risk group, or whether the intervention is aimed at everyone, something known as universal prevention.

An example of targeted prevention is the Incredible Years programme. This programme works with the parents of children who gain a high score on a measure of misbehaviour, aiming to avoid conduct disorder.¹⁰ Whereas an example of a universal prevention programme is vaccinations given to the whole population, to protect against polio or smallpox.¹¹ We discuss the merits of these two approaches in Part 2.

The following text box provides further examples of preventative initiatives.

EXAMPLES OF PREVENTATIVE INITIATIVES

- **Development of the Victorian sewerage system:** In many ways this is a classic preventative strategy. During the Victorian era it was commonly recognised that the River Thames was filthy. So bad in fact that in 1855 Michael Faraday commented that *“surely the river which flows for so many miles through London ought not be allowed to become a fermenting sewer?”*¹² Not only was the quality of the water unpleasant on the senses, it was also a cause of huge public health problems, namely cholera. After the 1854 outbreak of cholera and the ‘Great Stink’ of 1858, UK Parliament funded a new network of sewers. The chief engineer was Bazalgette, who designed and built 82 miles of sewers. Once completed cholera was a threat no longer.¹³
 - **The Peckham Experiment:** This was arguably decades ahead of its time in holistic health prevention. The Peckham Experiment was an investigation into the nature of health, running from 1926 to 1950 in Peckham, South London, within the Pioneer Health Centre, a place in which doctors observed families interacting in a social setting. The findings have influenced holistic health practitioners around the world, embedding the notion that health is more than just the notion of disease.^{14, 15}
 - **Head Start:** First implemented in 1965 as part of the 1960s War on Poverty initiative, it aimed to improve school readiness amongst children living at or below the poverty line in the USA. The programme featured physical and mental health services, community involvement, early child education and home visits. Analysis of Head Start showed significant benefits in prevention, with the quality of its implementation one of its key success factors.¹⁶ Head Start influenced the creation of Sure Start, implemented in the UK during late 1990s.¹⁷
 - **Smallpox:** There are numerous vaccination schemes that could be cited. One example is the World Health Organisations global smallpox vaccination campaign. Having been launched in 1967, smallpox had been almost completely eradicated by 1980.¹⁸
 - **Steering column locks in cars:** the introduction of steering column locks during the 1970s saw a large number of car thefts being prevented, with this decrease being sustained over a decade.¹⁹
 - **Suicide:** when toxic town gas was replaced with natural gas, the total number of suicides decreased. It has been deduced that for those whose preferred method was gas poisoning, decided not to commit suicide when their choice was denied. A similar thing happened in the USA when catalytic converters were introduced to vehicles, preventing occupants from killing themselves by fitting a hose to the exhaust pipe. In these instances the method of suicide was removed.²⁰
-

Current levels of preventative investment

In the UK it can be difficult to distinguish between preventative spending and reactive spending, particularly at a local level. Here is an indication of current expenditure in different policy domains.

- **Health** – a number of preventative programmes have been trialled with successful outcomes but mainstream adoption and investment remains small, with less than 4 per cent of health expenditure spent on prevention during 2008/9.²¹
 - **Mental health** – an area of health where prevention could help save money is within adult mental health, this costs government £10 billion each year in benefit payments alone, yet only £2 million is spent on prevention and alleviation, such as promoting self-esteem and coping skills.²² In addition, although half of adult mental health problems emerge before age 15,²³ expenditure on mental health provision is ten times greater for adults.²⁴
 - **Crime prevention** – Over 40,000 adults leave UK prisons each year after serving less than 12 months of a custodial sentence,²⁵ but 73 per cent of these will go on to reoffend within two years, and the recidivism rate rises for 92 per cent for those under 21 years.²⁶ The Ministry of Justice relies on large budgets to run its services and with £1.3 billion in cuts anticipated from budgets over the next three years, it may be unsustainable to further expand prison estates.²⁷ The evidence proves intervention can reap dividends. A young person in the criminal justice system costs on average £200,000 by the time they reach 16, yet each person given support to stay out cost the taxpayer less than £50,000. Despite this only 7 per cent of the Youth Justice Board funding is dedicated to preventative approaches.²⁸
 - **Disengagement from education and employment** - youth disengagement is a big and costly problem. In the UK, around 11.5 per cent of children start school without the behavioural skills they need and are subsequently more likely to drop out of the education system.²⁹ This has enormous repercussions on the economy: the current generation of 16-18 year olds not in education, employment or training will cost society an estimated £31 billion over their lifetime, including the costs of unemployment, to health services and to the criminal justice system.³⁰ Persistent disengagement is often underpinned by a range of factors that manifest themselves early in a child's life; properly resourced interventions that tackle disengagement amongst younger children could help prevent disengagement from becoming endemic.³¹ UK government spends £650 million on truancy and £800 million on school expulsions each year, while only £111 million is spent on preventative techniques.³² This means the Government spends twice as much on children once they have been excluded from school rather than providing extra support before it gets to this stage.³³
 - **Early years** – There is much work underway by independent research organisations like Dartington Social Research Unit, academia and charities to understand causes of harm and to develop preventative programmes targeting those aged 0-5 years. In addition, there is the forthcoming Early Intervention Foundation, which will have two roles: firstly providing advice and support to local commissioners on evidence, social finance and payment by results relating to early intervention to assist their own procurement and evaluation, and secondly, building the evidence base on what works in early intervention in the UK. The successful bid will receive funding for two years.³⁴
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- **Scotland** – In March 2011, the Scottish Government launched the £6.8 million Early Years Early Action Fund, which seeks to improve children, families and communities' livelihoods across the areas of play, childcare, child and maternal health, and family support.³⁵ Following the Christie Commission and Finance Inquiries, the Scottish Government's Budget for 2012-13 included a £500 million increase in preventative spending despite a 9.2 per cent reduction in cash from the UK Government. This includes the commitment of 'change funds' in three priority areas – early years, reshaping care for older people, and reducing reoffending – with a view to supporting the development of preventative models and transitioning away from more reactive service provision.³⁶ These will come from existing budgets, with public delivery bodies required to put together plans on their own or in partnership with others, to spend their allocation on preventative measures.
- **Wales** – The Welsh Assembly Government launched The Flying Start programme in 2006/07 'to make a decisive difference to the life chances of children aged under 4 in the areas which it runs'. The programme became operational in 2007/08 with £44 million over the first two years of the initial four-year commitment. Administered via local authorities, the programme intends to invest more than £2,000 per child in areas of deprivation to fund health visiting, parenting support, childcare or language and play programmes. The aim of Flying Start is to avoid the need for later remedial action through improving outcomes in language development, cognitive development, physical health, social and emotional development, and through the early identification of high needs.³⁷

There are many other service areas where prevention probably could have an impact, or may in fact already be doing so, but the data is lacking to help with identification of these. If the potential of prevention is to be realised, then the ways in which expenditure is measured and impact captured needs to get much better.

BENEFITS OF PREVENTION: CASE STUDY OF FUNCTIONAL FAMILY THERAPY

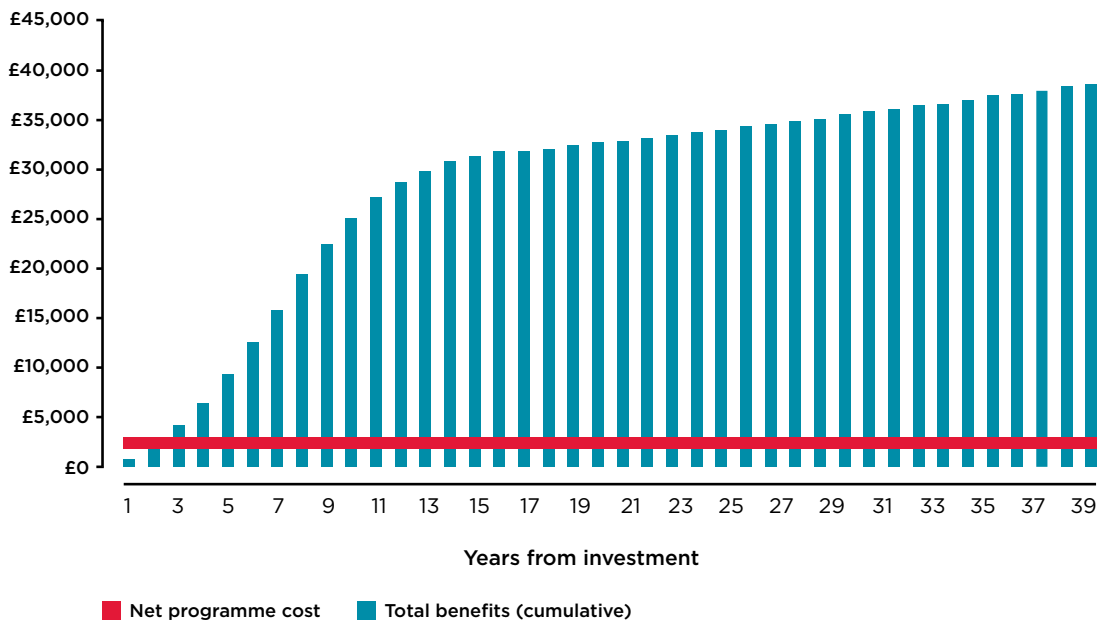
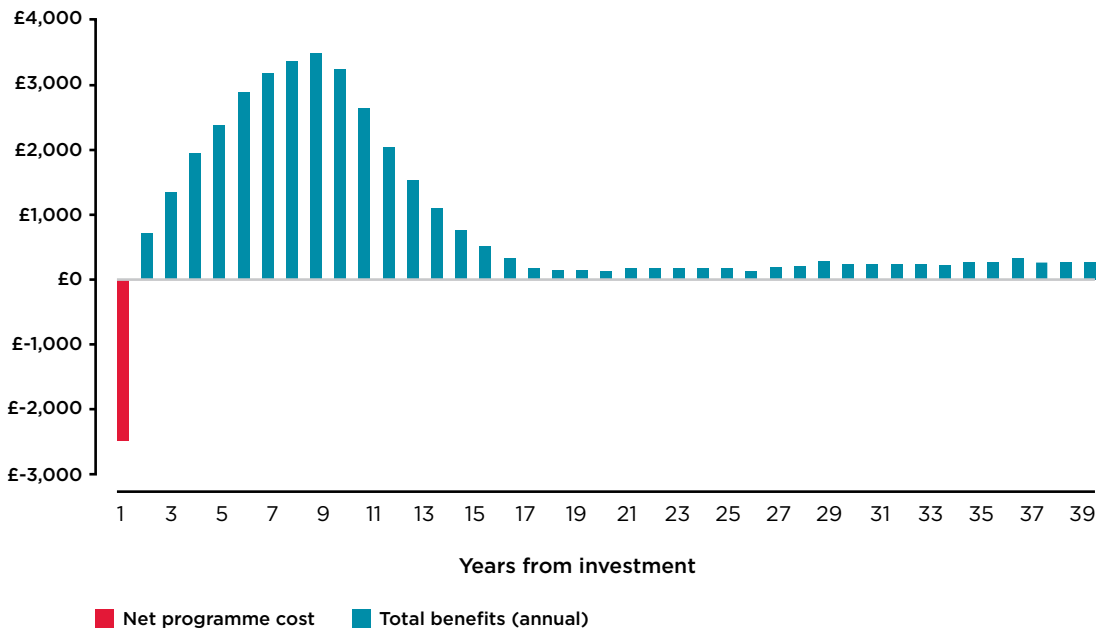
There are numerous preventative programmes with demonstrable benefits and cost-savings to users and the taxpayer. One such example is Functional Family Therapy.

FFT is an intensive family-based therapy and behaviour change programme which seeks to change the way young people and their families interact with each other and the communities they live in. Very high levels of support are offered over a three to four month period, the goal being that families can be supported to continue to improve, in more community-based mainstream activities (such as clubs, parenting groups and education) when the intervention ceases.

FFT has been developed and rigorously evaluated over almost 30 years in USA. It is now being recommended by Department for Education (DfE) in the UK and local authorities, including Gloucestershire, are starting to commission it.

The following table and graphs show the potential benefits. In summary, for every £1 invested, there are over £10 in benefits to participants, taxpayers, and others, through reducing crime and increasing educational attainment.

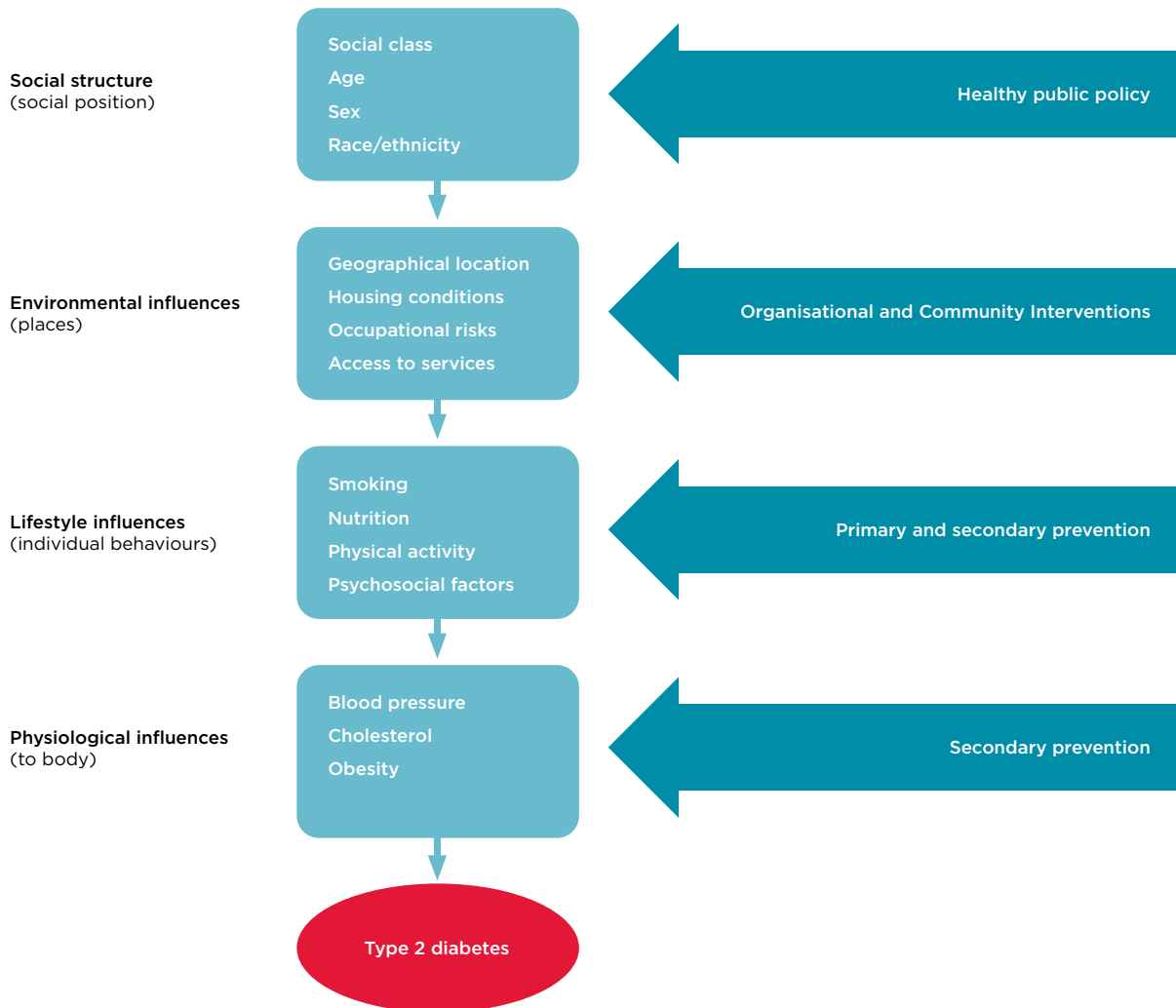
Source of benefits	To participants	To tax payers	To others	Total benefits
Crime	£0	£4,708	£17,650	£22,358
Earnings via High School Graduation (A-Levels)	£2,177	£1,068	£0	£3,245
TOTAL	£2,177	£5,776	£17,650	£25,603



Multi-faceted nature of prevention

The diagram below uses the prevention of Type 2 diabetes to illustrate how complex preventative strategies can be, encompassing a range of strategies to influence environmental, lifestyle and social factors.

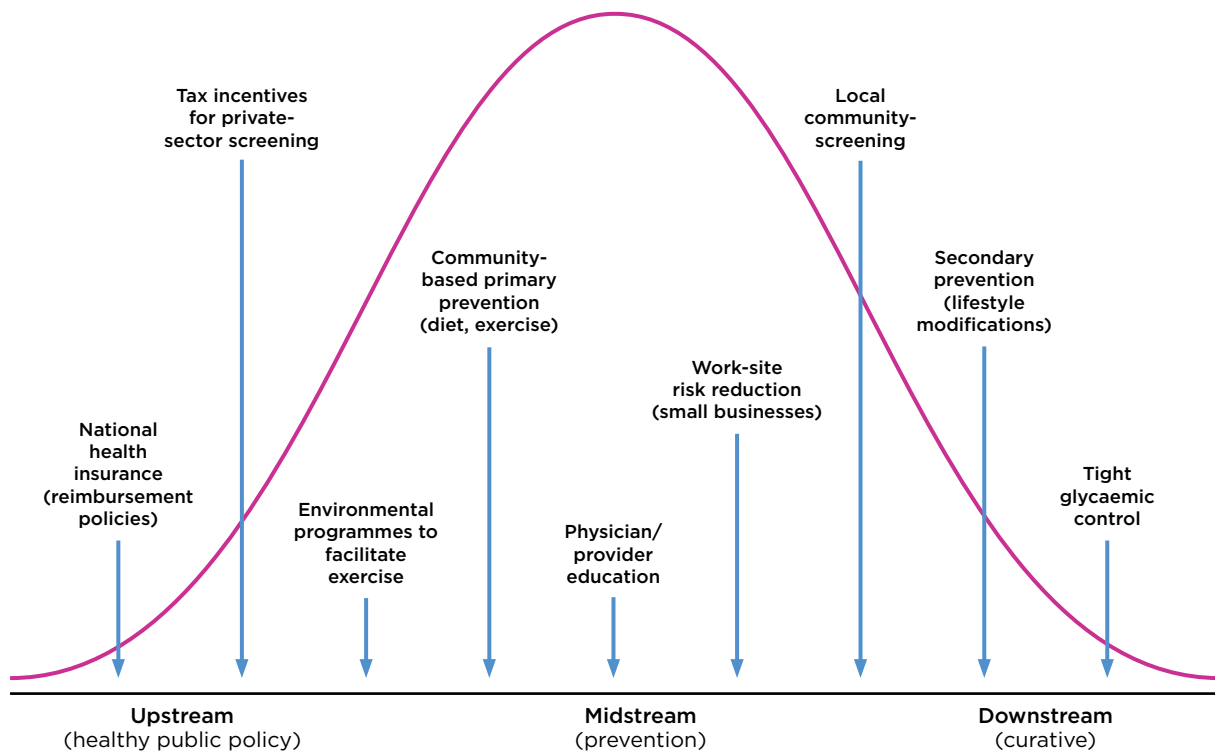
Diagram 1: The multi-faceted nature of preventing disease³⁹



The boxes down the middle detail 'risk factors' such as smoking, socioeconomic status, or obesity whose presence can increase the likelihood of Type 2 diabetes occurring'.⁴⁰ This means the approach for prevention is far from simple, encompassing a need to affect the body, culture and place.⁴¹ Such an epidemiological approach is arguably more advanced in health than in other areas. The use of risk factor is something we will return to in Part 2.

This multidisciplinary perspective means there may need to be influence at various points involving policymakers, practitioners, and individuals making lifestyle and behaviour changes. Sticking with diabetes as an example, the following diagram helps demonstrate this.

Diagram 2: Potential points of intervention for a public health approach to diabetes given the distribution of risks⁴²



Limits to prevention

Although the potential of prevention is clear, there is a need to ensure that the call for preventative investment is nuanced. Prevention is not the answer to every problem. In fact, prevention can potentially cause more harm than good. The examples below help illustrate this:

- Preventing chickenpox: Although a vaccine is available and used to protect those at risk in the UK, the chickenpox vaccine is not part of the NHS childhood vaccination programme because experts think that introducing a chickenpox vaccination for children could increase the risk of shingles in older people.⁴³
- Helicopter parenting: parents who are reluctant to let their children leave the house alone, and end up removing the chance for their children to learn skills of independence can reduce their ability to effectively deal with risks they may encounter. For example, there is a simultaneous increase in the number of children not allowed to cross the road on their own and the number killed as pedestrians.⁴⁴
- Moving harm: there is an argument that preventing or reducing risk in one area can increase it in another. For instance, parents driving their children to school in a bid to protect them from potential accidents crossing the road or the risk of abduction leads to more traffic on the road and therefore a greater chance of collisions.⁴⁵
- Preventing companies from being flexible in recruitment decisions: The evidence indicates that countries with strict employment protection legislation have a smaller proportion of high-risk innovative sectors.⁴⁶ Inflexible employment protection legislation

hampers both firms' incentives to experiment with uncertain growth opportunities and the reallocation of labour to more productive uses.

There then may be instances when we are only able to deal with problems, not prevent them, due to a lack of understanding. For instance, we may not understand the brain, neural pathways or causal mechanisms in sufficient depth to effectively prevent problems in certain areas of psychology and psychiatry.

In addition to being aware of when prevention is not appropriate, there is also a need to balance prevention with reactive services, as we may always need the ability to put out fires or mend broken bones.

Equally, we need to be monitoring all prevention – and indeed reactive – interventions, to ensure they are phased out and resource reallocated when the harm has been mitigated, reduced, or removed entirely.⁴⁷

Politics of prevention

“...the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant . . . Over himself, over his body and mind, the individual is sovereign”⁴⁸

John Stuart Mill, 1859

“Simply by selecting a particular issue for investigation, professionals reveal the aspects of society that are important and amenable to beneficial change”⁴⁹

We have already mentioned the differences between universal and targeted prevention, a point we will return to. In addition, there is a political and moral choice to make around the role and right of the state and others to intervene in people's lives. For instance, should the state have the right to legislate that seat belts must be worn in cars when the majority of people will never have a car accident? Should the behaviour of all be affected to help prevent harm for a few?

It is also important to recognise that what is identified as 'harm' or what is regarded as an unacceptable risk will differ between individuals and groups. This can reflect subjective reactions such as public outrage, public indifference to hazards, or when they are magnified or diminished by media coverage.⁵⁰ For instance, the concepts of risk and risk management are prominent in preventative health education and care programmes, despite a view that there is a paradox between the 'estimated magnitude of different risks and the subjective perception and acceptance of these risks'.⁵¹

These differing views of harm can mean preventative strategies could be blocked or resisted by decision makers or by the intended recipients. This is an important consideration when designing and implementing a prevention strategy.

Barriers to implementing a preventative strategy

Despite these considerations, it is clear when prevention could be used it is frequently overlooked. This may not always be because of a lack of willingness, but due to a number of structural and cultural barriers, including:

- **Collaboration and partnership working** – realising the benefits of prevention is often prohibited by organisational boundaries or siloed budgets. Savings often accrue to parts of the system that did not make the initial investment; for example, local authorities may invest in preventative social care services but the savings are realised by the NHS in acute hospital care. Making collaboration work requires that incentives and finance systems are aligned and that organisations work towards shared outcomes.
- **Commissioning prevention** – often the benefits and savings from prevention take time to accrue which makes developing a business case within one or two-year budget planning cycles difficult. Though methods for evidencing the costs and benefits of prevention are becoming more sophisticated, operational processes can remain a barrier.
- **Funding and risk** – different investments will obviously carry different kinds of risks. Even with ‘proven’ programmes like Nurse Family Partnerships which may be a ‘safe’ investment, it can take around five years from when the investment has been made for benefits to accrue. This long timescale may put off certain investors.
- **Financing prevention in the short term** – shifting spending towards prevention can require decommissioning of institutional or more acute provision down-stream. This is particularly the case in a constrained financial context, and can prompt strong political or workforce opposition.
- **Lack of compelling evidence of costs and potential returns** – in the absence of robust data to detail the scale of the problem, potential costs of interventions and likely returns, it can be very difficult to make the case for prevention. A lack of data also makes it difficult to know where to invest to make a real difference.

In addition, investing in prevention raises a number of questions for strategic decision making, such as are we willing to transfer resource from another area if needed? Are we willing to forgo a current service or type of provision in order to do so? Are organisations able and willing to create a culture that is receptive to change? Similarly, prevention within many areas, such as in health, criminal justice, or education, may require individuals to change their lifestyles, incurring a personal cost which must be balanced against their own valuation of what they want for their lives.⁵² For instance, some may view the enjoyment of smoking or drinking with friends as worth potential risks, such as cancer.

Despite these considerations, the potential of prevention is huge. Take the USA for instance, where it has been calculated that half of all disease, injury and premature death is potentially preventable.⁵³ Even a small investment in prevention could help reap great rewards. The next section outlines how a prevention strategy can be developed and implemented to help realise the potential benefits.

PART 2: HOW TO DEVELOP, IMPLEMENT AND MONITOR A PREVENTION STRATEGY

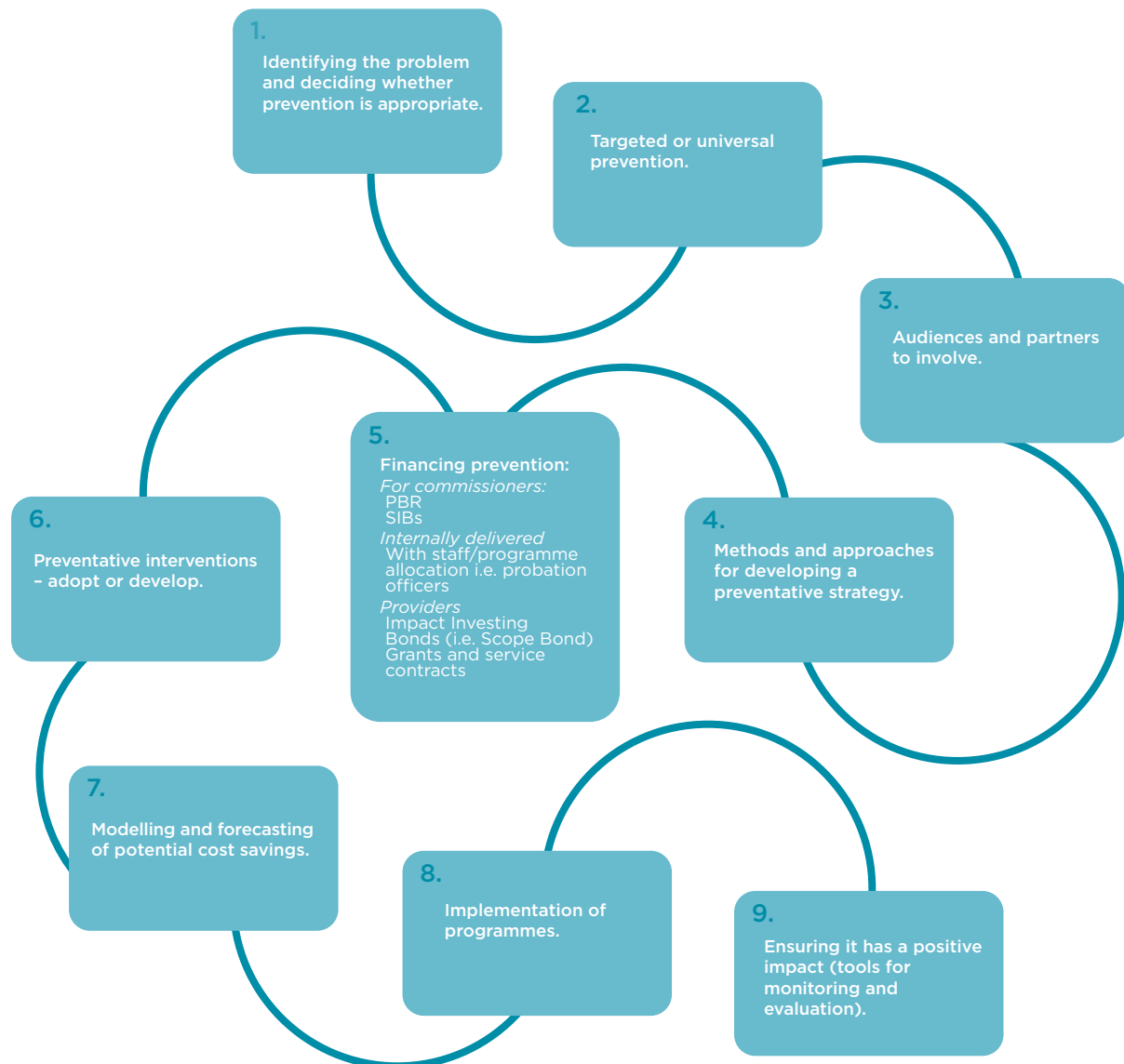
Attention now turns to how to make preventative investment a reality. In this section there are details on the different stages, from understanding the problem, forecasting models and costs, deciding on the interventions, funding, and implementation. Certain aspects appear to be more developed, better evidenced and richer in resources than others. For instance, a lot is known about different preventative programmes, whilst there seems to be little available on their implementation. This section captures what has been collated so far from a rapid evidence review.

We recognise that this section is incomplete. The gaps may indicate areas where we have not found information, or in fact where there may be a real lack of resources, information or tools available. We welcome contributions from others in the area of prevention, both within the UK and elsewhere, to supplement and amend what we've collated so far.

We'd now like to work with others, including policymakers, commissioners, investors, programme developers, service managers, practitioners, researchers and others, to ensure the resources are appropriate and useful for different audiences.

Diagram 1: Stages in developing a prevention strategy

Diagram 1 summarises the decision-making process for developing a preventative strategy. Yet we don't want this to appear formulaic; it would be overly simplistic to assume that prevention can be successfully planned and implemented in a step-by-step fashion. Rather, we want this section to provide information and resources to help prompt and support greater preventative investment.



1. Identifying the problem and deciding whether prevention is appropriate

As outlined in Part 1, prevention strategies can involve policies, services, community-based efforts, individual endeavours, or combinations of these. The first task in shifting to prevention is to understand the issue, and crucially, to recognise it as a problem that can be prevented. Yet as we noted in the first section, how 'harm' is defined and the use of funds to prevent it can be philosophically and politically contentious.

Rather than answering points of ideology or the right and legitimacy to intervene, we instead suggest methods to begin to solicit input, stimulate debate, and help decisions be made about when and where prevention is appropriate.

Starting the debate

The stimulus for action, involving new prompts and insights – as well as the decision to act – can come from a range of sources, including users, funders, government, and a range of others.

Preventing harm and reducing the need for specialist services depends on measuring risks and impairments. The crucial element here is robust data. The old adage of 'you can't manage what you don't measure' is particularly relevant; you can't identify, control or adapt something without having information about it in the first place.

CASE STUDY: DARTINGTON SOCIAL RESEARCH UNIT'S EPIDEMIOLOGICAL TOOL⁵⁴

The Social Research Unit at Dartington has developed an epidemiological tool to measure children's needs. These have been applied to over 100,000 children and young people to date across local authorities and areas in the UK, Ireland and the US: a household-based survey of parents of children aged 0-8, and a school-based survey of children aged 9-18. This tool measures a range of health and development outcomes, broadly covering children's behaviour, emotional well-being, educational skills and attainment, relationships and physical health. In addition, the tools assess a range of risk and protective factors – emergent in their home-life, school and community – that may positively or negatively influence children's outcomes. This can give commissioners the information they need to strategically plan services so they meet the needs of local children, and help ensure that the right evidence-based intervention is targeted at the right child.

Protective and risk factors

A common way of identifying problems and the need to intervene is through looking at the likeliness of a person being at risk. These are commonly known as protective and risk factors. Research has indicated that there are various possible factors that could influence the probability of harm. For instance, in studies of drug and alcohol abuse, environmental factors have been identified as exposure to drugs, media influence or peer pressure, alongside internal factors, such as poor social skills or self-esteem. Protective factors are those which could then reduce or prevent the development of a disorder or harm. For

instance, research into substance abuse amongst young people indicates protective factors include parental monitoring, strong family bonds, success in school, and high self-esteem, amongst others.⁵⁵

CASE STUDY: WHEN PREVENTION IS A VIABLE OPTION IN HEALTH

Preventative investment is most likely to be economically beneficial when:

- Harm is costly now and/or the cost is unsustainable in the longer term (such as the predicted costs of dementia care).
- Effective preventative interventions are available.
- Intervention costs are low.
- Target condition is prevalent.

The size of the 'problem' can be measured in:⁵⁶

- Burden of the problem, such as number of deaths per year or number of injuries.
- Number of life years lost.
- QALY (Quality Life Adjusted Year).⁵⁷
- Economic burden – the cost of illness, treating the illness, and/or the indirect costs, such as lost productivity.
- Value of health lost – there is no universally agreed way of calculating, but two common methods are 1) estimating loss of earnings as a minimum valuation; and 2) basing estimates on amounts awarded by juries of pain and suffering.

Separating harm from normality

Much of the epidemiological work is based on 'counting'. In the earlier example we outlined the eradication of cholera from our waterways in the UK. This was only possible because John Snow managed to locate and count the cases of cholera. Yet it rests on two assumptions. Firstly, that harms can be defined, and crucially, separated from normality.⁵⁸ When in many policy spheres, issues and potential harms can be much less well defined, and even within health this can be complex. For instance the diagnoses of mental health issues does not always fit with neat definition, and often there are many stages to certain conditions, such as 'having dementia' or 'criminal behaviour'. Secondly, this epidemiological approach presumes that data is available and useable in the first place, when far too often this is lacking.

Continuum of risks and a continuum of severity

Epidemiological research, such as that by Leon Feinstein,⁵⁹ provides us with a rich resource to build a picture of where prevention could be successfully implemented. Alongside the need to separate harm from reality, there is an additional question concerning the continuum of risk, particularly, when does 'high risk' become 'not at risk' or 'normal'? In addition the prominence and severity of risk factors vary across the life course. For instance, data analysing drug use in children indicates that the likelihood of drug use is higher during transitional periods, such as during puberty, school transitions, or when parents' divorce.

Predictability and probability of risk

There are numerous statistics that work out the likeliness of certain events, such as the x per cent of the population at risk of dying in a plane crash, of winning the lottery, developing cancer. Yet statistically speaking not all those deemed at risk will encounter the issue.

This raises important questions about ensuring preventative intervention is correctly targeted to ensure it doesn't unnecessarily intervene or affect lives, it has the most benefit and avoids wasting resources, a point we will return to.

WHAT ARE PREDICTABLE BEHAVIOURS? CASE STUDY OF A LINK BETWEEN A LACK OF EMPATHY IN CHILDREN AND ANTISOCIAL TEENAGERS⁶⁰

Research suggests that greater empathy reduces the likelihood of a person demonstrating antisocial behaviour, and vice versa. A recent study found that toddlers who display a lack of empathy are more likely to become antisocial teenagers. Analysing data from almost 1,000 participants in a longitudinal study in Colorado, the relationship between a toddler's concern for others in distress and antisocial behaviour in adolescence was analysed. Through observations of the children and interviews with the mothers, the children were rated as having 'concern for other' when they helped, approach or comforted a person showing signs of distress. Conversely, if the child responded negatively, such as running away, laughing or showing anger or hostility to distress, they were rated as showing 'disregard for others'. The researchers found that those children - both boys and girls - with a disregard for others strongly predicted antisocial behaviour up to age 17.

This indicates that predicting antisocial behaviour in teens might be possible before children even start school. Intervening could therefore have a profound effect on these children's lives as well as diverting the costs of their antisocial behaviour further down the line. As the researchers advocate, "*...early assessment of disregard for others and the development of potential interventions...*" could divert these children from antisocial behavior at an early age.

Decisions to prevent harm made for or by the recipients

The ability to make an informed decision rests on whether there is accessible, robust evidence available to the decision maker. When prevention is done 'to' recipients, such as the introduction of fluoride to waterways, where recipients cannot avoid being affected, then the need for greater information and debate becomes even more important.⁶¹ As we

noted in the first section, there are many contrasting views concerning the legitimacy and justification for intervening in people's lives. The leading prevention researcher Geoffrey Rose (1992) argued that, *"any policy, any kind of social engineering, puts pressure on individuals. How far should they go? Are there guidelines for acceptable interference?"*⁶² He then goes further to argue that it is *"unacceptable to have population intervention without public deliberation"*.⁶³

2. Targeted or universal prevention

All these examples highlight the choices between targeted and whole population approaches. This section outlines the different approaches and the debates surrounding their applicability and use.

It has been argued that when 'risk' is widely diffused throughout the population, then a population strategy is necessary. Whereas, a high-risk strategy, whereby the prevention is targeted at those deemed most at risk or in need, requires a targeted strategy involving the segregation of a minority from a majority deemed normal.

It has been suggested that preventative interventions can then be divided into three categories: primary, secondary and tertiary.^{64, 65}

- **Primary prevention** – also known as universal intervention, applies to a whole population, regardless of their risk status. Rather than focusing specifically on a problem, primary prevention may target one or more risk factors or protective factors. Programmes may be specific, such as schools attempting to prevent obesity through nutritional programmes, or can be applied at a higher, broader level. At this systemic level, prevention initiatives include universal immunisation programmes to prevent specific disease, introduction of seat belts to avoid injury or death in road accidents, reducing smoking campaigns, or HIV/AIDS awareness campaigns.⁶⁶
- **Tertiary prevention** - interventions are specifically targeted at high-risk individuals with detectable signs of illness or symptoms of problem behaviour. Programmes may include early intervention programme for children demonstrating challenging behaviour or children showing signs of developmental delay.⁶⁷
- **Secondary prevention** – also known as selective interventions, focus upon individuals or subgroups of a population that are deemed to be at an increased risk of developing problems as a result of exposure to known risk factors. These risk factors may be characteristics of the individual or the characteristics of schools, families, peer groups or the community environment. The underlying factors may be broad, such as school culture, and/or early in causal pathways, such as prenatal nutrition, but they tend to be relatively specific proximal factors.⁶⁸

Targeted prevention

The case for targeted prevention can be compelling. For instance, if children from impoverished families are struggling in school then we should arguably try and improve their schools. Equally, if poor quality housing impacts upon health, we could concentrate on improving deprived neighbourhoods. Yet it has been argued that there are important caveats, starting with the imperative question of if we target the 'needy' where is the cut off point?⁶⁹

Efficient targeting is crucial. For example it has been predicted that between 20 and 25 per cent of children who receive targeted services do not require them, whilst a significant proportion of children who could benefit from prevention and early intervention to improve their life chances are not getting any help.⁷⁰

Targeted prevention can be the option preferred by governments opposed to the notion of being a 'nanny state', or indeed any other charity or professional who does not wish to seem overtly interventionist or curtailing individual freedoms. In these particular instances it may be favoured to get rid of the 'problem'. A good example of this is the debate around binge drinking. Governments may wish to target the 'problem' drinkers rather than to reduce the mean alcohol consumption across the population. This approach also favours those who want to tackle problems as they appear. It also helps deal with the potentially problematic population approach to alcohol consumption, namely why should those who are unlikely to be harmed by drinking have to endure restricted availability or higher prices.⁷¹

The notion of targeting a few has been questioned. Geoffrey Rose's seminal book introduced into the prevention debate the notion that the mass population approach to prevention has profound implications for other areas beyond health. His interpretation was that the essential determinants of the health of society are thus to be found in its mass characteristics: the deviant minority can only be understood when seen in its societal content, and effective prevention requires changes which involve the population as a whole.⁷²

Rose summarised the potential benefits of targeted and universal population interventions in the table below:

Individual based	Population based	
Identify individuals at high risk; screening	Identify important risk factors for the community (prevalence)	
Intervene only in individuals at high risk	Policy to reduce risk factor irrespective of individual risk	
Risk-benefit balance individually assessed	Risk-benefit balance for whole community	
	Individual intervention	Population intervention
Individuals identified	Yes	No
Potential benefits for individual	Large	Small
Potential benefits for population	Small	Large
Understanding of effects	Good	Poor

Universal prevention

From this table it can be deduced that universal prevention - perhaps unsurprisingly - has a greater impact on the population. However, this does raise a number of issues. Firstly, the difficulty of identifying the complex determinants population distributions with any certainty and the challenges in conducting randomised trials in populations as a contributing factor for the lack of evidence. Secondly, we may not know what shifting the distribution for those at one end does for those at the other. This means that small changes may have large benefits, but also unforeseen disadvantages. Finally, there may be a lack of incentives for individuals. For instance, when large numbers of people are exposed to a disease it may be hard to identify any individuals who have benefitted, but people who are harmed are easily identifiable.⁷³

The Rose theorem is that 'a large number of people exposed to a small risk may generate many more cases than a small number exposed to a high risk'.⁷⁴ This could challenge the rationale for targeted prevention and have a dramatic impact on the ways resources are allocated.

HOW TO CREATE MORE ARTISTS AND SPORT STARS⁷⁵

In his book, *Rose's Strategy of Preventive Medicine*, Geoffrey Rose draws upon research in health to show that in other areas as diverse as improving educational attainment, reducing gambling addiction, or increasing the prevalence of sporting champions, the only way to make gains is to improve the norm.

Taking education as an example, remedial measures may be needed in the short term, but in a study of 46 countries, the countries which showed the greatest improvements in reducing the prevalence of low achievers or increasing the prevalence of high achievers in education were those in which the norms of median scores changed the most.

Rose uses this premise to predict that the likelihood of having more sports champions at the highest levels depends on having higher population norms in that sport through more people being encouraged to participate, rather than policies simply trying to focus efforts on established high achievers.

This could challenge policies which target the extremes of the distribution - either the elite or those at the bottom, when in fact a lasting effect will be more widespread when improvements are made to the population standards as a whole.⁷⁶

3. To develop a common vision: audiences involved in designing and developing preventative programmes

Once harm has been identified as preventable, there may be occasions when a strategy can be developed and delivered by a single individual or entity, yet in many cases it may need to be delivered in partnership.

Those to involve, as partners, users, decision makers, and/or as a source of expertise or other resource, include:

- Policymakers
- Commissioners – local and national
- Investors – philanthropy and social investors
- Academia and other researchers
- Local authorities – commissioners, chief executives etc.
- Programme developers (i.e. charities, companies, social enterprise)
- Engagement with communities, service users etc.
- Service area specific groups/individuals i.e. across health, criminal justice etc.
- Patient and user interest groups

The approaches listed below offer procedures to help service agencies and/or communities to involve stakeholders and develop a preventative strategy.⁷⁷

Outcome-based accountability (also known as Turning the Curve, or results-based accountability)

It is a tool which helps organisations and multipartnership agencies to prioritise the outcomes they want to improve and then help determine the services that are needed. There is a toolkit for putting the approach into action, known as ‘turning the curve’. This involves deciding upon the approach needed to meet the identified outcome and the likely measureable effect. There is also acknowledgement of what would have happened if no intervention happened, with both scenarios plotted on a chart. The chart contains a baseline of historic data and projected trend data using low (L), medium (M) and high (H) forecasts. If effective, decision makers can move away from the project baseline, hence ‘turning the curve’.

- Resources and toolkit: A ‘Turning the Curve toolkit’ has been produced by Hounslow Council and **is available here**.
 - Evaluation of Results Based Accountability: Utting *et al.* (2008) evaluated his approach.
 - Case study examples: Turning the curve stories, published by DCSF in June 2008.
 - Further reading; Friedman, M. (2005) ‘Trying Hard is not Good Enough.’ http://books.google.co.uk/books/about/Trying_Hard_Is_Not_Good_Enough.html?id=onvrGcO353sC
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Communities that Care (CTC)

Communities that Care, is a model for community implementation of a preventative strategy developed by David Hawkins and Richard Catalano from the University of Washington. CTC is a field-tested strategy for activating communities to use prevention research and data to plan and implement community prevention systems, designed to reduce adolescent delinquency and substance use.

Communities That Care has been designed for and proven to work in communities of about 10,000 people and has been tried in a number of UK local authorities, and has been found to be effective at getting neighbourhoods and communities involved in a prevention strategy.⁷⁸ CTC assists decision making through technical tools, assistance and training to identify elevated risk factors and depressed factors faced by youth, and then targeting these needs by developing prevention strategies that have been tested and found to be effective, whilst monitoring the implementation quality of the chosen interventions.⁷⁹ Its ethos is around strengthening the protective factors that can buffer problem behaviours and help promote positive development.

Using the data, the most prominent risk and protective factors can be identified and prioritised for prevention action. This enables communities to select prevention services focussed on specific geographic areas displaying the highest risk factors. Based upon local epidemiological data on risk, protection and outcomes, CTC enables the community to be empowered to select the interventions that are most appropriate for them.

The focus of Communities that Care is primary prevention to reduce and prevent the onset of four areas of 'problem behaviour' among young people:

- School age pregnancy
- School failure
- Drug and alcohol misuse
- Youth crime and antisocial behaviour

CTC is manualised and has training and tools, and technical assistance to help ensure successful implementation. It has been claimed that the approach is being applied in the UK, Australia, Netherlands and in around 600 US communities.⁸⁰

Process evaluations of CTC indicate that it can assist communities to develop more effective prevention strategies.⁸¹

Evaluations

RCT evaluation of Communities That Care

Fagan *et al.* (2011)⁸² analysed the extent to which the use of Communities That Care (CTC) prevention system increased the adoption and effective implementation of tested, effective programmes in a randomised controlled trial (RCT) involving 24 communities. After four years of initiating CTC prevention system they found that there was increased use of tested, effective prevention programmes in the 12 CTC intervention communities.

Evaluation of three Communities that Care projects in the UK

This evaluation was published in 2006 and examined the first three projects established in England and Wales. The study found that two of the projects were not implemented

as intended. The one that was implemented showed indications of having had a positive impact on the factors associated with problem behaviour for children living in the CTC area, compared with children from the same schools who did not live in the area. The research raises important issues about the implementation of community-based programmes based on a risk factor model, and the lessons to be learned from initiatives that focus on preventing the development of problem behaviour by early intervention with children.⁸³

Further details on Communities The Care:

- Hawkins *et al.* discuss the implementation and evaluation of the CTC system.⁸⁴
- Joseph Rowntree Foundation funded a Communities that Care programme in the UK during the 1990s, a discussion and evaluation of this is available here.⁸⁵
- A short history of CTC by the Cabinet Office.⁸⁶

Common Language Approach, developed by Dartington Social Research Unit

Drawing upon 'logic modelling', the common language approach aims to introduce a new way of thinking to help reduce impairment and problems in children's health and development through empowering leaders from local public service agencies to develop prevention-based strategies

The Common Language operating system has five stages:

1. **Strategy development** – setting out in broad terms the desired outcomes to be achieved and how they will be achieved.
2. **Service design** – entails specifying the nature of the services to be implemented as part of the strategy.
3. **Detailed manual** – for each stage of the service design a detailed manual is prepared to set out exactly what will be delivered and how.
4. **Implementation stage** – alongside the manual that outlines delivery, there will be support in the form of training and technical assistance to ensure quality and fidelity of service delivery.
5. **Evaluation** – the service is evaluated for its impact, implementation and cost-effectiveness.

In contrast to the CTC approach detailed above, Common Language has mainly been applied to bring system leaders together, including directors of education, health, social care and police agencies, and others who are directly accountable for resources that the public sector brings to the prevention strategy.

The Common Language approach is currently being used in Ireland. Atlantic Philanthropies invested \$200 million in the Republic of Ireland and Northern Ireland in what became known as the Disadvantage Children and Youth Programme (DCYP) with the Common Language system used to develop and structure the investment. The goal of the programme is to secure demonstrable gains in education attainment, children's health and sense of belonging in the communities where they live over a ten-year period.^{87,88}

Evaluation of the Common Language approach

The Common Language Operating System has not been evaluated formally in terms of its capacity to encourage evidence-based practice and improve child outcomes, although it is hoped that a rigorous study of process and impact will be undertaken.⁸⁹

Further information about the Common Language approach

- For details about the Common Language approach and how to implement see Axford, N. and Morpeth, L. (2011) 'The Common Language service development method: from strategy development to implementation of evidence-based practice.'⁹⁰

Evidence2Success

Developed by Dartington Social Research Unit, Evidence2Success is a hybrid of the Common Language approach and Communities That Care (CTC), getting community leaders to share financial accountability for system pounds and dollars. As with CTC and Common Language, there is a commitment to outcomes. Evidence2Success has a particular focus upon the question of expenditure, providing options for the assembled parties about how funds can be realised and re-directed towards prevention.

Evidence2Success begins with buy-in of a local authority chief executive, elected members and local leaders of social care, health and youth justice. A board is then formed, comprised of these 'system leaders' and members of the community. They share responsibility for child and family outcomes, and the policies and programmes to achieve these.

The core components of Evidence2Success are:

- Helping system leaders to understand that communities are part of the solution to poor child development and school performance.
- Re-engineering local investments to allow community members to decide priorities and optimal interventions.
- Making available high quality data on the well-being of the children and young people from birth through to 24 years.
- Making available data on what works, at what cost and with what financial benefits.

Evidence2Success is designed for communities of about 10,000 people in cities with a population of 100,000 or more.

- There do not appear to be any evaluations of this approach.

Further details:

- See Evidence2Success project pages on the Dartington website.⁹¹

PROSPER (PROmoting School-community-university Partnerships to Enhance Resilience)

PROSPER⁹² is a method for building a partnership of key stakeholders to achieve the high quality and sustained implementation of universal programmes scientifically proven to prevent and reduce adolescent problem behaviour such as drinking, smoking and drugs

use. The stakeholders can include university researchers, community teams, young people and parents.⁹³

It is a system aimed at broad implementation of evidence-based programmes to support youth development and reduce early-stance use. Underlying the model is infrastructure to support local ownership and capacity building, alongside leadership and institutional support.

A longitudinal study of 28 communities found that PROSPER can effectively mobilise community prevention efforts, implement prevention programmes with quality and consequently, help to decrease youth substance abuse.⁹⁴

Further details on PROSPER

For further details see Spoth, R.L. and Greenberg, M.T (2005) Towards a comprehensive strategy for effective practitioner-scientist partnerships and larger scale community health and wellbeing. 'American Journal of Community Psychology.' Vol. 35, no. 3-4, pp. 107-126.

Getting to outcomes

Developed by the RAND Corporation, Getting to Outcomes presents a ten-step process that aims to enhance practitioners' prevention skills to plan, implement, and evaluate their own programmes. The manual is aimed at public service agencies, schools, or community coalitions interested in improving the quality of their programmes aimed at preventing or reducing drug and tobacco use among youth.

The manual's text and worksheets—organised as ten accountability questions—address: needs and resources assessment; goals and objectives; choosing best practice programmes; ensuring programme 'fit;' capacity, planning, process, and outcome evaluation; continuous quality improvement, and sustainability. The model presented in this manual is meant to be a 'best practice process'—prescriptive, yet flexible enough to facilitate any prevention programme. Although originally aimed at preventing youth drug and tobacco use, it may also be useful for prevention efforts targeted at other youth behaviour problems such as crime, teen pregnancy, or delinquency.

Further details

- See Chinman, M., Imm, P. and Wandersman, A. (2004) 'Getting to Outcomes 2004: Promoting accountability through methods and tools for planning, implementation and evaluation.' RAND Corporation, USA.

Points to note:

It is difficult to ascertain the comparative strengths and weaknesses of these methods, the available resources that can support their use, and an understanding of where and when they are most appropriate.

The success of these models also depends upon the culture of the organisation being willing and open to new ways of working. The challenges of implementation are returned to later.

4. Financing prevention

Attention now turns to how to fund and resource prevention. This section provides different approaches for commissioners, when prevention is being internally delivered, or for providers.

The financing of prevention depends on three key questions:⁹⁵

1. Is it possible for government to afford to invest in prevention services from their existing portfolio of activities?
2. What level of risk is there that the expected outcomes won't materialise?
3. How long will it take to realise financial returns?

For commissioners and public service delivery organisations.

Reinvestment strategy

In some instances, the resource needs may be secured through retraining or relocation of staff or through the decommissioning of existing services to free up resource.

In other cases there may be a need to leverage resource externally; a couple of mechanisms are listed here.

Examples of this include Dartington's work with local authorities in Gloucestershire, Sandwell and Warwickshire to develop and implement a new strategy that aims to safely reduce the size of the care population and support the re-direction of money into interventions that support a greater number of children to stay safely in their community.⁹⁶ There can be numerous practical barriers to enabling reinvestment to happen, for instance in the case of prisons it can be politically contentious to alter its perceived approach to crime (for a discussion of the challenges in decommissioning see *The Art of Exit*⁹⁷). In addition, siloed budgets mean that benefits of the investment may accrue elsewhere.

Payment by Results (PBR)

There are many different models of PBR but in essence they rely on the state paying for improvements in outcomes, rather than for 'input' services. Within PBR contracts, government agencies pay providers according to the levels of improvements in outcomes they achieve. PBR contracts may be most appropriate when there are greater levels of risk or uncertainty that the anticipated outcomes won't be achieved.

The fact that payments for services are not guaranteed and are dependent on outcomes being achieved down the line means that some PBR models can be relatively high risk for investors and for the organisations delivering them. Organisations delivering PBR contracts, especially where their revenue model is largely dependent on PBR, also need access to greater amounts of working capital than may be the case in other types of contracts. This need for working capital can lead to a need for investment.

PBR contracts necessitate a focus on how outcomes are defined and measured (and the debate on defining and measuring social impact predates the social investment market⁹⁸). PBR will only be appropriate where outcomes are measurable and attributable. If past performance data is available on how likely it is that outcomes will be achieved (e.g.

Flexible New Deal performance data was used when setting up the Work Programme), it also enables a better calculation of risk. Much work is now needed on how best to evidence impact, causality, attribution and how best to track individuals as they move through a system.

Social Impact Bonds (SIBs)

Social Impact Bonds (SIBs) are a new financial instrument that can act as a mechanism to enable the funding of PBR contracts, and may be particularly useful when the service providers are unable or unwilling to take on the risks themselves. With SIBs, investors take on the risks of the outcomes not being achieved within the structure of the PBR contract. They may be a useful mechanism to use when investment is needed to tackle entrenched social challenges through preventative action,⁹⁹ and where investment is required to pay for new preventative services before previous services have been decommissioned. They may also be appropriate where a social outcome requires a complex supply chain of interventions delivered by more than one provider. This is the case with the Peterborough SIB where a single flow of revenue is going to lots of organisations and the SIB acts as a mechanism to need contract manage it.¹⁰⁰

There are big issues in the design and delivery of SIBs, for instance around the complexity of identifying the savings from which gains will be paid. *The Gershon Review* in 2004 divided efficiencies into two types: cashable and non-cashable savings. The former involved reducing the level of resources required to achieve a given outcome; the latter means improving outcomes for a given level of resource.¹⁰¹ SIBs can be particularly useful in addressing challenges where the costs and benefits are distributed across different public service organisations. However, that can mean that it can be very hard to actually cash the savings. It is also hard to create cashable savings where having less people in a hospital ward, or in prison may not lead to a cash saving, as the ward or prison remains open. This is why the Cabinet Office is looking at creating the outcomes finance fund to make sure that cash is available to pay the reward.

Some have argued that a focus on 'cashable savings' restricts the potential benefits to the commissioning organisation (that may be in a non-cashable form) and does not take into account wider benefits e.g. that may accrue to other government departments or agencies than the commissioning agency itself. Some argue that this limits the price the commissioner is willing to pay and makes it impossible to design PBR contracts that are attractive to investors as well as to commissioners,¹⁰² in some cases a value for money approach may be more appropriate than a focus on cashable savings.

Further information

Social Finance has produced a technical guide for commissioners to aid with the setting up of further SIBs.¹⁰³ This will enable commissioners to think about where a SIB is an appropriate financial mechanism, what the outcomes should be, who should deliver them and how they should be measured.

Providers

There are a number of avenues available for charities or social enterprise developing preventative programmes, these include:

- Bonds (i.e. Scope)
- Impact Investing
- Grants and philanthropy
- Service contracts

Further questions to explore:

- Which financial mechanisms are most appropriate in different contexts?
- How can budgets be more effectively linked up? For instance, in case of public expenditure, how can there be allowance for benefits accruing to a department or agency who didn't fund the original strategy?

5. Preventative interventions – adopt or develop

This section outlines how to develop or select appropriate interventions to form a preventative strategy, spanning policy, programmes and practices.

There is a growing body of randomised preventative trials which evaluate efficacy (the impact under ideal conditions) or effectiveness (the impact under conditions that are likely to occur in real-world implementation) or specific interventions through testing in particular contexts.¹⁰⁴

Evidence-based programmes

Rigorous evidence is vital to help identify the most effective prevention strategies for the problems to be tackled. In recent years there has been a lot of interest in evidence-based programmes, approaches which have been rigorously evaluated.

There is a choice to be made between adopting and replicating well-evidenced interventions that have successfully achieved impact elsewhere and investing in the development and trialling of new approaches.

There are numerous clearing houses which list different programmes, how they operate, what outcomes they aim to improve, and available evidence of effectiveness and in some instances, their associated costs to implement.

The table below details a number of the clearing houses and databases of evidence-based programmes:

<p>Best Evidence Encyclopaedia</p>	<p>A free web site created by the John Hopkins University School of Education's Centers intended to give educators and researchers fair and useful information about the strength of the evidence supporting a variety of programmes available for students in grades K-12.</p>
<p>Blueprints for Violence Prevention</p>	<p>The Blueprints mission is to identify truly outstanding violence and drug prevention programmes that meet a high scientific standard of effectiveness.</p> <p>Blueprints have evaluated over 900 programmes. Each programme is evaluated by Blueprints then by an independent advisory board.</p>
<p>Campbell Collaboration</p>	<p>Provides statistical meta-analyses, otherwise known as systematic reviews, on education, criminal justice, health, and social welfare interventions.</p>
<p>Cochrane Collaboration</p>	<p>Produce systematic reviews. They are a network of more than 28,000 people who work together to promote the best available research evidence to healthcare providers.</p>
<p>Early Intervention Foundation</p>	<p>It is currently being tendered for. The brief stipulates that it will a) provide advice and support to local commissioners on evidence, social finance and payment by results relating to early intervention to assist their own procurement and evaluation, and b) build the evidence base on what works in early intervention in the UK.</p>
<p>RAND Corporation's Promising Practices Network</p>	<p>The PPN is a group of individuals and organisations who are dedicated to providing quality evidence-based information about what works to improve the lives of children, families, and communities.</p>
<p>Social Research Unit Investing in Children <i>Due Autumn 2012, details available¹⁰⁵</i></p>	<p>Based on the WSIPP model, SRU are producing freely available software that can be used to assist local and central purchasers of public sector services to calculate the costs and benefits of competing options.</p>
<p>Social Research Unit's Blueprints for Europe database</p>	<p>The Unit is working with the University of Colorado on the Blueprints database of evidence-based programmes, with a particular focus on programmes developed in Europe and reaching a European audience.</p>

US Government Department of Education's What Works Clearinghouse	An initiative of the U.S. Department of Education's Institute of Education Sciences (IES), the What Works Clearinghouse (WWC) was created in 2002 to be a central and trusted source of scientific evidence for what works in education. This website delivers information from our reviews through the 'Find What Works' tool, pulling findings from multiple reports, and a searchable database of research studies that have been reviewed.
Washington State Institute for Public Policy (WSIPP)	They produce <i>Which?</i> style consumer reports that list different programme options.
Top Tier Evidence Initiative	A validated resource used by Congressional and Executive Branch officials to identify social programme models ('interventions') that meet top tier evidence standards, defined in legislative provisions: " <i>well-designed randomized controlled trials [showing] sizable, sustained effects on important... outcomes</i> ".
Centre for Excellence and Outcomes in Children and Young Peoples Services (C4EO)	Provides a range of products and services to improve outcomes in children's services.
Research in Practice	A network of children's services practitioners that share knowledge and insights. The website contains a number of resources aiming to improve practice.

As shown in the sources listed above, there is a lot known about what is – and what isn't – effective. Yet programmes are not 'off the shelf' solutions, there are complexities that surround their implementation and use, something we return to. In addition, it is rare for there to be a single programme involved; preventative strategies typically comprise multiple interventions spanning multiple policy spheres, from health, crime, education and so on. In addition this means there is sometimes the need to develop a new approach or to implement a portfolio of approaches. In these instances the following programmes listed can provide a useful prompt for prototyping and experimenting.

Although these websites can provide a rich resource, in certain cases the academic research is based on US trials,¹⁰⁶ coupled with a lack of pilots that have tested the transferability of interventions to other locations, means that care needs to be taken when generalising about impacts at a national level.¹⁰⁷

In addition, there are a large number of programmes which may have the potential to dramatically improve outcomes, but they are at an earlier stage of development or have not yet been identified. It can require decades of longitudinal follow up in order for a programme to be designated as evidence-based. This means we need constant development and evidence gathering to ensure what is deemed to be working now, continues to be fit for purpose in the future.

The following table compares three implementation approaches:

Model	Advantages	Disadvantages
Implementation of an existing evidence-based programme	<p>High programme fidelity</p> <p>Relatively high likelihood of achieving intended impact</p> <p>Known resources and requirements for effective implementation</p> <p>Likely continued funding under federal and state-supported evidence-based prevention</p>	<p>Programme may not fit community needs, strengths or capacities</p> <p>Real-world implementation may differ dramatically from the way originally tested</p> <p>Lack of ownership in the programme</p> <p>Few evidence-based programmes have the capacity to provide technical assistance and training</p> <p>An evidence-based programme may not target outcomes relevant to community</p>
Adaptation of an existing programme to meet community needs	<p>Ownership and high support from community and potentially high adoption</p> <p>Programme more relevant to ethnic, racial or linguistic characteristics of community</p> <p>Reasonably likely to achieve impact</p>	<p>Key programme components may be modified, thereby reducing outcomes</p> <p>Essential programme components not always evident</p>
Community-driven implementation	<p>Can develop high community acceptance and ownership</p> <p>Potential for broader implementation across different organisations and institutions within the community</p> <p>Opportunity to empirically evaluate the outcomes of programmes accepted by the community and use quality improvement methods to enhance outcomes over time</p>	<p>Lengthy period to develop, community awareness, common vision and programme</p> <p>Potential for ineffectiveness or iatrogenic effects</p> <p>Challenge in obtaining funding for sustaining a unique programme</p>

Source: National Research Council and Institute of Medicine of the National Academies¹⁰⁸

Practices and policies

Alongside programmes, there are also changes to practice. For instance, the changes and additions teachers and psychologists, social workers and others, can make to their ways of working, such as motivational interviewing or Cognitive Behavioural Therapy (CBT).¹⁰⁹

Effective practices and how to stimulate their uptake has received much less attention than programmes and policies.

There are then policies, which may involve legislation to ban cigarette advertising or changing the law on seat belts.

6. Modelling and forecasting of potential cost savings

This section begins to introduce how the available data can be analysed to calculate the value of achieving improvements in outcomes, centred on the potential cost savings and how long it will take for these to be realised.

Some interventions may have a positive impact upon outcomes, but save little money for the state. Other interventions may reap great rewards. There are numerous ways of calculating this. The text box outlines methods commonly used in health.

In addition to those in the text box there is a type of economic evaluation approach called social return on investment (SROI). This involves an organisation putting a financial 'proxy' on the value of the impacts generated from its work. For instance, SROI could involve putting a monetary cost on a child not going into foster care following the organisation's intervention. SROI can be useful in helping organisations think through its societal value, but may not be as robust a method for working out how an intervention may save the state or benefit individuals compared to those in the text box.

COMMON TYPES OF ECONOMIC EVALUATION IN HEALTH RESEARCH

1. Cost analysis (CA) computes the net cost of an intervention by subtracting the cost of treating an illness from the cost of preventing it. An intervention is said to be cost-saving when its net cost is negative. CAs do not assess the benefits of the intervention, however, and therefore are not strictly economic evaluations.
2. Cost-benefit analysis (CBA) typically compares the cost of an intervention to the expected or actual improvements in health as valued in dollars. CBAs can also adopt a broader societal perspective to capture benefits beyond health. Results are often presented in terms of a benefit-to-cost ratio (i.e. dollar value of health and/or social improvement divided by cost of prevention). Benefit-to-cost ratios greater than one suggest that the intervention of interest offers value-for-money. In practice, however, the assignment of dollar value to various health and social gains, including the value of life itself, presents a number of challenges (including that of public acceptability).
3. Cost-effectiveness analysis (CEA) compares interventions in terms of the net cost required to achieve a natural unit of health improvement, such as life year gained or case of illness avoided. CEA calculations are typically expressed in terms of an incremental cost-effectiveness ratio (ICER) (e.g. cost/death averted), informative, ICERs are compared either against the ratio of another intervention option (e.g. the next best alternative, standard practice, no intervention etc.) or an arbitrary threshold below which interventions are considered reasonably cost-effective. A common rule of thumb in North American research practice is to set this latter benchmark at US\$50,000 - \$100,000/QALY.

4. Cost-utility analysis (CUA) is a sub-type of CEA for which the unit of health improvement achieved is a utility-weighted health metric, such as a quality-adjusted life year (QALY). The primary benefit of CUAs is that they facilitate the direct comparison of two or more interventions, even across disparate issues whose natural units of health differ from one another

Source: Taken from Public Health Agency of Canada (2009)¹¹⁰

The methods outlined in the text box are not just used in health. Cost-effectiveness analysis and cost-benefit analysis are commonly used in other areas, such as criminal justice or children's services.¹¹¹

The rigour of cost-benefit analysis depends upon three factors:¹¹²

1. The rigour of the evidence linking intervention an improved outcome.
2. The accuracy of the cost data for the intervention itself.
3. The robustness of the methodology linking improvement in effect sizes to financial savings over the long term.

Cost effectiveness and saving money

'Saving money' and 'cost effective' are two concepts commonly confused. In health, for instance, although many services save money, such as by averting medical costs in the future, only certain interventions, such as childhood vaccines, save enough in later medical costs to completely offset the initial investment. In this instance the intervention would meet the more stringent definition of cost saving.¹¹³

A 'cost-effective' policy is one which *"requires few resources to achieve benefits compared to other interventions, but does not necessarily produce net savings"*. For example, some breast cancer screenings save money later as it's cheaper to treat cancers detected at an earlier stage. However, many individuals are screened to detect early-stage cancer which means the net cost of screening is positive. At the present time with the technologies available, this means that screening average risk individuals is cost effective, but not cost saving, for breast, colorectal and cervical cancers.¹¹⁴

Estimating wider applicability

It has been recognised that programme developers and commissioners can be overly optimistic about cost savings. To account for this, in assessing business cases for a Community Budgets pilot, a cross-Whitehall group of economists, suggested that uncorroborated expert judgement should be corrected by a factor of 40 per cent or more; with more 'formal' data should be corrected by up to 5 per cent.¹¹⁵

Potential limitations

- Taken together these data can make a compelling case for preventative investment. Yet their limitations should be noted. These limitations include:

- Whether the supposed outcomes are met will depend upon the quality and success of implementation, a point we will return to.
- It may be difficult to achieve these outcomes at scale or with a different set of users, providers or implementers.
- Even the most robust data is theoretical.
- To realise the benefits, there will need to be cash realisation strategies in place. For instance, reducing the number of prisoners in a jail will only result in cash savings if the beds can be decommissioned.

Not just new interventions

It should be noted that a preventative strategy may mean the introduction of a new programme, but equally there may be a need to take away a service.¹¹⁶

DISCOUNT RATES

With the assessment of value comes the need to choose discount rates.

When predicting commercial returns on investment (ROI), the corporate sector use discount rates to account for the assumption that a given amount of money will be worth less in the future than it is in the present. Many current measures of social value, such as Social Return on Investment (SROI) also use commercial discount rates. Yet the use of commercial discount rates by social organisations and governments has been questioned, particularly as these rates devalue the future. In addition, it has been claimed that greater weight should be given to the interests of future generations than to commercial markets.

In health, many analysts apply a very low, or even a zero, discount rate, based on the view that future generations should be disadvantaged relative to older ones. Whilst in other areas, such as education or defence technologies, it has been argued that governments tend to ignore discount rates when investing in these fields. In other areas, such as climate change, debates continue about what discount rates to apply. Again, this is due in part to the moral argument about how to balance and weigh the needs of the current generation against that of future generations. All reflecting that social value is not objective fact.

Source: Adapted from Mulgan, G. (2010) *Measuring Social Value*. 'Stanford Social Innovation Review'.¹¹⁷

Further work needed:

This area appears particularly weak with limited information and resources available on prediction and forecasting.

7. Implementation of intervention

“Scale is not the outcome. Impact at scale is the outcome”¹¹⁸

Once the interventions have been decided upon, they will then need to be implemented, introducing changes in practice, organisational culture, and issues of replication, adaption and fidelity to ensure they fit the local conditions, whilst ensuring the key success factors are retained.

The scale of the strategy is dependent upon the points raised in the earlier section around how targeted it is. With inoculations for instance, prevention begins to fall when vaccination rates fall below a specified threshold.

Implementation of existing programmes

With adoption comes the need to deliver a programme with high fidelity to the original model, typically requiring standardised curricula, manuals, or training from certified practitioners.

Data from the US shows an increase in the adoption of effective prevention programmes in schools, helped by the introduction of No Child Left Behind and Drug Free Schools legislation. However, it has been found that implementation practice can often lack fidelity to the original model. Schools and other local agencies often fail to use programme materials, ensure staff are well prepared and enthusiastic about the new approach, or monitor and evaluate the new intervention.¹¹⁹ There are few large-scale studies to examine the impact of programme deviations, but these changes are regarded as detrimental to potential successes. Not adhering to the original programme can greatly jeopardise the likelihood of success.

GOOD IMPLEMENTATION

Those interested in reading more about implementation will find helpful guidance in the following three sources:

The National Implementation Research Network, based at the University of South Florida and directed by Dean Fixsen and Karen Blase have undertaken several reviews of the literature, organised an international conference dedicated to the question of implementation and provide advice on how to optimise the delivery of innovation. www.nirn.fpg.unc.edu

The Social Research Unit at Dartington, convened two major conferences on behalf of the Bill and Melinda Gates Foundation examining how to overcome the challenges of scaling impact on global child health. Two syntheses of the convenings, plus a dynamic publication that summarises their take on How to Scale can be downloaded from www.dartington.org.uk/scalingimpact.

Deborah Gbate and Jane Lewis have established the Colebrook Centre specifically to examine the evidence on implementation, and there are many useful resources on their website <http://www.cevi.org.uk>

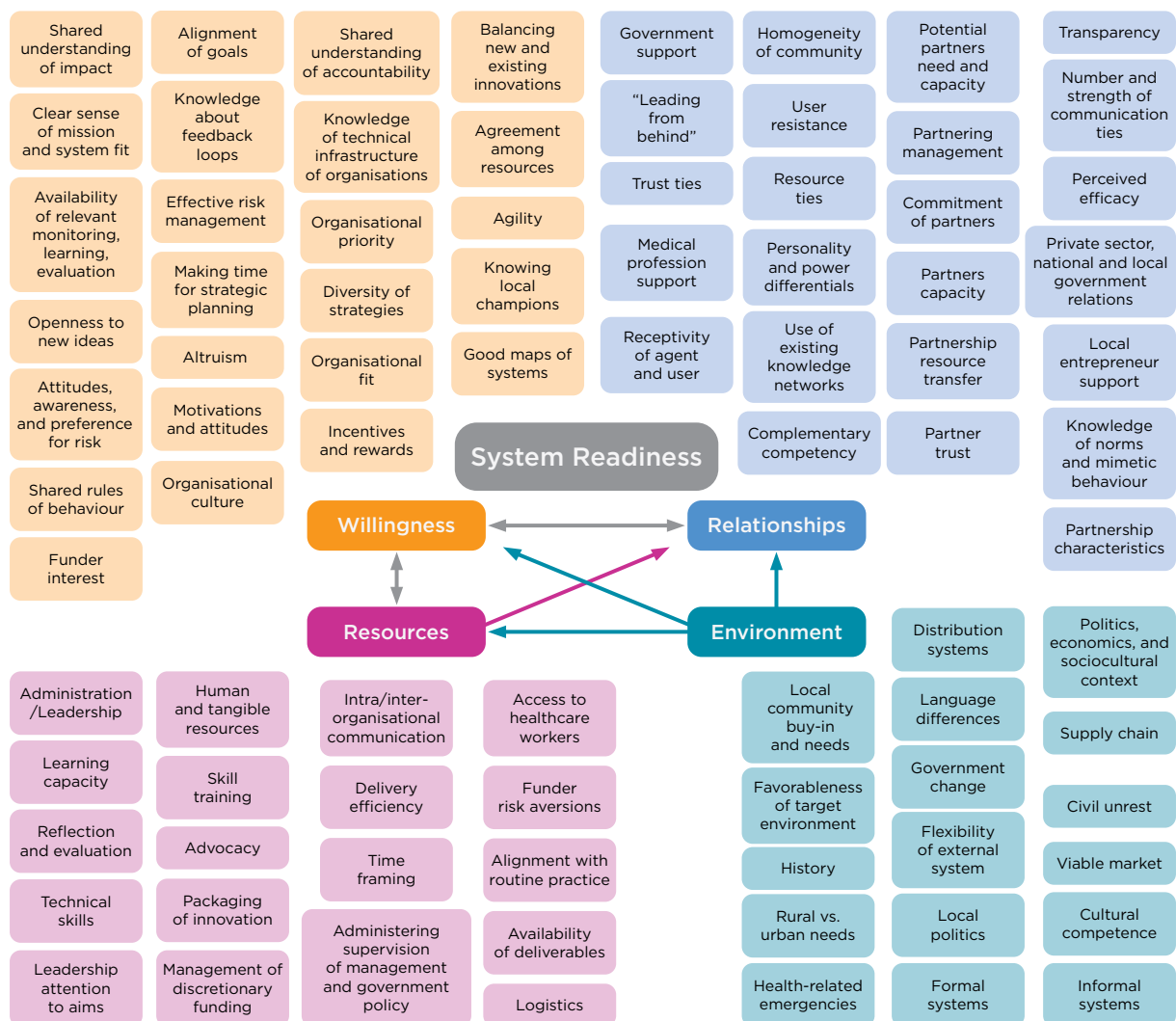
Growing a preventative strategy

How to scale and grow is a much debated topic.

One model which was developed in health could be applied in other spheres is the System Readiness to Deliver Health Innovations at Scale (READI model).¹²⁰ Jim Dearing developed the READI model after analysing over 12,000 publications before systematically reviewing 200, alongside examining 30 aid decisions and interviewing 100 experts. This model outlines the four components that are needed to ensure an innovation is ready to be diffused and scaled.

1. **Resources** – including tangible, such as staff, money, infrastructure, and intangible, such as leadership and experience.
2. **Relationships:** close ties between the relevant partners, which could include governments, hospitals and foundations.
3. **Motivation:** in psychological terms, the willingness and commitment to the goals.
4. **Contextual environment:** forces including politics, economics, social or technological that can hinder or help an organisation or initiative’s ability to diffuse and scale.

This is summarised diagrammatically below:



8. Ensuring it has a positive impact (tools for monitoring and evaluation)

This section will outline the tools available for monitoring the strategy and for structuring a formal evaluation.

The effectiveness of an intervention is “*the extent to which the problem is reduced or the amount of improvement results*”.¹²¹ It can be measured in:¹²²

- Percentage terms, such as size of problem reduced (i.e. reduction in cases of disease)
- Life years saved
- QALYs saved
- Cost of illness prevented (also called cost offset or cost savings)

Potential models for monitoring implementation of interventions and programmes:

research examining programme adoption and fidelity to the original model has involved phone or mail surveys with providers, and observations of delivery. Alternative, more ‘objective’ methods, such as videotaped or live observations may be preferential but these can be expensive and also impact upon the setting of the intervention.¹²³

Avoid contamination from other prevention initiatives: practitioners and researchers have been cautioned against assuming that there are ‘pure’ controls sites when evaluating using RCTs, and instead it has been emphasised that the exposure participants have to all prevention services need taking into consideration.¹²⁴ However, there are few models to help enable this.¹²⁵

There are numerous stages in evaluating a programme or initiative¹²⁶

1. **Efficacy evaluation** – refers to the beneficial effects of the intervention when tested in relatively ideal conditions, usually by well trained and resource personnel.
2. **Effectiveness evaluation** – the efficacy evaluation needs to be supplemented with evidence from ‘real world’ contexts, including those involving the target populations. This also helps understand issues of implementation, including fidelity to the original programme model, transportability and fit within different communities or socio-cultural contexts.
3. **Dissemination evaluation** – this focuses upon how to effectively spread the programme and promote its widespread adoption within other settings or within larger populations.

Further information and resources for evaluation

The Prevention Science & Methodology Group (PSMG)

A network of prevention scientists and methodologists who create publications, statistical software and training materials to enable the effective implementation of preventative programmes, particularly those focusing on mental health and substance abuse. For further information: <http://www.psmg.usf.edu>

Statistical software:

Power Calculations for Sample Size Determination – **available here**

Training and information videos:

- What are the important design elements of a preventative field trial? (20 minutes), C. Hendricks Brown, Director of PSMG and Professor, University of South Florida - **available here**
- Growth modelling for preventative trials. (10 minutes), Bengt Muthen, Professor of UCLA - **available here**
- Preventative and treatment of conduct disorders (1 hour), John Reid, Director, and Patti Chamberlain, Oregon Social Learning Center - **available here**
- The International Registry of Preventative Trials, a project of the society for prevention research. (10 minutes), C. Hendricks Brown, Director of PSMG and Professor, University of South Florida - **available here**

CONCLUDING REMARKS

We hope policymakers, practitioners, providers and others have found the resources included in this paper useful. As we said at the beginning, we hope this document will be a live set of resources that can be added to over time.

We would greatly value comments on what we have proposed, to help move the prevention debate forward, enabling the benefits of prevention to be effectively realised.

PART 3:

FURTHER RESOURCES AND ADDITIONAL INFORMATION

This section provides further case studies of preventative strategies, key organisations and initiatives developed to promote prevention, as well as additional resources and information.

Preventative Investment case studies

In addition to those mentioned previously, here are further examples of preventative strategies from the UK and elsewhere:

- **Nottingham ‘Early Intervention City’** – the examples so far have focused on particular areas of public service delivery, but it is important to ensure synergy between delivery agencies. One such example is the Early Intervention City programme, currently being piloted in Nottingham. ‘Intervention Cities’ were inspired by a scheme in Denver, Colorado, where intervention, whilst expensive, saved \$17 in dealing with crime and benefits in the long term for every \$1 spent.¹²⁷ In a bid to tackle intergenerational cycles of deprivation and complex social problems, Nottingham City Council launched an experiment to become the UK’s first ‘early intervention city’. Tired of failing strategies that intervene later, projects spanning drugs, crime, children and early years, health and well-being have been devised.¹²⁸
 - **North Karelia Project** – launched in 1972 at a time when Finland had a high Coronary Heart Disease (CHD) rate and life expectancy was amongst the lowest in the OECD. The Finnish government launched a major initiative to understand the barriers to healthy lifestyles and devolved responsibility for acting on them to communities themselves. The approach had a significant reduction on health expenditure with lung cancer rates down by 70 per cent and CHD rates reduced by 70 per cent.¹²⁹ The methodology of the North Karelia project has acted as a major demonstration programme for national and international interventions.¹³⁰
 - **Justice Reinvestment** – Between 1985 and 2005, the prison population in Texas grew by 300 per cent, costing the state over \$2 billion in constructing new beds. In 2007, when forecasters predicted prison numbers to grow by another 14,000,¹³¹ Texas rejected plans to spend \$0.5 billion on a new prison in favour of Justice Reinvestment, a programme developed in the USA which seeks to reduce prison populations by tackling the root causes of crime. The aim of Justice Reinvestment is to redirect money from prison towards addressing resettlement needs of prisoners, whilst also improving the conditions of the most affect communities in the hope of preventing initial offending.¹³² Following this approach, Texas redirected half of the money earmarked for the new prison on expanding residential and out-patient treatment centres for mental health, substance misuse and post-prison support. The cost of treatment was significantly less than the cost of the prison. Justice Reinvestment reduces parole revocations by 25 per cent and the prison population increase was 90 per cent less than predicted. Texas estimated savings of \$210.5 million in 2008/9 and additional savings from averted prison construction of \$233 million.¹³³
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- Brighter Futures programme:** Developed through the multi-agency Children’s Trust in 2008. Dartington facilitated the involvement of 35 chief executive officers and around 300 managers and practitioners over a six month period to feed into the strategy. The programme had four broad aims of improving outcomes for children, young people and their families, improving services, planning for demographic pressures on services and to ensure affordability in the context of reduced public expenditure. The BF programme has three major sub-programmes, involving a pilot to design, test and evaluate new evidence-based programmes; to develop the organisational skills needed in the workforce; and finally, improving working practices, such as through modernised IT systems. The finance for the programme came from Prudential Borrowing, in line with all council transformation programmes, in addition use was made of school balances from the direct school grant. There were four EPB programmes selected, FNP could address all six outcome areas, PATHs to address social literacy, Incredible Years for behaviour, and Triple P (6/7) and Teen Triple P to address emotional wellbeing outcomes.¹³⁴

Key organisations and initiatives

Name	Area of focus	Location	Summary	Resources
ACEVO Prevention Task Force	Financial and demographic issues in health and social care	UK	An expert taskforce to consider how a ‘prevention revolution’ could be achieved in health and care, in order to improve outcomes for people and help to meet the financial and demographic challenges facing the NHS.	Due to report in autumn 2012
Arizona State University Centre for Violence Prevention and Community Safety	Families and children in high stress situations	USA	This is a research centre focused around the prevention of violence - they analyse and evaluate information on the causes of crime and violence, and develop policies and programmes.	Several useful publications, including novel use of methodology and datasets, on their website
Center for Prevention Research, University of Kentucky	Health	USA	This institute conducts research into the effects, prevention and cost of socially disruptive behaviours which impact on health costs. Its remit is broad, with focus placed on everything from alcohol abuse studies to paediatric mental health work. It is targeted towards the state of Kentucky.	Statistical analyses of youth risk studies, (but these do not appear to have published for a few years)

<p>Center for Integrating Education and Prevention Research in Schools (Ed/Prev Center)</p>	<p>School-based education</p>	<p>USA</p>	<p>Three primary activities: (1) evaluating the impact of the Good Behaviour Game; (2) Researching teacher education and professional development; (3) Exploring ways to integrate technology into the classroom.</p>	<p>Conducting research on short- and long-term impacts of the Good Behavior Game (GBG), as well as researching the types of teacher professional development, coaching and district/ community support that are needed to implement the GBG in a consistent, sustainable and systemic manner. Exploring innovative ways to use technology to support larger scale implementation.</p>
<p>Center for Substance Abuse Research</p>	<p>Substance abuse</p>	<p>USA</p>	<p>Conduct statistical analyses to inform public policy practitioners on the multifaceted issues surrounding substance abuse.</p>	<p>The site is regularly updated, with a weekly information bulletin detailing the latest research sent out, including pertinent statistical information. There is also an online library with further resources.</p>
<p>Center for the Study and Prevention of Suicide, University of Rochester</p>	<p>Suicide prevention</p>	<p>USA</p>	<p>Creates frameworks for multidisciplinary suicide research studies. Researchers on both the psychological and psychiatric causes of suicide and on social and cultural factors driving suicide rates up. They also design prevention systems and programmes.</p>	<p>Extensive resources on suicide causes and potential programmatic responses.</p>
<p>Children in Wales</p>	<p>Childhood</p>	<p>Wales, UK</p>	<p>Umbrella organisation to campaign and disseminate information on children's issues in Wales.</p>	<p>Offer advice, policy briefings and trainings.</p>
<p>Early Action Task Force</p>	<p>Early intervention across different service areas</p>	<p>London, UK</p>	<p>The Taskforce sets out to answer the question: <i>“how do we build a society that prevents problems from occurring rather than one that, as now, copes with the consequences?”</i></p>	<p>Key report, ‘The Triple Dividend’</p>

Early Career Prevention-ist Network	Linking researchers interested in prevention with early career preventionists.	USA	Membership organisation acting predominantly as a networking medium for those interested in prevention.	Provides members with information on employment, resources, and the latest ideas in prevention.
Early Childhood Intervention Australia	Early childhood	Australia	A public forum for airing and promoting issues related to early childhood intervention in Australia.	Advocacy work alongside seminars and workshops.
Early Intervention Foundation	Early intervention in early years	UK	A forthcoming government-backed organisation to help build the evidence to make the case for greater investment in early years.	Details to be released soon
European Network for Mental Health Promotion and Mental Disorder Prevention (IMHPA)	Mental health	Belgium	An umbrella organisation comprised of mental disorder prevention agencies and charities in 29 European countries. It serves primarily as a forum for debate and co-ordination amongst its member organisations, creating a unified view of prevention in mental health across Europe.	Extensive resources on mental health prevention organisations and research
International Society on Early Intervention (ISEI)	Early intervention	USA	An international hub for early evidence prevention practitioners, spanning diverse disciplines.	Online information exchange mechanism and conferences
John Hopkins Center for Prevention and Early Intervention	Early intervention across children and adult services	USA	Evaluates existing strategies and proposes new interventions.	Extensive list of publications, manuals and statistics.
Prevention Action	Children and early years	UK	Analyses and discusses issues in well-being relating to children, collating research from around the world.	High-quality online resource and newsletter, tailored to professionals in the field.

Prevention Research Center, Penn State University	Risk analysis	USA	A highly statistically-driven research institute, with a focus on methodological refinement, and utilising multi-level models (incorporating communities, schools, families) and developing insights into person-centred modes of analysis.	A variety of resources, including standard publications, datasets and model.
Prevention Science and Methodology Group	Evaluation methods and tools	UK	Aims to create the foundations for research and application in prevention.	Extensive resources on methodology and also on practical application of scientific designs for evaluating prevention programmes. Also serves as a hub, through conferences and online discussion, for practitioners in the field.
Public Health Association of Australia	Public Health	Australia	A membership organisation focused on public health broadly, not just on prevention-related issues.	Hub of publications and resources, as well as a space for members to discuss relevant public health issues.
Social Development Research Group, University of Washington	Social policy	USA	Primary focus to use behavioural analysis to develop strategies for preventing youth underdevelopment.	Various publications
Society for Prevention Research	Multi-disciplinary	USA	Research-oriented organisation that brings together members of the prevention community to produce collaborative research, and to conduct advocacy. They also focus on establishing foundational disciplinary principles and traditions.	Numerous resources, including publications and journals, as well as list of affiliated members
Suicide Prevention Action Network	Suicide	USA	Funds research, educates healthcare professionals, and undertakes advocacy, to help promote public policy and legislation.	Methodological resources and publications

Blueprints for Violence Prevention, University of Colorado	Substance abuse, violence prevention, youth	USA	Aims to identify outstanding violence and drug prevention programmes that meet a high scientific standard of effectiveness. In doing so, Blueprints serves as a resource for governments, foundations, businesses, and other organisations trying to make informed judgments about their investments in violence and drug prevention programmes.	Reviews of over 900 violence prevention programmes
Center for AIDS Prevention Studies (CAPS)	AIDs prevention	USA	The world's largest research center dedicated to social, behavioral, and policy science approaches to HIV.	Factsheets and reports outlining research findings, as well as resources to help successfully implement interventions
Eurlayid - The European Association on Early Childhood Intervention (EAECI)	Improve quality of life for families	Europe	Aims to stimulate growth and development of early childhood intervention; increase sensitivity to values and ethics of early childhood intervention, and to increase expertise in the field.	

Key texts and further reading

In addition to the texts cited above, here is a reading list of key texts and resources:

- ***Graham Allen Review on Early Intervention***, HM Government (2011) *The Allen Review* articulated the social and economic case for early intervention and identifies a number of effective programmes, as well as putting forward recommendations for how a shift to a 'primary prevention strategy' could be realised.¹³⁵ The Review was published following a task force committee on early intervention that built momentum for the agenda and drew on the experience of Nottingham City Council's efforts to become an 'Early Intervention City', where Allen is an MP.¹³⁶
- ***Investing in prevention: the economic perspective***, Public Health Agency of Canada (2009) - Synthesises the available evidence to outline the economic case for investing in prevention, from a Canadian perspective.¹³⁷
- ***Prevention Action***: managed by Dartington Social Research Unit, Prevention Action is an online news publication reporting internationally on innovation and effectiveness among programmes for improving children's health and development.¹³⁸
- ***Prevention and Prevention Spending, Health England*** (2009).

- ***Preventing Crime: What works, what doesn't, what's promising: a report to the US Department of Justice***, (1997) an in-depth discussion of programmes that have worked and failed in the USA.
 - ***Rose's Strategy of Preventive Medicine***, a seminal text written by the leading epidemiologist Geoffrey Rose. Although first published 20 years ago, it still holds relevance for the current debate.¹³⁹
 - ***Society of Prevention Research newsletter***, a freely available newsletter, with archive editions available.¹⁴⁰
 - ***Standards of Knowledge for the Science of Prevention***, Society of Prevention Research (2011). This paper outlines the training requirements of prevention researchers, as well as establishing definitions for key terms.¹⁴¹
 - ***Taking Stock, the British Red Cross*** (2012) - this report outlines the Red Cross' preventative services and an assessment of their value. It provides a detailed account of how services are tailored to individual users and the calculations they use to predict associated cost savings. This could be a useful paper for other charities.¹⁴²
 - ***The Wisdom of Prevention, nef*** (2012) calls for the long-term planning, upstream investment and early action, to benefit people, the planet and the economy.¹⁴³
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ENDNOTES

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3. Prevention science has been used to define the joining up of diverse fields encompassing sociology, anthropology, communications, epidemiology, statistics, managerial science, economics, medicine, and many others, aiming to solve social problems through the application of a scientific methodology. For further information see Society of Prevention Society Research: <http://www.preventionresearch.org/prevsience.php>
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5. Pease, K. (1997) 'Crime Prevention.' P. 963, in Maguire, M., Morgan, R. and Reiner, R. (eds.) 'The Oxford Handbook of Criminology.' Oxford: Oxford University Press.
6. For further details about the Allen Review see <http://www.dwp.gov.uk/docs/early-intervention-next-steps.pdf>
7. The Early Action Taskforce is led by Community Links, for details see <http://www.community-links.org/linksuk/?p=3130>
8. <http://www.dwp.gov.uk/docs/early-intervention-next-steps.pdf>
9. <http://www.community-links.org/earlyaction/>
10. For details on The Incredible Years programme see <http://www.incredibleyears.com/>
11. For a history of vaccinations see <http://www.nhs.uk/Planners/vaccinations/Pages/historyofvaccination.aspx>
12. 'The Times.' (2011) Science Matters. 5 May 2011, p. 11
13. For details of how cholera was identified as a waterborne disease, see 'The Times' (2008) Cure for cholera: a heavy dose of political will. P.35.
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36. Scottish Government (2011) 'Scottish Spending Review and Draft Budget 2012-13.' Edinburgh: Scottish Government.
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October 2012

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