In partnership with





Paving a new pathway to prevention

Leveraging increased returns on our collective investment

October 2024

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About us

NHS Confederation

The NHS Confederation is the membership body that brings together and speaks on behalf of organisations that plan, commission and provide NHS services in England, Northern Ireland and Wales. The members we represent employ 1.5 million staff, care for more than 1 million patients a day and control £150 billion of public expenditure. We promote collaboration and partnership working as the key to improving population health, delivering high-quality care and reducing health inequalities. For more information visit www.nhsconfed.org

Carnall Farrar

Carnall Farrar (CF) are experts in healthcare, providing consulting and data services and products to health systems, life sciences and health investors. They are dedicated to having an enduring positive impact on health and healthcare. Working together, the NHS Confederation and CF are passionate about supporting the services the NHS provides with partners locally and the impact it can have on our everyday lives. For more information visit www.carnallfarrar.com

About our partnership

The Value in Health programme is focused on leading and shaping the necessary national and local discussions around investing in health and care. The NHS Confederation and CF have developed a formal, research-orientated partnership, using our complementary networks, policy insight and analytical skills to maximise the broader understanding and impact of value in health. Through a dedicated suite of products, this partnership will help leaders understand, analyse and narrate the evidence base for undertaking the much needed 'left-shift' in strategy and resourcing to truly embed prevention.



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Key points

- The Value in Health series from the NHS Confederation and CF explores the investment potential of the health and care system through understanding, researching and modelling the positive relationship between increasing NHS spending, health outcomes and economic activity.
- This fourth report in the series pushes further into understanding return on investment (ROI) at intervention level and the implications for the health and care sector.
- The headline finding is that there is an opportunity to have much bigger impact from prevention by selecting interventions with the highest returns. The conservative estimate suggests this could be equivalent to £11 billion a year, based on the £5 billion that is currently spent on the public health grant by local authorities and on health inequalities by the NHS.
- The top 20 interventions by ROI were all community-based with a range of returns from £6.90 to £34.75. This further reinforces the key messages from the previous Value in Health research and highlights the importance of consistent working across NHS, local government and other partners.
- The other critical finding is that there should be efforts to more systematically evaluate and apply an approach that incorporates both population need and getting the very best value for money. There is significant variance in ROI between interventions, both within intervention categories and between studies of the same intervention type. The intervention that is chosen for a certain place or population base is therefore of material importance and an evidence-based approach is essential.
- One particular area of note was the impact of intervention on children and young people – including those related to education. When considering ROI by age, there was no variance by age for interventions, with many studies not considering the impact of the intervention beyond more than

five years. The implication of this is that investment in children and young people returns at least as much as older people and is likely to exceed the stated ROI, given the lasting effects of childhood health on adult health, employment and socioeconomic status.

- The report summarises three areas of recommendations for national government, NHS England, integrated care systems and local partners:
 - Invest more in prevention, particularly where we know it has impact, for example children and young people.
 - Take an evidence-based approach to commissioning services that considers ROI as part of holistic assessment.
 - Use data to systematically evaluate and benchmark interventions, leveraging the longitudinal data available to the NHS and the investment in secure data environments and the federated data platform.
- We believe the underpinning research and evidence base in this report should inform decision-making for health and local government leaders in everyday decision-making on prevention. To support this, the NHS Confederation and CF have developed a six-case framework for those working in health and care to consider the economics of health in investment decisions.
- If the current approach taken to investment is not changed, we believe the current pathway will lead away from the evaluative learning health system approach that is a critical part in delivering prosperous, preventative places and improving population health outcomes.

Background

The first three reports in the Value in Health series, produced by the NHS Confederation and CF, have told a compelling story. They have quantified the positive relationship between increasing NHS spending, health outcomes and economic activity – the first nationally modelled attempt at such a distinction – and helped determine which care settings offer greatest return for finite investment.

This fourth and final report of the series pushes further upstream, looking at the issue of prevention and examining the return on investment (ROI) both NHS and local authority (LA) leaders can glean from a wide range of primary, secondary and social interventions. It uses a vast evidence base of literature to understand which initiatives provide the greatest ROI and how this can inspire new consistent and cross-sectoral approaches to prevention in the future health and care system.

The origins of the Value in Health series can be found in the previous government's newly explicit focus on economic growth in the summer of 2022. While the links between the NHS and the economy had been crystallising for some time, there was suddenly a need to be much clearer on how the health sector understood and articulated them.

Over the subsequent two years there have been significant changes in the national focus of government, both in its approach to the economy and to the running of the health and care sector. The publications in our Value in Health series have, intentionally or otherwise, charted this journey, complementing, connecting and challenging events such as the first national Health Beyond the Hospital conference, issues such as the huge rise in the long-term inactive, and reports such as the 2023 independent review of integrated care systems (ICSs) by the Rt Hon Patricia Hewitt. The changing of the government coincided with the mutual and beneficial linkages between the health of our sector and the health of the economy being widely understood and debated.

The findings of this series are as stark as they were impactful:

- From Safety Net to Springboard: Putting Health at the Heart of Economic Growth, demonstrated that every pound invested in the NHS yields approximately £4 back to the economy through increased gross value added (GVA), including through gains in productivity and workforce participation
- Creating Better Health Value found that if funding patterns among areas that increased spending the least had matched those that increased spending the most, every additional £1 spent on primary or community care in particular could have increased local economic output by £14
- Unlocking the Power of Health Beyond the Hospital established there is no relationship between the amount invested by NHS organisations in community care and their local population community care needs with areas that spent relatively less on community care given population need saw higher average levels of hospital and emergency activity. The reduction in acute demand associated with this higher community spend could fund itself through savings on acute activity, with an average 31 per cent ROI and ICS net saving of £26 million.

Context for this report

The recently published Independent investigation of the NHS in England by Lord Darzi of Denham stated that despite a consistent intent to spend more money on prevention and in the community as opposed to in the acute sector, the opposite of this has been achieved. The Prime Minister and Secretary of State for Health and Social Care have also now said the NHS must 'reform or die' with three big shifts anticipated as part of the forthcoming ten-year NHS plan: from analogue to digital, from sickness to prevention, and from acute to community.

The Darzi investigation is clear in its diagnosis. Spend on acute care has risen from 47 per cent in 2002 to 58 per cent in 2022, while primary care has fallen 27 per cent to 18 per cent. Investing more in prevention will require reversing this trend and recognising it is not simply intent that matters. We believe it is vital that this approach is followed through in practice in our ICSs and that it is underpinned by enablers of data, commissioning and management capability that are aligned behind this intent.

It is no coincidence then, that this final report in the series is published at another time of significant national turmoil and when the issues in this report are firmly on the minds of NHS and local authority leaders. This work explicitly addresses two of the three reforms needed and makes a clear case for shifting to a more proactive and preventative healthcare system through communitybased interventions.

Historically, there has been a significant amount of research and policy published related to prevention and the social determinants of health. While there is an acceptance that it is critical for the sustainability of the health and care sector, and some green shoots of localised practice are certainly showing, this wealth of evidence that has been built up over time has clearly not yet translated into material shifts in what we spend money on and how systems work. Service spend and delivery across the health and care sector over the last ten years demonstrate this point and there are many reasons for this. A lack of discretionary spend; repeated cuts to local authority budgets, including the funds reserved for public health; the pandemic and the subsequent operational pressures have all directed attention and resources away from proactive care, yet for many this issue remains the north star.

In the previous reports, innovative research and modelling have highlighted the strong economic and system basis for investment outside of the hospital. This report sets out a compelling story, but more remains to be done. In this report, the existing evidence base for preventative decision-making has been re-examined, linking both NHS and local authority budgets, which interventions we should value the most, and a framework that can tangibly help integrated care boards (ICBs), providers, local authorities and policy makers to consider what should be done for their local populations has been set out. We believe that embedding this framework into ways of working, coupled with national bodies taking forward some of the recommendations we set, will help pave a new pathway towards prevention.

We hope this report and broader series are both practical and useful to the full range of interested parties.

"I know from national and local conversations just how influential the Value in Health series has been to date. The trajectory of its findings is clear, and it feels appropriate to end with research showing just how valuable investment in primary and community prevention interventions can be. The challenge now is to build this thinking into everyday system learning and approaches."

Lord Victor Adebowale, Chair, NHS Confederation

"This sort of framework could really work for leaders in Walsall. I think these questions are being asked but not in a formal or systematic way. Often, we do this based more on top-down instruction and don't really use this kind of approach. The framework suggested in this report is an important part of developing the capabilities to ask the right questions in our partnership."

Michelle McManus, Director of Transformation and Place Development, Walsall Together "With the growing focus on improving population health outcomes increasing the drive to invest in early intervention, prevention and proactive care, the importance of understanding the return on investment has never been greater to enable senior leaders to commit to longer-term investment proposals that deliver social and economic value. This is a priority for our system and the insights contained within this report will enable us to deliver for our populations."

Sarah Mansuralli, Chief Strategy and Population Health Officer, North Central London ICB

Assessing spend on prevention across health and local government

Prevention has been at the core of the new government's pledges on the NHS. However, as Lord Darzi has pointed out in his report, this commitment is not a new one. It has been something the NHS has aimed to do for the last 20 years and yet it has not succeeded in reversing spend.

3%	Acute s 3%	ervices Primary care R 2%	Nental Health 🛛 🗖 Communit	y Other
7% 13%	9% 14%	9% 10%	8% 8% 9%	8% 7% 9%
27%	27%	24%	19%	18%
49%	48%	56%	56%	58%

Figure 1: Estimate of NHS spend by healthcare service

2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

This report has set out to understand what the return on investment is from prevention. To do so, six areas have been addressed:

- 1. What is currently spent on prevention in England?
- 2. What are the most important kinds of interventions in prevention?
- 3. What is the evidence of the return on investment?
- 4. What do practical examples of this look like?
- 5. How should return on investment be used?
- 6. What should be done differently?

It is important to reflect on the breadth of interventions covered in this research, as well as the various areas into which they fall and the associated budgets. The 19 broad intervention categories (see figure 1) cover social determinants of health, primary prevention and secondary prevention – categories which are split across a range of NHS and local authority budgets, differ in partnership and accountability and are often tied to different purposes.

Current spending on prevention

The research has attempted to quantify the annual budgets most relevant to prevention as follows:

- Local authority (LA) public health grant for 2024/25: £3.6 billion
 Local authorities receive the public health grant from the Department for
 Health and Social Care (DHSC) which spans both social determinants
 and primary prevention interventions. The grant is used to provide vital
 preventative services that help to support health, including smoking
 cessation, drug and alcohol services, children's health services and sexual
 health services, and will fund both LA delivered services and services
 delivered by the voluntary, community and social enterprise (VCSE).
- NHS budget: £1.4billion (including £200 million allocated to ICSs specifically to address health inequalities and £1.2 billion allocated under Section 7A of the NHS Act 2006, requiring health and justice services to meet national targets and unique indicators). The NHS budget for prevention spans both primary and secondary prevention

Total estimated spend on prevention across NHS and local authorities: $\pounds 5$ billion

This total spend is likely to be a conversative estimate, particularly given the challenges in assessing NHS budgets and spend. However, it helpfully enables a greater understanding of the potential ROI and the importance of taking a holistic look across public service provision when making decisions.

A taxonomy of prevention

In addition to recognising there are different budgets, there are also different types of prevention including addressing the social determinants, primary prevention and secondary prevention – and these are paid for by different organisations.

For this research, 19 intervention categories were identified and a systematic literature review, grey literature review and expansive evidence review was undertaken to identify the most comprehensive database of prevention and social determinants of health initiatives that generate the best return on investments (ROIs) through impacts on inequalities. The 19 categories of intervention include:

- primary prevention: smoking cessation, weight management, exercise, diet, alcohol dependency, vaccines
- secondary prevention: cardiovascular disease, diabetes, respiratory conditions, serious mental illness, frailty, sexual health, early years
- social determinants of health: housing, substance abuse, education, food insecurity, reducing worklessness and travel.

A schematic of current funding and interventions is set out in figure 2.

Figure 2: interventions, categories and their associated budgets

Social Determinants of Health	Primary F	Prevention	Secondary Prevention	
Interventions aimed at addressing broader social, economic, and environmental factors that influence population health Housing Substance abuse Education Food insecurity Reducing worklessness Travel 	Interventions that aim illness or injury before begins • Smoking cessation • Weight/ obesity ma • Exercise • Diet • Alcohol dependence • Vaccines	anagement	Interventions that focus on early detect and prompt treatment of diseases or h conditions CVD Diabetes Respiratory conditions Serious mental illness Frailty, Sexual health Early years	
Local authority budge	et		NHS budget	
 Local authorities receive the public health group of thealth group of the public health group of the public health g	ant from the	The NHS budget for pre	evention spans 1ry and 2ry prevention:	

- Department for Health and Social Care (DHSC) which spans both social determinants and primary prevention interventions
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- support health, including smoking cessation, drug and alcohol services, children's health services and sexual health services
- ne NHS budget for prevention spans 1ry and 2ry prevention: Health inequalities funding made available specifically for ICSs to tackle health inequalities
- Section 7A of the NHS Act 2006 that requires health and justice services to meet national targets and unique indicators
- Other funding embedded in NHS budgets

Review method

A variety of terms are used in talking about return on investment:

Measures used in this report

Return on investment (ROI) is a performance measure used to evaluate the efficiency or profitability of an investment or to compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost and focuses on quantitative monetary value. The ROIs of studies included in this report varied, but included benefit to wider economy, healthcare savings, social care savings, increased productivity gain, potential financial benefit for employers and savings in medical procedure costs.

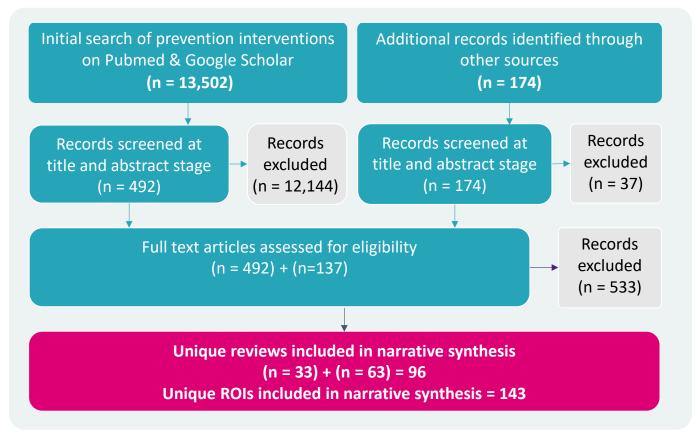
Social return on investment (SROI) is a metric adapted from the traditional ROI. SROI is used to measure social, environmental and economic gains that result from an investment, as opposed to the strictly monetary gains measured by traditional ROI. It measures the value created beyond financial value, incorporating social, health, environmental and economic costs and benefits. It is displayed as a £ value.

To assess the ROI of work we conducted an extensive literature review searching for ROI in healthcare. We excluded:

- papers published before 2013
- papers focused on specific populations eg, female only
- systematic reviews, dissertations, conference abstracts or study protocols
- papers outside of England, USA, Canada, Australia, New Zealand and Nordics
- papers where ROI values were not noted
- papers behind a paywall.

With the exclusions, we identified 96 suitable papers with 146 unique ROIs across primary interventions, secondary interventions and social determinants of health (see figure 3).





Factors used in the ROI calculations ranged across literature from short-term cost savings, long-term cost savings, short-term health benefits, long-term health benefits and wider societal benefits.

In order to make the ROI comparable across all interventions, we used a fiveyear adjusted ROI or SROI. Quality-adjusted life years were excluded. In some instances, the timeline used to calculate the ROIs were not provided or were calculated over a lifetime horizon. These interventions were included in the analysis.

Assessing the return on investment in prevention

Overall, the results of examining 146 interventions that stretch the primary, secondary and social settings are welcome. Research demonstrates that the vast majority of health interventions provide a positive ROI, through both financial benefits to the NHS, local government and the wider economy and, importantly, to society through improved health outcomes. This ROI for ranges from £0.10 to £34.75 (see figure 4), with only one exercise intervention returning a negative ROI. NHS interventions have a median ROI of 1.6 and local authority interventions a median ROI of 2.5, but some deliver far higher amounts.

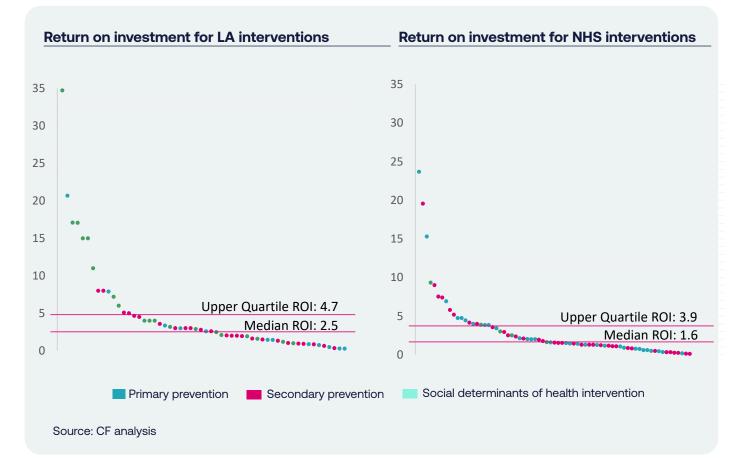


Figure 4: Five-year adjusted ROI for each intervention, split by NHS and local authority interventions

This research found significant variance in ROI between interventions (see figure 5), both within intervention categories and between studies of the same intervention type. For example, the ROI range of cardiovascular disease prevention ranged from a low of ± 0.34 for reduction of sedentary time at work, to a high of ± 7.52 for implementing community pharmacies to aid in the detection of cardiovascular disease.

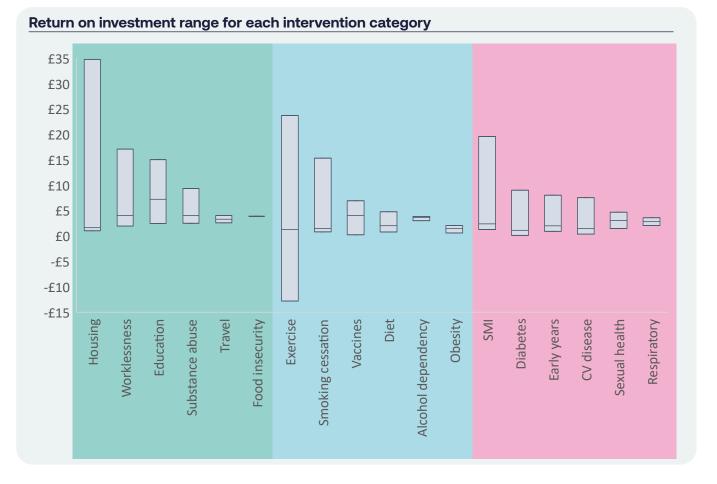


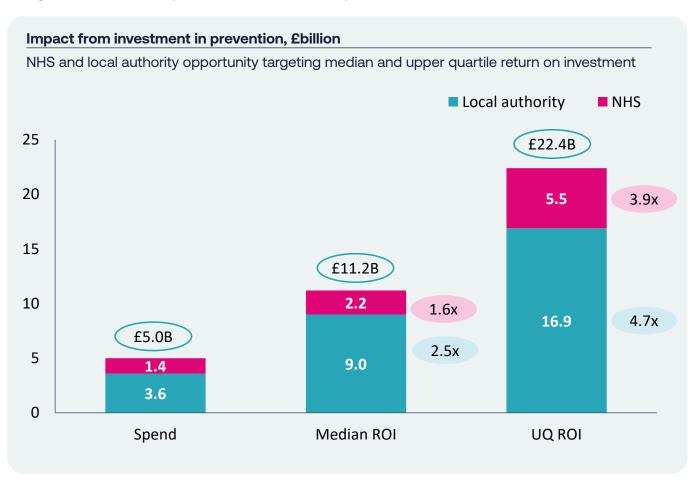
Figure 5: ROI range for each category

This level of variance is not atypical and highlights just how the type of intervention chosen, as well as the combination of interventions that exist in a particular system, have the potential to have a significant multiplier effect.

Analysis of the ROI across the interventions in this report highlight a typical median return for an NHS intervention of 1.6 and for a local government intervention of 2.5. This research shows significant opportunities to achieve greater impact were an evidence-based approach to be taken, with these multipliers delivering over £22.4 billion for the £5 billion invested if the upper

quartile were routinely possible (see figure 6). In short, NHS and local authorities could have an additional impact of £11 billion if they achieved the upper quartile ROI rather than the median one.

Figure 6: Potential impact from investment in prevention



Source: CF analysis

Making a strong case for community-based interventions

When considered by category, social determinants of health interventions were found to have the highest median ROI. Education, vaccines, employment, interventions to address substance abuse, and food insecurity were the top five categories when adjusted for a five-year period, with the full research going into greater detail within these interventions (see figure 7).





These broad categories are particularly interesting as the interventions listed do not sit solely within the budgetary or decision-making scope of any one sector and certainly not the NHS, highlighting the need to focus on prevention in its broadest sense and starting with places and populations, not services themselves.

Delving below the broad categories to look at the top 20 specific interventions themselves (see figure 8), all were based in care settings in the community. This further supports the findings of the previous Value in Health research that investing in these care settings can bring tangible economic and health benefits. In summary, the case for investing in primary prevention, secondary prevention and social determinants of health is still as strong as it ever was.

Figure 8: Top 20 interventions by category and care setting

Local authority

Rank	Category	Care Setting	Intervention	ROI
1	Housing	Homes	Adapting 100,000 homes where a serious fall is otherwise likely to occur	34.8
2	Exercise	Community	By training healthcare professionals, via clinical champions, to provide physical activity brief advice	
3	Exercise	Community	Birmingham City Council's scheme to provide free leisure services to its residents.	
4	SMI	Mental health	Suicide / self-harm prevention (restrict access to means, making transport safer & reduce harmful drinking)	
5	Housing	Homes	Adapting 100,000 homes where residents are likely to require treatment due to the excess cold	
6	Employment	Community	Tower Hamlets 'work it out' scheme (employment support, work experience, CV help, interview prep)*	17.1
7	Smoking	Primary Care	NHS Stop smoking service + Text-message (TMB) based interventions**	15.3
8	Education	Schools	Anti-bullying programmes*	15.0
9	Education	Schools	Smoking prevention in schools**	15.0
10	Diabetes	Primary Care	Digital behavioural counselling to promote a healthful diet and physical activity for CVD prevention in adults with prediabetes and CVD risk factors	15.0
11	Education	Schools	Contraception in schools*	11.0
12	Substance Abuse	Primary Care	GPs identify patients with repeat prescription for medicines liable to dependence, review effectiveness and patient need for prescription	9.3
13	CVD	Community	Tailored pharmacy interventions to improve medication adherence for CVD prevention and management*	7.5
14	Diabetes	Primary Care	Diabetes foot care clinical pathway (DFCCP)	7.4
15	Education	Schools	Additional 4 years of education	7.2
16	Exercise	Community	Glasgow Health Walks consisted of open walking groups that were delivered on a weekly basis and closed walking groups that met at frequent intervals	7.0
17	Vaccines	Primary Care	Global Plan with vaccines – modelling	6.7
18	Early Years	Community	The best start to life	6.7
19	Education	Community	Place2Be: counselling support services to children in school**	6.0
20	Diabetes	Primary Care	Face-to-face pharmacist consult with patients meeting the OPCS criteria	5.8

* The timeline used to calculate the ROIs for these interviews were not provided. ** The ROI for these interventions are calculated over a lifetime horizon.

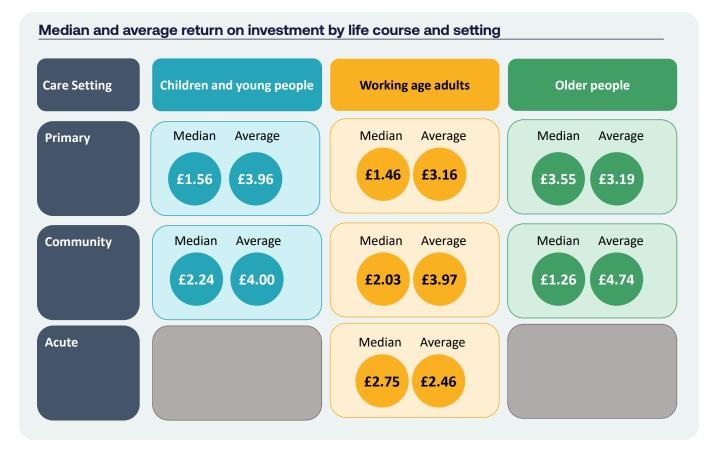
Taking a life-course approach to ROI

There has rightly been much focus placed recently on children and young people from policy makers within and outside the health sector, and the research further echoes this.

Considering the life course and setting together (see figure 9), we found primary and community-based interventions had the most significant ROI with no variance by age. Overall, for children and young people this was equivalent to ± 3.96 against a ± 3.19 average return for primary-based interventions for older people, and ± 4.00 against a ± 4.74 average return for community-based interventions for this age group.

Across the full breadth of this research, ROI for all interventions was adjusted for a five-year period, with many of the studies not considering the impact of the intervention beyond this. The implication is that investment in children and young people returns at least as much as with older people and is highly likely to exceed the stated ROI given the lasting effects of childhood health on adult health, employment and socioeconomic status. While we strongly believe that this reinforces investment in initiatives targeting this age range, it is also the case that standard measures for understanding ROI need to take into account these longer-term benefits and have a greater understanding of the impact on various demographic groups.

Figure 9: Median and average five-year adjusted ROI based on life course and intervention care setting



Taking a deep dive into an intervention – exploring two categories in detail

Here we look in greater detail at the clear variances within two of the intervention categories in the evidence base: one with direct relevance for the NHS and one which relates to the social determinants of health. This deep dive highlights the insight from the wider work and can be used by service managers and planners.

The information below shows how the intervention summaries have been developed for cardiovascular disease and for education with a given context, the scope of the literature review and the findings, including median ROI.

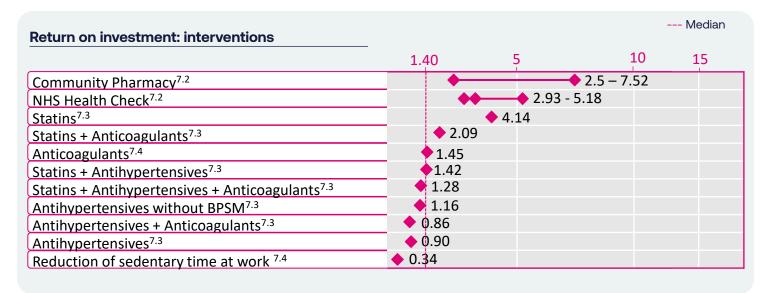
Exploring cardiovascular disease (secondary prevention)

There are around 7.6 million people living with heart and circulatory diseases in the UK, with cardiovascular disease causing one in four deaths in England and being a leading cause of morbidity, disability and health inequalities. It is estimated that cardiovascular disease costs the NHS £7.4 billion and costs the economy £15.8 billion annually.

The literature review looked at three studies for cardiovascular disease interventions from the UK and USA where the return on each £1 ranged from £0.34 to £7.52 (see figure 10). The findings highlighted that financial interventions such as NHS Health Checks and medication, such as statins with anticoagulants, and supporting the detection of cardiovascular disease gave the highest ROI. Implementing community pharmacies to aid in the detection of cardiovascular disease provided the quickest return, within one year, while interventions such as the reduction of sedentary time provided smaller but positive returns.

In total, each £1 invested in cardiovascular disease interventions offered a median ROI to the wider health and social care economy of £1.40 after five years. PHE has estimated that the social ROI after ten years is £2.30 for every £1 spent on cardiovascular disease.

Figure 10: ROI for cardiovascular interventions



"Cardiovascular disease (CVD) remains a major cause of avoidable mortality and morbidity nationally and globally. The COVID-19 pandemic has highlighted inequalities in health outcomes and their association with socio-economic deprivation and ethnicity, but of course these inequalities have always been present and are profound for many diseases including CVD and is a particularly profound in Greater Manchester. We can't tackle the problem efficiently and effectively unless we have a better understanding of the underlying evidence base for interventions, the associated ROI and importantly the timescale for delivering that return and we are working hard locally on approaches to deliver these interventions in a way that addresses both population health and inequity."

Professor Ben Bridgewater, Chief Executive, Health Innovation Manchester

Exploring education (social determinant of health)

Education is strongly associated with life expectancy, morbidity and health behaviours, and educational attainment plays an important role in health by shaping opportunities, employment and income. It is estimated that there would be around 202,000 fewer premature deaths each year (approximately 500 a day) if everyone in the UK had the low level of mortality of those with university education.

The review looked at seven studies for education interventions from the UK and USA where the return on each £1 ranged from £2.47 to £15 (see figure 11). The findings highlighted that financial interventions such as sexuality education programmes, additional years of education and anti-bullying schemes gave the highest returns on investment. Gender transformative education interventions provided the quickest return, within one year, while interventions such as early education with paediatric healthcare provided smaller but positive returns.

In total, each £1 invested in education interventions offered a median ROI to the wider health and social care economy of £7.20 after five years.

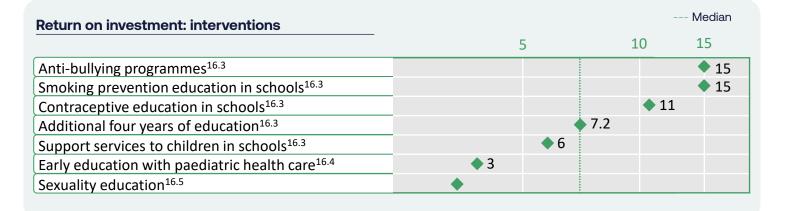


Figure 10: ROI for cardiovascular interventions

"Intervening earlier in a child's life gives us the best possible opportunity to positively impact on their outcomes. From a brain development perspective, the prime time is before a child starts statutory education at the age of five. There are powerful, evidence-led interventions which we know can be effective. However, it is also critical to take a 'whole-child' approach, considering the broad range of aspects (educational, physical, emotional for example) as well as ensuring our services respond to them in the context of their family and wider community. Deeply listening to and understanding those we service is key, as well as then working with the community to co-design and deliver services which actually meet their needs."

Nicola Noble, Co-Head Teacher, Surrey Square Primary School, Member of Old Kent Road Family Zone

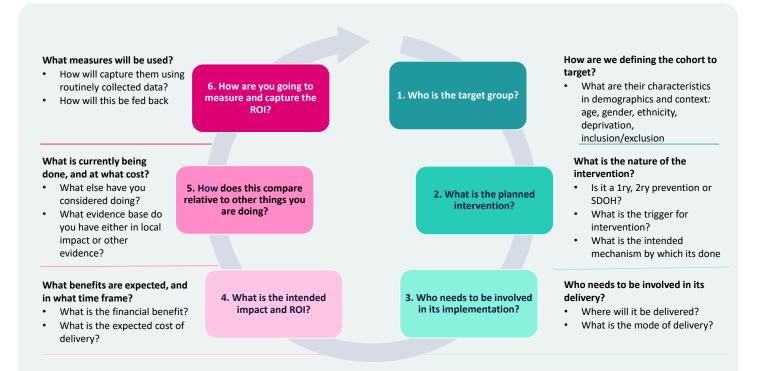
Introducing the six-case health economics framework

Given the large variations in ROI as evidenced in this report, coupled with the scarce available resource within the NHS and local authorities, it is important to recognise that some interventions have stronger proven evidence bases than others and that this should more proactively guide system-wide decisions. While not all will be applicable to the local context and population, we believe the findings in this report mean such an evidence-based approach is essential for commissioners to consider their overall strategy for investment in community and primary-based interventions in particular. In so doing, the unrivalled access to linked data sets within the NHS should be seen as an advantage, allowing leaders to leverage them to create a better understanding of the true value of health interventions and to make decisions around the most effective areas in which to spend money.

However, and in stark contrast to many in the private sector and industry, the NHS often implements interventions at national and local scale based on directive policy decisions that have little or no real-world evaluation. While the sector takes a strong empirical approach to treatment through public bodies such as the National Institute for Health and Care Excellence (NICE), this approach often breaks down when we consider the significant impact that multimorbidity and worsening social conditions have on health.

Some would argue that for optimum decision-making, all inventions would be stopped to evaluate their efficacy and only those interventions with the best return restarted. However, this is not feasible or practical. We suggest that, at a minimum, when new large investments are made, ICSs should seek to understand their role in aligning budgets and take an explicitly evaluative approach. This means, for any new intervention, systems should reference the research in this report and use a simple health economic decision-making framework that can be applied consistently across NHS and local government, as set out in figure 12.

Figure 12: The six-case health economics framework



In the short term, this approach ensures that scarce resources are not invested into programmes or initiatives that do not provide good value for money. In the longer term, a learning health system creates a system by which quality improvement and ROI are part of the business-as-usual operations. The challenge is determining how we take advantage of the world's largest longitudinal dataset held by the NHS to understand which interventions work and provide a positive ROI, and which do not. "There is so much more we could do in prevention and considering the ROI is really important as a concept. I don't think we have always been focused enough. We are looking for actionable insights into population health as there are so many places you could go. We have applied, very much, a local lens, but haven't necessarily had an overview, so don't know if we are turning a corner on specific conditions, such as hypertension or high cholesterol.

"We need to understand the ROI of interventions, consider where we need to act locally and where we need to act across the ICB's footprint. Historically, we have not always had a data-driven approach to where inequalities money has been spent but we are working to change this. We need to shift to saying, 'how do we focus that money on areas with highest return to be more targeted in use of any investment?'

"Local money for healthcare inequalities tends to have been spent on social determinants without necessarily robust tracking of impact on health. In my view, it has not been focused enough on the unique role of healthcare and secondary prevention. We need to move from a not so focused approach without rigorous tracking of benefit, to say if interventions are evidence-based, why do we not do this across the board? How we do this is for local action.

"Put simply, we should not do things that are not evidence based, as that leaves us without enough to spend on things that are."

Kate Langford, Chief Medical Officer, NHS Kent and Medway ICB

Conclusion and recommendations

"The best way to predict the future is to study the past."

Robert Kiyosaki

"Changing both the distribution of resources and the operating model to deliver integrated, preventative care closer to home will be strategic priorities of the NHS in the future because they are derived from the changing needs of the population.

"Getting them right requires as strong a focus on strategy as much as performance; to invest in the quality and capacity of management as well as clinicians; and on the skills and capabilities to commission care wisely as much as to provide it well."

The Rt Hon. Professor the Lord Darzi of Denham, Independent Investigation of the National Health Service in England, September 2024

Not all policymaking is about breaking new ground, particularly when looking at the issue of prevention. New political or leadership dawns often start with very public intentions to increase the levels of funding upstream and to bolster those services provided in the community. Sadly, the lessons we often take from history are not what works, but why things can't work. In writing this report we wanted to focus on both these aspects. The evidence base used to determine ROI is not new and the finding that the top 20 interventions were all based out in the community, albeit with significant variance in returns, will be both unsurprising but welcome to many, given the pressing need to focus more broadly on value, not simply cost. The potential size of the prize is worth reflecting on though. Whatever the true scale of the combined budgets to support prevention, there are significant opportunities were an evidence-based approach to be taken, with a doubling or even quadrupling of the original investment possible. For the conservative estimate of £5 billion used in this report, this could derive an impact of over £22 billion annually if decision-makers achieved the upper quartile ROI. While local context matters, these are real impacts for our populations and our economy.

As we have shown throughout the Value in Health series, when the pieces are put together it is possible to generate both a picture of the future and to subsequently narrate a journey to realise it. And this is where studying the past only gets us so far. Many leaders have reported that despite the evidence, decision-making has historically been too broad and unfocused, often left to people to do what they felt was best and lacking any subsequent rigour with which to measure impact and challenge legacies. This is where we believe the six-case framework can help pave a new pathway to prevention.

The approach outlined in this report to evaluating interventions that are implemented will make us look towards the long term, ultimately supporting ICSs, the NHS and local and combined authorities to systematically embed a learning system approach focused on both improvement and value for money. National leaders will have a role in complementing this by creating a space for recording and reviewing the evidence on ROI as it emerges, prompting use of the six-case framework, giving these conversations importance in their discussions and behaviour and in enabling a culture not dominated by the short-term demand. Together, this will help us not simply study the past but begin to write the new future.

Recommendations for policymakers

The findings in this report will be of interest for a host of leaders and organisations, both nationally and locally. We have highlighted the headline recommendations below:

For integrated care systems and the NHS:

- The evidence base developed as part of this report is thorough and provides an in-depth overview of 143 interventions across 19 categories. As a stand-alone tool, it can be used to help local leaders take a system-view across partners and understand individual actions that can have a major impact.
- The NHS has stopped using evaluation systematically. Circumstance and combination matter. The Health Economics Framework is a supportive means of guiding and evidencing local decision-making and should be used by both ICBs and integrated care partnerships (ICPs) to align initiatives, with learning routinely collated and shared. This is vital in creating a learning culture and should form a more formal part of the process.

For local economic leaders:

- Many of the interventions with the highest ROI lie outside the direct control of the NHS. This presents an opportunity for local and combined authorities to embed the Health Economics Framework in new place-based local growth boards in order to guide localised approaches to wider public sector reform.
- Future approaches to place-based policy will inevitably look at local funding flows and shared outcomes. These policies, including for example any successor policy to Total Place or approach to mission-based government, should seek to use and build on the Health Economics Framework.

For national government and NHS England:

- The oversight framework used by NHS England should consider the extent to which ICBs are evaluating and achieving the best possible ROI on prevention initiatives. In so doing, this would encourage NHS England to capture, record and review new evidence on ROI as it emerges and to make use of the world's largest longitudinal dataset held by the NHS to inform future decision-making and enable leaders to challenge legacy funding.
- In order to do this systematically across the entire health and care system, such an evaluation function should be aligned with plans for a federated data platform, enabling a greater approach to benchmarking with a renewed focus on the necessary skills and training to design, evidence and understand investment-based decision-making.

Further information

Our Health Economic Partnerships work programme supports the NHS to understand its growing role in the local economy and to develop anchor strategies at institutional, place and system level.

Visit www.nhsconfed.org/topic/health-economic-partnerships or contact michael.wood@nhsconfed.org for more information.

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Acknowledgements

We would also like to acknowledge the efforts of the wider team in the production of this report including Ilse Bosch, Jack Goodall, Elise Kearsey, Sophie Lee, Fran Longley, Hashum Mahmood, Dr Beena Mistry and Jenny Orr.

Sources

Smoking cessation intervention

- NHS Research and analysis: Cost of smoking to the NHS in England: 2015
- ASH Ready Reckoner 2019 edition
- Jones M, Smith M, Lewis S, Parrott S, Coleman T. Investigating the costeffectiveness of three cessation interventions on a national scale using the Economics of Smoking in Pregnancy (ESIP) decision analytical model. Addiction. 2022 Nov;117(11):2907-2917
- Nonnemaker J, MacMonegle AJ, Mann N, Woodlea R, Duke J, Porter L.
 Estimating the return on investment of the Bureau of Tobacco Free Florida tobacco control programme from 1999 to 2015. BMJ Open. 2021 Jan
- Polinski KJ, Wolfe R, Peterson A, Juhl A, Perraillon MC, Levinson AH, Crume TL. Impact of an incentive-based prenatal smoking cessation program for low-income women in Colorado. Public Health Nurs. 2020 Jan;37(1):39-49.
- NHS England Modifiable Risk Factors: High Impact Interventions, CURE
 Programme
- Agrawal S, Mangera Z, Murray RL, Howle F, Evison M. Successes and Challenges of Implementing Tobacco Dependency Treatment in Health Care Institutions in England. Curr Oncol. 2022 May 20;29(5):3738-3747
- Prevention: A Shared Commitment. Making the Case for a Prevention Transformation Fund, Local Government Association
- Cost Effectiveness of Stop Smoking Services in Wirral, Wirral Intelligence Services, 2012
- Baker CL, Ding Y, Ferrufino CP, Kowal S, Tan J, Subedi P. A cost-benefit analysis of smoking cessation prescription coverage from a US payer perspective. Clinicoecon Outcomes Res. 2018 Jul 16;10:359–370.

Obesity intervention

- NHS Health Survey for England, 2021: Data tables
- Gov.uk Department of Health and Social Care Media Centre Blog: Government plans to tackle obesity in England
- Public Health England: Guidance Health matters: obesity and the food environment
- Digital Intensive Lifestyle Intervention for Weight Loss
- Return on Investment: Medical Savings of an Employer-Sponsored Digital
 Intensive Lifestyle Intervention for Weight Loss
- Unsal, N., Weaver, G., Bray, J.W., Bibeau, D. and Saake, G., 2021. Return on investment of workplace wellness: Evidence from a Long-Term care company. Workplace Health & Safety, 69(2).
- Agrawal, S., Wojtanowski, A.C., Tringali, L., Foster, G.D. and Finkelstein, E.A., 2021. Financial implications of New York City's weight management initiative. PloS one, 16(2)
- Public Health England, Local health and Care Planning: Menu of Preventative interventions, 2016
- Coffield, E., Nihiser, A., Carlson, S., Collins, J., Cawley, J., Lee, S. and Economos, C. (2019). Shape up Somerville's Return on investment: Multigroup Exposure Generates net-benefits in a Child Obesity Intervention. Preventive Medicine Reports
- Borner, K.B., Canter, K.S., Lee, R.H., Davis, A.M., Hampl, S. and Chuang, I., 2016. Making the business case for coverage of family-based behavioural group interventions for pediatric obesity. Journal of pediatric psychology, 41(8)

Exercise intervention

- NHS guidance, 2022, Physical Activity: Applying All Our Health https:// www.gov.uk/government/publications/physical-activity-applying-all-ourhealth/physical-activity-applying-all-our-health#:~:text=OHID%20has%20 created%20a%20longer-length%20physical%20activity%20and%20 health%20e-learning#:~:text=OHID%20has%20created%20a%20longerlength%20physical%20activity%20and%20health%20e-learning
- Physical Activity Champion, Public Health England: https://assets.publishing. service.gov.uk/government/uploads/system/uploads/attachment_data/ file/683016/Local_health_and_care_planning_menu_of_preventative_ interventions_DM_NICE_amends_14.02.18_2_.pdf

- Local Government Association, 2015, Prevention: A Shared Commitment: Making the Case for a Prevention Transformation Fund https://www.local. gov.uk/sites/default/files/documents/prevention-shared-commitm-4e7.pdf
- Musich S, McCalister T, Wang S, Hawkins K. An Evaluation of the Well at Dell Health Management Program: Health Risk Change and Financial Return on Investment. American Journal of Health Promotion. 2015;29(3):147-157. doi:10.4278/ajhp.131115-QUAN-582
- Goetzel RZ, Tabrizi M, Henke RM, Benevent R, Brockbank CV, Stinson K, Trotter M, Newman LS. Estimating the return on investment from a health risk management program offered to small Colorado-based employers. J Occup Environ Med. 2014 May;56(5):554-60.
- Munir F, Miller P, Biddle SJH, Davies MJ, Dunstan DW, Esliger DW, Gray LJ, O'Connell SE, Waheed G, Yates T, Edwardson CL. A Cost and Cost-Benefit Analysis of the Stand More AT Work (SMArT Work) Intervention. Int J Environ Res Public Health. 2020 Feb 13;17(4):1214.
- Unsal N, Weaver G, Bray JW, Bibeau D, Saake G. Return on Investment of Workplace Wellness: Evidence From a Long-Term Care Company. Workplace Health & Safety. 2021;69(2):81-90. doi:10.1177/2165079920953052
- J. M. van Dongen, J. K. Coffeng, M. F. van Wier, C. R. L. Boot, I. J. M. Hendriksen, W. van Mechelen, P. M. Bongers, A. J. van der Beek, J. E. Bosmans, M. W. van Tulder, The cost-effectiveness and return-oninvestment of a combined social and physical environmental intervention in office employees, Health Education Research, Volume 32, Issue 5, October 2017,
- Agrawal S, Wojtanowski AC, Tringali L, Foster GD, Finkelstein EA. Financial implications of New York City's weight management initiative. PLoS One. 2021 Feb 11;16(2):e0246621. doi: 10.1371/journal.pone.0246621. PMID: 33571249; PMCID: PMC7877753.
- Hartfiel N, Gladman J, Harwood R, Tudor Edwards R. Social Return on Investment of Home Exercise and Community Referral for People With Early Dementia. Gerontology and Geriatric Medicine. 2022;8. doi:10.1177/23337214221106839
- Coffield E, Nihiser A, Carlson S, Collins J, Cawley J, Lee S, Economos
 C. Shape Up Somerville's return on investment: Multi-group exposure generates net-benefits in a child obesity intervention. Prev Med Rep. 2019 Jul 16;16:100954. doi: 10.1016/j.pmedr.2019.100954. PMID: 31463186; PMCID: PMC6706678.

- Horstman CM, Ryan DH, Aronne LJ, Apovian CM, Foreyt JP, Tuttle HM, Williamson DA. Return on Investment: Medical Savings of an Employer-Sponsored Digital Intensive Lifestyle Intervention, Weight Loss. Obesity (Silver Spring). 2021 Apr;29(4):654-661. doi: 10.1002/oby.23117. PMID: 33759385; PMCID: PMC8252728.
- Lloyd M, Morton J, Teede H, Marquina C, Abushanab D, Magliano DJ, Callander EJ, Ademi Z. Long-term cost-effectiveness of implementing a lifestyle intervention during pregnancy to reduce the incidence of gestational diabetes and type 2 diabetes. Diabetologia. 2023 Jul;66(7):1223-1234. doi: 10.1007/s00125-023-05897-5. Epub 2023 Mar 18. PMID: 36932207; PMCID: PMC10244289.
- Ekwaru, J.P., Ohinmaa, A., Dabravolskaj, J., Maximova, K. and Veugelers, P.J. (2021). Cost-effectiveness and Return on Investment of school-based Health Promotion Programmes for Chronic Disease Prevention. European Journal of Public Health, [online] 31(6), pp.1183–1189. doi:https://doi.org/10.1093/eurpub/ ckab130.

Diet intervention

- Public Health England: Guidance Health Matters: Obesity and the Food Environment
- The Food Foundation: The Broken Plate 2022 report
- Lloyd, M., Teede, H., Bailey, C., Callander, E. and Ademi, Z. (2022). Projected Return on Investment from Implementation of a Lifestyle Intervention to Reduce Adverse Pregnancy Outcomes. JAMA Network Open, [online] 5(9), p.e2230683. doi:https://doi.org/10.1001/jamanetworkopen.2022.30683.
- White, N.D., Lenz, T.L., Skrabal, M.Z., Skradski, J.J. and Lipari, L., 2018. Longterm outcomes of a cardiovascular and diabetes risk-reduction program initiated by a self-insured employer. American Health & Drug Benefits, 11(4), p.177
- Merrill, R.M. and LeCheminant, J.D., 2016. Medical cost analysis of a school district worksite wellness program. Preventive medicine reports, 3, pp.159– 165.
- Goetzel, R.Z., Tabrizi, M., Henke, R.M., Benevent, R., Brockbank, C.V.S., Stinson, K., Trotter, M. and Newman, L.S., 2014. Estimating the return on investment from a health risk management program offered to small Colorado-based employers. Journal of occupational and environmental medicine/American College of Occupational and Environmental Medicine, 56(5), p.554.

- Oosterhoff, M., Van Schayck, O.C., Bartelink, N.H., Bosma, H., Willeboordse, M., Winkens, B. and Joore, M.A., 2020. The short-term value of the "Healthy Primary School of the Future" initiative: A social return on investment analysis. Frontiers in public health, p.401.
- Horstman, C.M., Ryan, D.H., Aronne, L.J., Apovian, C.M., Foreyt, J.P., Tuttle, H.M. and Williamson, D.A., 2021. Return on Investment: Medical Savings of an Employer-Sponsored Digital Intensive Lifestyle Intervention for Weight Loss. Obesity, 29(4), pp.654-661.
- Thomas, C., Sadler, S., Breeze, P., Squires, H., Gillett, M. and Brennan, A., 2017. Assessing the potential return on investment of the proposed UK NHS diabetes prevention programme in different population subgroups: an economic evaluation. BMJ open, 7(8), p.e014953.
- Lloyd, M., Morton, J., Teede, H., Marquina, C., Abushanab, D., Magliano, D.J., Callander, E.J. and Ademi, Z., 2023. Long-term cost-effectiveness of implementing a lifestyle intervention during pregnancy to reduce the incidence of gestational diabetes and type 2 diabetes. Diabetologia, 66(7), pp.1223-1234.
- Baus, A., Shawley-Brzoska, S., Wright, J., Carey, S., Berry, E.D., Burrell, S., Ross, M., Pollard, C., Semel, A., Calkins, A. and Gadde, D., 2021. Informatics-Supported Diabetes Prevention Programming in West Virginia. Perspectives in Health Information Management, 18(Spring).

Alcohol dependence interventions

- Office for Health Improvement and Disparities, National statistics: Adult substance misuse treatment statistics 2022 to 2023: report
- UK Parliament: Alcohol treatment service inquiry, March 2023
- Optimal Alcohol Teams (ACTs) as part of an effective alcohol treatment system, Public Health England, 2019
- Local health and care planning: menu of preventative interventions, Public Health England, 2016
- Moriarty, K.J., 2020. Alcohol care teams: where are we now?. Frontline gastroenterology, 11(4), pp.293-302.

Vaccine intervention

- NHS Digital: Childhood Vaccination Coverage Statistics- England, 2021-22 (September 2023)
- The Kings Fund: Cardiovascular disease in England: supporting leaders to take actions (November 2022)
- Dorratoltaj, N., Marathe, A., Lewis, B.L., Swarup, S., Eubank, S.G. and Abbas, K.M., 2017. Epidemiological and economic impact of pandemic influenza in Chicago: Priorities for vaccine interventions. PLoS computational biology, 13(6), p.e1005521.
- Alonso, C., Davies, P.R., Polson, D.D., Dee, S.A. and Lazarus, W.F., 2013.
 Financial implications of installing air filtration systems to prevent PRRSV infection in large sow herds. Preventive veterinary medicine, 111(3-4), pp.268-277.

Cardiovascular disease intervention

- British Heart Foundation: UK Factsheet (April 2023)
- Cardiovascular disease high impact interventions, NHS England
- Public Health England, 2018, Cardiovascular Disease Prevention Return on Investment Tool: Final Report https://assets.publishing.service.gov. uk/government/uploads/system/uploads/attachment_data/file/784208/ Cardiovascular_disease_prevention_ROI_tool.pdf
- Michaud, T.L., You, W., Estabrooks, P.A., Leonard, K., Rydell, S.A., Mullane, S.L., Pereira, M.A. and Buman, M.P., 2022. Cost and cost-effectiveness of the 'Stand and Move at Work'multicomponent intervention to reduce workplace sedentary time and cardiometabolic risk. Scandinavian Journal of Work, Environment & Health, 48(5), p.399.

Diabetes interventions

- Diabetes UK Statistics: How many people in the UK have diabetes? (April, 2023)
- Diabetes UK: Guides & Information: Cost of Diabetes (October, 2023)

- Su, W., Chen, F., Dall, T.M., Iacobucci, W. and Perreault, L., 2016. Peer reviewed: Return on investment for digital behavioral counseling in patients with prediabetes and cardiovascular disease. Preventing chronic disease, 13.
- Imperial College Health Partners, 2020, Population-Level Interventions to Improve Health in People with Diabetes in Nottinghamshire http://www. nottinghamnortheastccg.nhs.uk/wp-content/uploads/2020/02/Populationlevel-Interventions-to-Improve-Health-Care-in-People-with-Diabetes-in-Nottinghamshire-Jan-2020.pdf
- Public Health England, 2016, Local Health and Care Planning: Menu of Preventative Interventions https://assets.publishing.service.gov.uk/ government/uploads/system/uploads/attachment_data/file/683016/Local_ health_and_care_planning_menu_of_preventative_interventions_DM_NICE_ amends_14.02.18_2_.pdf
- Nguyen Xuan Thanh, Dmytruk, K., O'Connell, P., Rogers, E., Fillier, D., MacRae, J.M., Thomas, C., Rennie, C.A., Eitzenberger, C., Newman, C., Match, B., Thompson, C., Nhan, J. and Wasylak, T. (2020). Return on investment of the diabetes foot care clinical pathway implementation in Alberta, Canada. Diabetes Research and Clinical Practice, [online] 165(1), pp.108241–108241. doi:https://doi.org/10.1016/j.diabres.2020.108241.
- Spence, M.M., Makarem, A.F., Reyes, S.L., Rosa, L.L., Nguyen, C., Oyekan, E.A. and Kiyohara, A.T., 2014. Evaluation of an outpatient pharmacy clinical services program on adherence and clinical outcomes among patients with diabetes and/or coronary artery disease. Journal of Managed Care Pharmacy, 20(10), pp.1036-1045.
- Jalkanen, K., Aarnio, E., Lavikainen, P., Lindström, J., Peltonen, M., Laatikainen, T. and Martikainen, J., 2021. Pharmacy-based screening to detect persons at elevated risk of type 2 diabetes: a cost-utility analysis. BMC Health Services Research, 21, pp.1-11.
- Thomas, C., Sadler, S., Breeze, P., Squires, H., Gillett, M. and Brennan, A., 2017. Assessing the potential return on investment of the proposed UK NHS diabetes prevention programme in different population subgroups: an economic evaluation. BMJ open, 7(8), p.e014953.

Respiratory conditions interventions

- NHS England, Respiratory Disease https://www.england.nhs.uk/ourwork/ clinical-policy/respiratory-disease/
- Gomez, M., Reddy, A.L., Dixon, S.L., Wilson, J. and Jacobs, D.E. (2017). A Cost-Benefit Analysis of a State-Funded Healthy Homes Program for Residents with Asthma. Journal of Public Health Management and Practice, [online] 23(2), pp.229–238. doi:https://doi.org/10.1097/phh.000000000000528.

Serious mental illness intervention

- Mental Health Foundation, 2022, Mental Health Problems Cost UK Economy At Least GDP 118 Billion A Year: New Research https://www.mentalhealth.org. uk/about-us/news/mental-health-problems-cost-uk-economy-least-gbp-118-billion-year-new-research
- Lokman, S., Volker, D., Zijlstra-Vlasveld, M.C., Brouwers, E.P., Boon, B., Beekman, A.T., Smit, F. and Van der Feltz-Cornelis, C.M., 2017. Return-to-work intervention versus usual care for sick-listed employees: health-economic investment appraisal alongside a cluster randomised trial. BMJ open, 7(10), p.e016348.
- Milligan-Saville, J.S., Tan, L., Gayed, A., Barnes, C., Madan, I., Dobson, M., Bryant, R.A., Christensen, H., Mykletun, A. and Harvey, S.B., 2017. Workplace mental health training for managers and its effect on sick leave in employees: a cluster randomised controlled trial. The Lancet Psychiatry, 4(11), pp.850-858.
- Godoy Garraza, L., Peart Boyce, S., Walrath, C., Goldston, D.B. and McKeon, R. (2016). An Economic Evaluation of the Garrett Lee Smith Memorial Suicide Prevention Program. Suicide and Life-Threatening Behavior, [online] 48(1), pp.3–11. doi:https://doi.org/10.1111/sltb.12321.
- LSE and Public Health England, 2017, Commissioning Cost-Effective Services for Promotion of Mental Health and Wellbeing and Prevention of Mental III-Health, https://assets.publishing.service.gov.uk/ media/5a74d0e7e5274a3cb28676ab/Commissioning_effective_mental_ health_prevention_report.pdf

 Lokkerbol, J., Adema, D., Cuijpers, P., Reynolds, C.F., Schulz, R., Weehuizen, R. and Smit, F. (2014). Improving the Cost-Effectiveness of a Healthcare System for Depressive Disorders by Implementing Telemedicine: a Health Economic Modeling Study. The American Journal of Geriatric Psychiatry, [online] 22(3), pp.253–262. doi:https://doi.org/10.1016/j.jagp.2013.01.058.

Frailty intervention

- Tian Y TJ, Buck D, Sonola L., 2013, Exploring the System-Wide Costs of Falls in Older People in Torbay, the King's Fund https://www.kingsfund.org. uk/insight-and-analysis/reports/system-wide-costs-falls-older-peopletorbay#:~:text=This%20paper%20uses%20Torbay%E2%80%99s%20 unique%20patient-level%20linked%20data%20set%20to
- Treml J, Husk J, Lowe D, Vasilakis N., 2011, Falling Standards, Broken Promises: Finding frm the National Audit of Falls and Bone https://arc-swp.nihr.ac.uk/ publications/falling-standards-broken-promises-findings-from-the-nationalaudit-on-falls-and-bone/
- NICE. Falls Assessment and prevention of falls in older people. London: 2013. Available from: https://www.nice.org.uk/guidance/cg161/evidence
- Leal J, Gray AM, Prieto-Alhambra D, Arden NK, Cooper C, Javaid MK, et al. Impact of hip fracture on hospital care costs: a population-based study. Osteoporos Int. 2016;27(2):549-58.
- Public Health England (2018a). A Return on Investment Tool for the Assessment of Falls Prevention Programmes for Older People Living in the Community https://assets.publishing.service.gov.uk/government/uploads/ system/uploads/attachment_data/file/679856/A_return_on_investment_ tool_for_falls_prevention_programmes.pdf
- Goldsmith, S. and Kokolakakis, T., 2021. A cost-effectiveness evaluation of Dance to Health: a dance-based falls prevention exercise programme in England. Public health, 198, pp.17-21.
- Carande-Kulis V, Stevens JA, Florence CS, Beattie BL, Arias I. A cost-benefit analysis of three older adult fall prevention interventions. J Safety Res. 2015 Feb;52:65-70. doi: 10.1016/j.jsr.2014.12.007. Epub 2015 Jan 6. PMID: 25662884; PMCID: PMC6604798.

Early years intervention

- Public Health England, 2017, Health Matters: Child Dental Health https://www. gov.uk/government/publications/health-matters-child-dental-health/healthmatters-child-dental-health
- Gardner F, Leijten P, Mann J, Landau S, Harris V, Beecham J, et al. Could scale-up of parenting programmes improve child disruptive behaviour and reduce social inequalities? Using individual participant data meta-analysis to establish for whom programmes are effective and cost- effective. NIHR Public Health Research. 2017;1(11).
- Public Health England, 2014, Local Action On Health Inequalities: Understanding the Economics of Investments in the Social Determinants of Health https://assets.publishing.service.gov.uk/ media/5a7ef68fe5274a2e8ab494d2/Briefing9_Economics_of_investments_ health_inequalities.pdf
- Wang LY, Vernon-Smiley M, Gapinski MA, Desisto M, Maughan E, Sheetz A. Cost-benefit study of school nursing services. JAMA Pediatr. 2014 Jul;168(7):642-8. doi: 10.1001/jamapediatrics.2013.5441. PMID: 24840710; PMCID: PMC9255385.
- Public Health England, 2016, Local Health and Care Planning: Menu of Preventative Interventions https://assets.publishing.service.gov.uk/ government/uploads/system/uploads/attachment_data/file/683016/Local_ health_and_care_planning_menu_of_preventative_interventions_DM_NICE_ amends_14.02.18_2_.pdf
- Teager, W., Fox, S. and Stafford, N., 2019. How Australia can invest in children and return more: A new look at the \$15b cost of late action.

Sexual health interventions

- Public Health England, 2016, Local Health and Care Planning: Menu of Preventative Interventions https://assets.publishing.service.gov.uk/ government/uploads/system/uploads/attachment_data/file/683016/Local_ health_and_care_planning_menu_of_preventative_interventions_DM_NICE_ amends_14.02.18_2_.pdf
- Ong, J.K. et al., 2019, Wiley HIV Care Cost in England: A Cross-Sectional Analysis of Antiretroviral Treatment and the Impact of Generic Introduction https://onlinelibrary.wiley.com/doi/full/10.1111/hiv.12725

Housing intervention

- The Health Foundation, 2020, Health Equity in England: The Marmot Review 10 Years on https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on
- Nicol et al., 2015, The Economics of Housing and Health: The Role of Housing Associations https://www.kingsfund.org.uk/sites/default/files/field/field_ publication_file/Economics_housing_and_health_Kings_Fund_Sep_2016.pdf
- South West London Academic, Health and Social Care System (2014). Making the Case for Public Health Interventions Responding to Change in SW London Academic, Health and Social Care System https:// healthinnovationnetwork.com/wp-content/uploads/2017/09/FINAL-AUG-16-SWLS-RoI-ON-PublicHealthInterventions.pdf (page 56).
- Nevil Pierse, Maddie White, Lynn Riggs
- Watson, I., Mackenzie, F., Woodfine, L. and Azam, S.,2019, Making a Difference Housing and Health: a Case for Investment 2019 Public Health Wales https://phw.nhs.wales/files/housing-and-health-reports/a-case-forinvestment-report/
- Dodd, S.J., Ruffins, J. and Arzola, D.,201,. Improving Health While Saving Money: Lessons Learned from a Supportive Housing Program for Young Adults with HIV. Sexuality Research and Social Policy, [online] 15(2), pp.163– 171. doi:https://doi.org/10.1007/s13178-017-0287-8.
- Velasquez, D.E., Sandel, M. Housing Investment Strategies by Healthcare Payers and Systems: Paving the Road Ahead. J GEN INTERN MED 38, 1296– 1298 (2023). https://doi.org/10.1007/s11606-022-08009-y

Substance abuse

- Public Health England, 2016, Local Health and Care Planning: Menu of Preventative Interventions https://assets.publishing.service.gov.uk/ government/uploads/system/uploads/attachment_data/file/683016/Local_ health_and_care_planning_menu_of_preventative_interventions_DM_NICE_ amends_14.02.18_2_.pdf
- Office for Health, Improvement & Disparities, 2023, Adult Substance Misuse Treatment Statistics 2021 to 2022: Report https://www.gov.uk/government/ statistics/substance-misuse-treatment-for-adults-statistics-2021-to-2022/ adult-substance-misuse-treatment-statistics-2021-to-2022-report

- NHSBSA Statistics and Data Science, 2022, Dependency Forming Medicines

 England 2021-22https://www.nhsbsa.nhs.uk/statistical-collections/
 dependency-forming-medicines-england/dependency-forming-medicines england-202122#:~:text=Key%20findings&text=In%202021%2F22%2C%20
 the%20cost,cost%20of%20%C2%A3307%20million
- Public Health England, 2017, An Evidence Review of the Outcomes that Can Be Expected of Drug Misuse Treatment in England https://assets.publishing. service.gov.uk/government/uploads/system/uploads/attachment_data/ file/586111/PHE_Evidence_review_of_drug_treatment_outcomes.pdf
- Public Health England, Alcohol and Drug Prevention, Treatment and Recovery: Why Invest?
- UK Health Security Agency, Tools for assessing value for money for alcohol and drug treatment

Education

- The Lancet Public Health, Education: A Neglected Social Determinant of Health https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(20)30144-4/fulltext
- The Health Foundation, 2020, Health Equity in England: The Marmot Review 10 Years on https://www.health.org.uk/publications/reports/the-marmotreview-10-years-on
- Public Health England, 2014, Local Action on Health Inequalities: Understanding the Economics of Investments in the Social Determinants of Health https://assets.publishing.service.gov.uk/ media/5a7ef68fe5274a2e8ab494d2/Briefing9_Economics_of_investments_ health_inequalities.pdf
- Ramey, C.T. and Ramey, S.L., 2023. Early Childhood Education that Promotes Lifelong Learning, Health, and Social Well-being: The Abecedarian Project and its Replications.
- Lohan, M., Gillespie, K., Aventin, Á., Gough, A., Warren, E., Lewis, R., Buckley, K., McShane, T., Brennan-Wilson, A., Lagdon, S. and Adara, L., 2023.
 School-based relationship and sexuality education intervention engaging adolescent boys for the reductions of teenage pregnancy: the JACK cluster RCT. Health Technology Assessment, 11(8), pp.1-139.

Food insecurity

- The Food Foundation, Food Insecurity Tracking https://foodfoundation.org. uk/initiatives/food-insecurity-tracking
- BAPEN, The Cost of Malnutrition in England and Potential Cost Savings from Nutritional Interventions (short version) https://www.bapen.org.uk/pdfs/ economic-report-short.pdf
- Martin, S.L., Connelly, N., Parsons, C. and Blackstone, K. (2018). Simply Delivered meals: a Tale of Collaboration. The American Journal of Managed Care, [online] 24(6), pp.301–304. Available at: https://europepmc.org/article/ med/29939505

Reducing worklessness

- Gov.uk, 2019, Health Matters: Health and Work https://ukhsa.blog.gov. uk/2019/01/31/health-matters-health-and-work/
- Public Health England, 2014, Local Action On Health Inequalities: Understanding the Economics of Investments in the Social Determinants of Health https://assets.publishing.service.gov.uk/ media/5a7ef68fe5274a2e8ab494d2/Briefing9_Economics_of_investments_ health_inequalities.pdf
- Local Government Association, 2015, Prevention: A Shared Commitment Making the Case fo a Prevention Transformation Fund https://www.local.gov. uk/sites/default/files/documents/prevention-shared-commitm-4e7.pdf

Travel references

- Royal College of Physicians. Every breath we take: The lifelong impact of air pollution. 2016. https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-takelifelong-impact-air-pollution
- Department of Transport, 2015, Investing in Cycling and Walking: The Economic Case for Action https://assets.publishing.service.gov.uk/ media/5e84d69e86650c743f1a9466/cycling-and-walking-business-casesummary.pdf

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