COUNCIL FOR SCIENCE AND TECHNOLOGY

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Prime Minister
10 Downing Street
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Sent by email only

12 May 2025

Dear Prime Minister

Improving the nation's health through primary prevention

The UK faces stark health inequalities and has the second highest preventable mortality rate in the G7.[1] With almost 1 in 5 adults projected to be living with a major illness such as cardiovascular disease, cancer or dementia by 2040,[2] we welcome the shift from treatment to prevention in the government's 10 Year Health Plan.

We have focused our advice on primary prevention defined as interventions at the individual, community and population level to prevent disease before it occurs. Primary prevention measures which target the major preventable drivers of ill health have to be directed by political leaders, who determine which actions are prioritised, funded, and enforced.

Success stories such as the UK's indoor smoking ban and Soft Drinks Industry Levy show that well-designed regulatory interventions can influence behaviour, drive rapid health gains and enable cost savings. However, to date, many primary prevention measures have been hampered by a lack of funding, a lack of long-term evaluation, and a lack of political will, which has had a greater detrimental impact on individuals and communities in the most deprived areas. This is despite studies showing that primary prevention can be up to 4 times more cost-effective than treatment, with significant long-term health, social and macroeconomic benefits.[3,4,5]

[1] OEDC (2023). Health at a Glance 2023. Available at: https://www.oecd.org/en/publications/health-at-a-glance-2023_7a7afb35-en/full-report.html
[2] Watt, T. et al. (2023). Health in 2040: projected patterns of illness in England. Available at: https://www.health.org.uk/reports-and-analysis/reports/health-in-2040-projected-patterns-of-illness-in-england
[3] Nesta (2024). How to save the NHS: primary prevention. Available at: https://www.nesta.org.uk/documents/3016/How_to_save_the_NHS__primary_prevention.pdf
[4] Li, Y et al. (2020). Healthy lifestyle and life expectancy free of cancer, cardiovascular disease, and type 2 diabetes: prospective cohort study, *Bmj,* 368:l6669. doi: 10.1136/bmj.l6669
[5] Tony Blair Institute (2025). Prosperity Through Health: The Macroeconomic Case for Investing in Preventative Health Care in the UK. Available at: https://institute.global/insights/economic-prosperity/the-macroeconomic-case-for-investing-in-preventative-health-care-UK.

What needs to change

Government will not deliver the Health Mission, achieve economic growth, or ensure children get the best start in life with 'business as usual'. Ahead of publication of the 10 Year Health Plan, we are writing to encourage this government to **make bold political choices during this Parliament to tackle the key preventable drivers of ill-health.**

We offer recommendations in the following three areas:

> **Recommendation 1: Demonstrate leadership by implementing bold interventions to tackle smoking, alcohol consumption, outdoor air pollution and obesity**. There is a strong evidence base for interventions to reduce smoking, alcohol consumption and outdoor air pollution and a moderate evidence base for interventions to tackle obesity. Government should act now where the evidence is clear and prioritise efforts to reduce health inequalities and regional disparities. This requires a multifaceted approach, combining legislation, regulation, mass media campaigns, community-based interventions and education to drive meaningful and sustained behaviour change.
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> **Recommendation 2: Prioritise childhood health to promote the nation's overall wellbeing and future prosperity.** Inequalities in health outcomes start in childhood. Government should support Family Hubs and the Start for Life Programme through multi-year funding and regularly evaluate the impact of services compared to the Sure Start Programme. A target for reduction in child poverty should be reinstated in law to give every child the best start in life and raise the healthiest ever generation of children.
>
> **Recommendation 3: Scope and deliver a modern, personalised disease prevention service**. Digital technologies are the key to delivering personalised prevention at scale. Government should aim to create a digital-first Personalised National Prevention Service to help empower citizens to take control of their health.

We recognise that many of the levers for improving population health lie outside the Department for Health and Social Care, in housing, income security, education, transport, food policy, and the environment.[6] **Only through strong cross-government coordination can the underlying determinants of health be addressed.** Government will also need to work in partnership with the private sector, Non-Governmental Organisations (NGOs), charitable organisations, the National Academies, and local leaders to drive action across society.

[6] Academy of Medical Sciences (2016). Improving the health of the public by 2040. Available at: https://acmedsci.ac.uk/policy/policy-projects/health-of-the-public-in-2040.

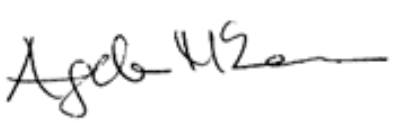
Furthermore, **government expenditure on primary prevention must be treated as an investment**. A shift towards primary prevention can deliver significant cost savings in the long-term, but this must be supported by fiscal rules that incentivise public spending on primary prevention.

The attached report provides background and detailed recommendations for action in these areas. We would be delighted to discuss our advice with you.

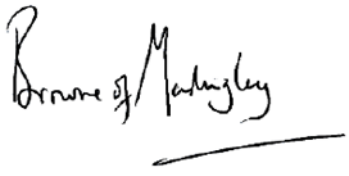
We are grateful to Council members for developing this advice, in particular, Professor Andrew Morris, Richard Slater, Professor Brooke Rogers, Professor Lynn Gladden and Mark Enzer. We also thank Professor Chris Whitty, Lord Ara Darzi, external organisations and policy teams across government who helped to inform our advice.

This letter is copied to the Secretary of State for Health and Social Care; the Chancellor of the Exchequer; the Secretary of State for Science, Innovation and Technology; the Secretary of State for Education; the Secretary of State for Transport; the Secretary of State for Energy Security and Net Zero; the Secretary of State for Environment, Food and Rural Affairs; the Secretary of State for Housing, Communities and Local Government; the Secretary of State for Work and Pensions; the Chancellor of the Duchy of Lancaster; the Parliamentary Under-Secretary of State for Public Health and Prevention; the Cabinet Secretary; the Chief Medical Officer for England; and the Permanent Secretaries of the Department of Health and Social Care, HM Treasury, the Department for Science, Innovation and Technology, the Department for Education, the Department for Transport, the Department for Energy Security and Net Zero, the Department for Environment, Food and Rural Affairs, the Ministry of Housing, Communities and Local Government and the Department for Work and Pensions.

Yours sincerely,



Dame Angela McLean
Co-chair



Lord Browne of Madingley
Co-chair

ADVICE ON IMPROVING THE NATION'S HEALTH THROUGH PRIMARY PREVENTION

1. Primary prevention delivers significant health, economic, and social returns, with up to 80% of heart disease, stroke, type 2 diabetes, and over a third of cancers potentially prevented by addressing modifiable behavioural risk factors such as smoking, alcohol use, poor diet, and physical inactivity.[7,8]

Recommendation 1: Demonstrate leadership by implementing bold interventions to tackle smoking, alcohol consumption, outdoor air pollution and obesity.

2. There are clear areas where government can take action on primary prevention. There is a strong evidence base for interventions to reduce smoking, alcohol consumption and outdoor air pollution and a moderate evidence base for interventions to tackle obesity and inactivity. For other areas such as indoor air pollution, mental health, and future drivers of ill health including climate change, the strength of the evidence base and level of maturity for primary prevention interventions is variable and requires further research and evaluation. Where the evidence on successful interventions is clear, we recommend government takes the following action:

<u>Smoking</u>

3. The treatment of smoking-related illness costs the NHS approximately £1.8 billion every year in England alone.[9] While we welcome the Tobacco and Vapes Bill, government also needs to invest in measures that will help the 6 million adults who currently smoke in the UK to quit. Although the effectiveness of behaviour change interventions related to smoking varies across populations, studies show that stop smoking support can be highly effective in helping people to quit. The potential return on investment is also significant with estimates showing every £1 invested in stop smoking measures could save £10 in future health care costs and health gains.[10] **We therefore endorse recommendations from Cancer Research UK calling on government to commit at the Spending Review to maintain investment in stop smoking support**.[11] This includes local authority stop smoking services, national mass media campaigns and 'swap to stop' initiatives.

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[7] Li, Y et al. (2020). Healthy lifestyle and life expectancy free of cancer, cardiovascular disease, and type 2 diabetes: prospective cohort study, *Bmj,* 368:l6669. doi: 10.1136/bmj.l6669

[8] Tran, KB et al. (2022). The global burden of cancer attributable to risk factors, 2010-19: a systematic analysis for the Global Burden of Disease Study 2019, *The Lancet*, 400:563-91. doi: 10.1016/S0140-6736(22)01438-6

[9] Action on Smoking and Health (2025). ASH Ready Reckoner January 2025: Costs of smoking to society. Available at: https://ashresources.shinyapps.io/ready_reckoner/.

[10] Public Health England (2019). Health Matters: tobacco and alcohol CQUIN. Available at: https://www.gov.uk/government/publications/health-matters-preventing-ill-health-from-alcohol-and-tobacco/health-matters-preventing-ill-health-from-alcohol-and-tobacco-use

[11] Cancer Research UK (2025). Spending Review 2025 Submission. [Unpublished]

4. Furthermore, studies show the positive impact of increasing taxation on reducing tobacco use.[12,13] Government should **increase tobacco duty to ensure annual real terms price increases in tobacco and abolish duty-free entry of tobacco products at our borders**, in line with the recommendations of the Javed Khan Review.[14]

Alcohol

5. Interventions that drive behavioural change can prevent or delay alcohol use, reduce consumption in problem drinkers, and reduce dangerous activities. Evidence shows a clear link between alcohol affordability, consumption and harms.[15] Based on the existing evidence, minimum unit pricing (MUP) would likely be the most impactful measure the government could take to reduce alcohol-related health harms from excessive consumption.[16] **We recommend that MUP on alcohol is implemented in England, alongside increased alcohol duty**. As those most at risk of alcohol-related harms live in the most deprived areas, MUP also has the potential to reduce health inequalities.

Outdoor air pollution

6. The Chief Medical Officer's 2022 report on air pollution clearly outlines the impacts of air pollution on health.[17] Interventions that influence behavioural change for outdoor air pollution focus on changing individual actions to reduce exposure and emissions. To accelerate progress on outdoor air pollution, **government should make a formal commitment to meet World Health Organisation Air Quality Guidelines on NO_2, PM_{10}, and $PM_{2.5}$.**[18]

Obesity

7. The strength of evidence for interventions on obesity is moderate, with some clear areas where government can take action and other areas where more research is needed. For adults, studies show that combined physical activity interventions (for example, physician-led counselling, tailored exercise programmes and fitness testing) are effective at reducing obesity-related risk

[12] Chaloupka, FJ. et al. (2012). Tobacco taxes as a tobacco control strategy, *Tobacco Control,* 21:172-180. doi: 10.1136/tobaccocontrol-2011-050417.
[13] Public Health England (2019). Health Matters: tobacco and alcohol CQUIN. Available at: https://www.gov.uk/government/publications/health-matters-preventing-ill-health-from-alcohol-and-tobacco/health-matters-preventing-ill-health-from-alcohol-and-tobacco-use.
[14] Office for Health Improvement and Disparities (2022). The Khan review: making smoking obsolete. Available at: https://www.gov.uk/government/publications/the-khan-review-making-smoking-obsolete.
[15] World Health Organisation (2019). The SAFER technical package: five areas of intervention at national and subnational levels. Available at: https://www.who.int/publications/i/item/the-safer-technical-package.
[16] Burton, R. et al. (2017). A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective, *The Lancet,* 389:1558–80. doi: 10.1016/S0140-6736(16)32420-5.
[17] Department for Health and Social Care (2022). Chief Medical Officer's annual report 2022: air pollution. Available at: https://www.gov.uk/government/publications/chief-medical-officers-annual-report-2022-air-pollution.
[18] World Health Organisation (2021). WHO global air quality guidelines. Available at: https://www.who.int/publications/i/item/9789240034228.

factors in high income countries such as the UK.[19] Recent reviews have highlighted the limited long-term effectiveness of current dietary and activity interventions on childhood obesity and this should be a priority for further research.[20,21]

8. In addition, complementary measures banning price promotions for food and drinks that are classified as high in fat, sugar, or salt (HFSS), restricting in-store positioning and introducing mandatory front-of-pack nutritional labelling are clearly evidenced as high impact and relatively low-cost policies to implement.[22] **Government should continue to implement these policies, including the price promotion restrictions on HFSS food and drink due to come into force in October 2025.**

9. We also recognise the impact that new pharmaceutical interventions, including GLP-1 receptor agonists (GLP-1RAs), will have on the treatment of obesity. Nesta have reported on the significant impact that widescale rollout of GLP-1RAs could have on the prevalence of obesity in the UK, rating the evidence quality as very high.[23] Clinical trials have also demonstrated the wider benefits of GLP-1RAs, including reducing the incidence of major adverse cardiovascular events.[24] However, the use of these medications to prevent weight gain in those who are not overweight or obese has not been studied.[25] Studies also indicate that patients may regain weight if they discontinue the medication[26] and the long-term safety and efficacy of GLP-1RAs remains under investigation.[27] The socio-economic and behavioural drivers of obesity are complex, and we would be happy to provide further advice on advancements in pharmaceutical interventions.

Recommendation 2: Prioritise childhood health to promote the nation's overall wellbeing and future prosperity.

10. The burden of preventable disease falls disproportionately on the most deprived communities, with inequalities in mental and physical health outcomes starting in

[19] Ominyi, J. et al. (2024). Long-term effectiveness of physical activity interventions for adults across income contexts: a systematic review of strategies and outcome, *Bulletin of Faculty of Physical Therapy,* 29:90. https://doi.org/10.1186/s43161-024-00257-9.
[20] Spiga, F. et al. (2024). Interventions to prevent obesity in children aged 5 to 11 years old, *Cochrane Database of Systematic Reviews*, 5:CD015328. doi:10.1002/14651858.CD015328.pub2.
[21] Spiga, F. et al. (2024). Interventions to prevent obesity in children aged 12 to 18 years old, *Cochrane Database of Systematic Reviews*, 5: CD015330. doi:10.1002/14651858.CD015330.pub2.
[22] Nesta (2024). A blueprint to halve obesity in the UK. Available at: https://blueprint.nesta.org.uk/?orderby=evidence.
[23] Nesta (2024). Blueprint: Large scale roll-out of pharmacological interventions. Available at: https://blueprint.nesta.org.uk/intervention/large-scale-roll-out-of-pharmacological-interventions/
[24] Zushin, PJ et al. (2025). Evaluating the benefits of the early use of GLP-1 receptor agonists, *The Lancet*, 405:10474, 181-183. doi: 10.1016/S0140-6736(24)02255-4
[25] MHRA (2024). GLP-1 receptor agonists: reminder of the potential side effects and to be aware of the potential for misuse. Available at: https://www.gov.uk/drug-safety-update/glp-1-receptor-agonists-reminder-of-the-potential-side-effects-and-to-be-aware-of-the-potential-for-misuse
[26] Chakhtoura, M et al. (2023). Pharmacotherapy of obesity: an update on the available medications and drugs under investigation*, eClinicalMedicine*, 58:101882. doi: 10.1016/j.eclinm.2023.101882
[27] Eckert, N. (2023). What Is the Dark Side of GLP-1 Receptor Agonists? Available at: https://www.medscape.com/viewarticle/998986

childhood.[28] The early years provide a crucial window to improve child health and, in the long-term, population health and the economy.[29]

11. This government has a foundation in proven early years support: the 1997-2010 government set a child poverty target enshrined in law and introduced the Sure Start programme, which reduced hospitalisations in young and older children, accidental injury and obesity prevalence, amongst other benefits.[30]

12. The current model of Family Hubs and the Start for Life programme has followed as a joint initiative between DHSC and DfE; it seeks to join-up and enhance services for families with children of all ages. **We recommend that this government commits to multi-year funding for Family Hubs and the Start for Life Programme, with regular evaluation of its impact compared to the success of the Sure Start Programme**.

13. Successive governments have pledged to do more to tackle child poverty and realise the proven benefits for health outcomes, educational attainment and reducing inequalities, but they have lacked ambition**. A target for reducing child poverty should be reinstated in law by this government to give every child the best start in life and raise the healthiest ever generation of children**.

Recommendation 3: Scope and deliver a modern, personalised disease prevention service

14. Digital technologies are the key to delivering personalised prevention at scale. **Government should aim to create a digital-first Personalised National Prevention Service to help empower citizens to take control of their health.** We recommend that work is undertaken by DHSC and DSIT to scope an evidence-based, holistic, and joined-up digital prevention pathway. This should consider how UK citizens access and interact with their health and wellbeing data, make and receive assessments of their health, and are signposted to the services they need. Government should draw on principles outlined in the Digital Inclusion Action Plan in the design of these new services to ensure that everyone can benefit from innovations.

15. Digital transformation, including recent upgrades to the NHS App, which now has over 35 million registered users, are empowering patients to take control of their health. Initiatives such as the National Data Library, National Health Data

[28] Lee, AR. et al. (2023). Child poverty and health inequalities in the UK: a guide for paediatricians, *Archives of Disease in Childhood,* 108:94-101. doi: 10.1136/archdischild-2021-323671.
[29] Academy of Medical Sciences (2024). Prioritising early childhood to promote the nation's health, wellbeing and prosperity. Available at: https://acmedsci.ac.uk/file-download/96280233.
[30] Hayre J. et al. (2025). Health impacts of the Sure Start programme on disadvantaged children in the UK: a systematic review, *BMJ Open,* 20:15:e089983. doi: 10.1136/bmjopen-2024-089983.

Research Service, Administrative Data Research UK, the single unique identifier for children and the shift from analogue to digital in the 10 Year Health Plan will all prove beneficial to the digital health landscape if coordinated effectively.

16. Many of the levers for health lie outside of the health service, including housing, income security, education, transport, food policy, and the environment. Improving strategic connectivity between data sets would enable us to build a picture of influences on health and support the targeting and evaluation of interventions. **Data linkage projects such as Administrative Data Research UK and Health Data Research UK should be expanded to deliver this capability.**

17. There is also a data-driven population opportunity to deliver sustainable and equitable population health improvement. Local data on interventions is abundant and several regions undertake successful programmes to evaluate and respond to it, but we may be missing opportunities to gain further insights that would be afforded by a national approach to health data. Sharing data UK-wide, as was the case during the Covid-19 pandemic response, will enable further avenues for evaluation and, consequently, better targeting of interventions and pooled resources.

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