A Policy Synthesis report into the current state of Gut-Immune-Brain Axis policy within the UK

The UK is actively researching the gut-immune-brain axis with a particular focus on how the health of the gut influences both the mental and physical health of an individual and how the gut can influence the treatment for conditions such as anxiety, depression and dementia.

The UK Gut-Immune-Brain Axis (GIBA) Network+ is a major project funded by the UKRI aiming to understand the complex interplay between the gut, immune system and the brain.

Set out here is a report of a scanning activity carried out to determine where research into the gut-immune-brain axis has been implemented in parliamentary and government settings.

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Executive summary

The gut-brain axis refers to the bidirectional communication network that links the gastrointestinal tract and the central nervous system. This communication is mediated through immune, metabolic, endocrine and nervous signalling. Policy surrounding this refers to the possibility of using knowledge about this two-way communication between the gut, brain and immune systems to inform public policy decisions related to both health and well-being. Gut-brain axis policy could have far-reaching implications, including policies focusing on environmental factors, diet, lifestyle and interventions directly targeting the gut microbiota in the modulation of health conditions. With the overall goal of improving both mental and physical health.

Overview of the gut-brain axis

The gut-brain axis is a complex network of pathways providing bidirectional communication between the brain and the gut with influence on the function of both. This includes the vast and complex population of microorganisms inhabiting the gut, termed the gut microbiota.

The gut and brain communicate through various mechanisms including via the nervous system (both central and enteric), the immune system, and hormonal and metabolic signalling.

Policy implications:

Several policy areas could be influenced by research undertaken on the gut-brain axis.

1. **Environmental policies:** Polices that relate to a reduction in environmental toxins or a modulation of living conditions that can impact the gut microbiome and as a result affect both mental and physical health.

2. **Dietary policies:** Policies promoting access to healthy and fibre-rich foods and the potential regulation of certain food additives or processing methods that could be used to promote the health of the gut microbiome and its corresponding influence on mental and physical health. Policies such as informing consumers about the impact of dietary components on the gut-brain axis could allow individuals to make healthier choices.

3. **Lifestyle policies:** Policies that encourage management of stress, encourage physical activity and general wellbeing may be used to influence the gut-brain axis. Integrated stress management could help individuals not only manage stress but also have a positive impact on conditions influenced by the gut-brain axis.

4. **Public health interventions:** The NHS 10-year plan sets out objectives to reform the NHS shifting care from hospitals to the community; from analogue to digital; and from sickness to prevention. In addition, there is the aim to work in partnership with other sectors including life sciences, local government and the 3rd sector, which is where the GIBA Network could contribute. The National quality board will also be reformed with initial priorities including mental health and dementia.

There has been extensive research into both gut health and neurological and mental conditions and more recently work undertaken on the gut-brain axis itself, this research has the potential to be translated into policy initiatives to improve gastrointestinal, mental and wider spread physical health issues.

Current situation in Gut-Brain Axis policy in the UK

As of October 2025, the term “gut-brain axis” has been brought up in in governmental settings 22 times. This includes mentions in debates, letters and bills both within the House of Commons and in the House of Lords.

Parliamentary Bills

Consumer Products (Control of Biocides) Bill [HL] - Hansard - UK Parliament

Summary:

- Discussion about the widespread availability of biocide-containing consumer products for human use and microbiotoxicity
- Statements including “We are increasingly starting to understand the importance of these microorganisms in health and disease”.
    - Impact on other bodily systems becoming clearer also discussed.
- Bill states “We all have protective commensal bacteria on our skin and in our gut and mucous membranes, but when they are damaged by biocides, harm results”

Mental Health Bill [HL] Volume 841: debated on Monday 25 November 2024

Mental Health Bill [HL] - Hansard - UK Parliament

Summary:

- Discussion surrounding the knowledge that the microbiome affects mental health
- How the UK food system could influence mental health

Direct quotes from the discussion of the Bill:

Baroness Bennett of Manor Castle

Linked microbiome research to mental illness treatment and "green prescribing" approaches.

- "I do not think anyone this evening has yet used the phrase "the gut-brain axis", but in the last decade there has been an explosion of understanding of the link between the microbiome and mental health"
- "We have, particularly in the UK, a broken food system"
- "This is of course a long way from legislation but, if we are to think systemically, it is the context in which we have to think about the Bill."

Debates House of Commons

- 2nd Dec 2021, Westminster Hall (Tokyo Nutrition for Growth Summit) — Julie Elliott MP stressed the microbiome's role in physical and mental health, citing 70% of the immune system being derived from the gut microbiome.
- 2nd February 2021, Matt Hancock MP raised the microbiome's role in immune resilience against COVID-19 and asked about research into pre/probiotics.
- 17th January 2024, Science & Technology Committee: MP Tracey Crouch asked questions on gut health and its relationship to mental health and wellbeing.
- 16th October 2024, Tim Farron MP asked questions on microbiome-related COVID research and its implications for mental and physical health.

Debates in the House of Lords

- Earl of Effingham Oct 2023 debate: described the gut as the “second brain” and argued for recognition of diet’s role in mental health and cognition.
- Baroness Bennett and others have tabled questions on updating dietary guidelines to reflect gut microbiome science.
- Baroness Merron (Feb 2025) confirmed no immediate plans to adapt the Eatwell Guide, citing the complexity of evidence.

APPG on the Human Microbiome

The All-Party Parliamentary Group (APPG) on the Human Microbiome was established in 2019 and ran until 2023. Chaired by Julie Elliott MP (Labour) the Cross-party group including MPs such as Sir Robert Goodwill, Jessica Morden, Siobhain McDonagh, and Tracey Crouch. With the purpose “To raise awareness of the human microbiome and its links to physical and mental health”.

The activities of the APPG included organising parliamentary events with scientists on the gut-brain axis and on the implications for public health. Holding meetings to highlight the microbiome’s role in resilience, immunity, cognition and mental health and calling for more research funding and incorporation of microbiome science into policy (diet, mental health and education). It published an inquiry brief that explicitly sought written evidence on “the most promising health interventions arising through altering the gut microbiome”.
Achievements of the APPG included providing a forum for MPs to engage with microbiome science including a discussion of UK microbiome research in a “One Health” context. The APPG also established connections between parliamentarians, researchers and commercial stakeholders. No major published policy-recommendations reports, or independent reviews were carried out by the APPG. The APPG on the Human Microbiome achieved meaningful early-stage outcomes: raising awareness among parliamentarians, connecting research/industry with policy, and contributing to the discourse around microbiome science and its implications for health and economics.

However, its direct policy leverage (causing legislation or major policy change) was limited. As such the work carried out in this APPG could serve as a starting point to build and extend the awareness of the human microbiome and the gut-brain axis.

Devolved administrations and Legislatures

In addition to the gut-brain axis being highlighted in both the House of Commons and the Lords, the topic has been raised in the parliaments of the devolved nations, which have individually carried out their own reviews and have debated topics related to the gut-brain axis.

Scottish Parliament:

MSPs (*e.g.* Emma Harper) raised the microbiome in committee discussions about food labelling and its links to health. Food Standards Scotland evidence flagged emerging research on ultra-processed foods and microbiome effects

Senedd Cymru / Welsh Parliament:

Welsh NHS Confederation evidence highlighted links between gut microbiome and depression, submitted to the Health & Social Care Committee. Welsh Government evidence papers (2024) referenced nutrition, gut health, and mental health planning.

Northern Ireland Assembly:

Research briefings and knowledge-exchange seminars included material on microbiome differences in students with mental illness and self-harm
There is currently no specific, standalone governmental policies explicitly covering the gut-brain axis in the UK. Currently, policy outputs related to this field are integrated into broader initiatives concerning public health, nutrition, mental health and scientific research funding.

The UK Medical Research Council and Biotechnology and Biological Sciences Research Council, provide significant funding for research into the microbiome and its link to neurological and metabolic disorders. This research is foundational for future policy. Research has led to the development of potential therapies (*e.g.*, psychobiotics, specific dietary interventions, faecal microbial transplants) for neurological, psychiatric and gut-based disorders.

Gut-brain axis policy in other countries

Internationally, a scan of policy literature suggested that largely no governments had any policies dedicated to the gut-brain axis. Instead, approaches mostly involved the dedication of funds to scientific research initiatives and the existence of regulatory frameworks for products and medical and environmental initiatives.

The European Union's Horizon 2020 research and innovation commissioned a white paper entitled "The Human Microbiome as a Reporter and Predictor of Health", published in April 2024[1], addressing gaps, emerging fields and political priorities in human microbiome research across the EU. The paper set out areas in need of coordinating to expand existing microbiome research to maximise the potential for diagnostic and therapeutic utility:

1. Orient research funding towards microbiome epidemiology
2. Promotion of standardisation and accessibility of microbiome data and metadata to improve comparability and translational impact of microbiome research
3. Produce pathways to innovation and in favour of developments serving public health interests towards better management of chronic disease epidemics.

Looking forward

Looking ahead, future gut-brain policy frameworks are likely to focus on an effort to integrate research into clinical practice, public health strategies and regulatory guidelines into the microbiome health and environmental policies. This may include:

- The standardisation of research to address public policy questions, in November 2025, the MHRA led an international study revealing inconsistencies in global microbiome research.
- The rollout of personalised medicine (potential for microbiome mapping)
- Inclusion of how the human microbiome, immune system and mental health influence each other in national health guidelines.
- Prioritisation of early life interventions with a focus on prevention rather than cure
- Public education initiatives
- Interdisciplinary collaboration
- Use of AI and big data
- Regulatory pathways (laws brought in affecting microbiome-based products and products that modulate the environmental and human microbiome)

[1] www.humanmicrobiomeaction.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 964590
White paper and recommendations on the human microbiome addressing gaps, emerging fields and political priorities:
"The Human Microbiome as a Reporter and Predictor of Health"

Summary and Conclusions

In summary, there is currently no unified gut-brain axis policy in place in the UK, which allows for the development of one to emerge via research initiatives, regulation and under the guidance of advisory groups. Over the last 10 years there has been an advancement in the recognition of the need for research into the gut-brain axis and the set-up of funding, facilities and groups (**Figure 1**). This has also coincided with increased public interest and awareness, with the next steps potentially allowing the knowledge acquired over the last decade being used to shape areas of policy discussed above in future.

Timeline of Gut-Brain axis policy developments in UK

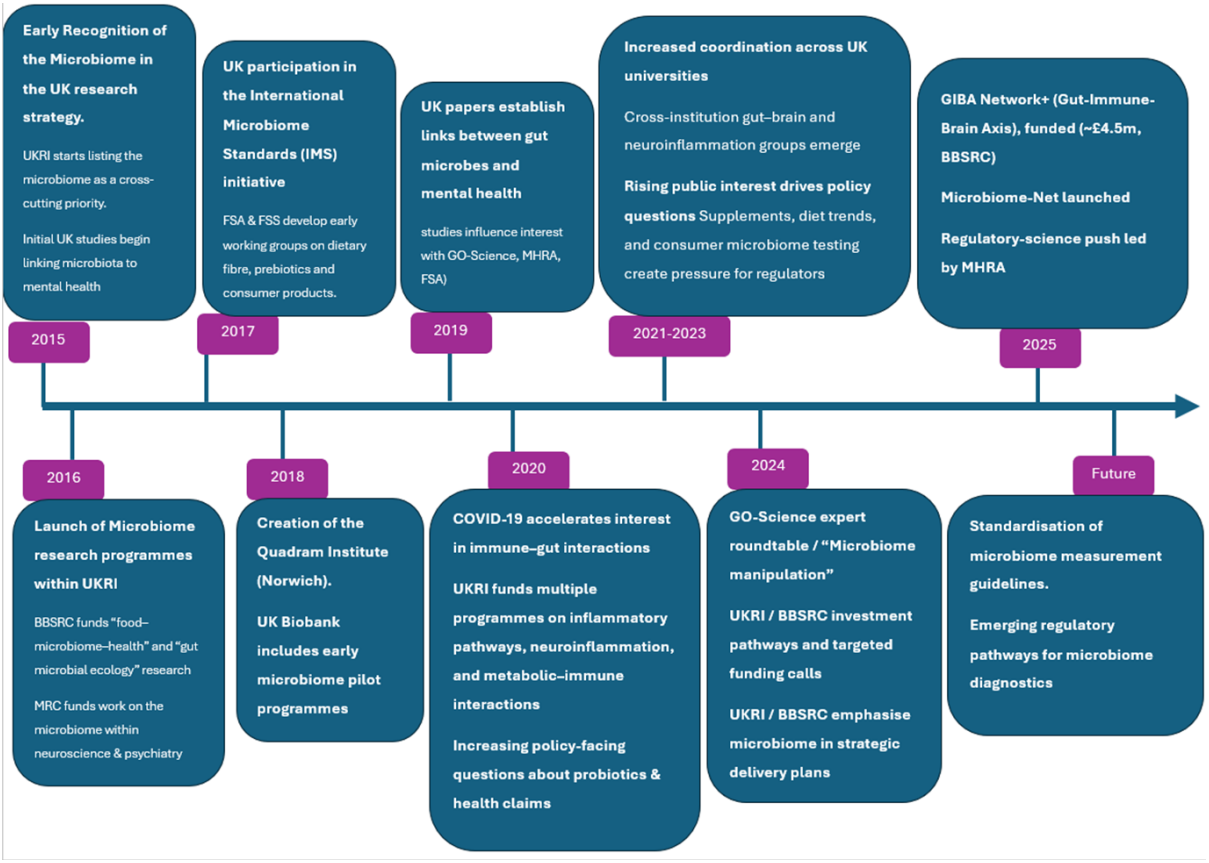

Figure 1: A timeline of the developments of gut-brain axis policy in the UK over a ten-year period between 2015 and 2025.

This leaves GIBA in a position to contribute to each of these following areas:

- **Increase the recognition of the science behind the gut-brain axis:** MPs, peers, and devolved parliamentarians increasingly reference microbiome research when discussing mental health, diet, and immunity. The APPG on the human microbiome and the support of key individuals in championing the gut-brain axis highlights that there is interest in furthering the policy in this area in the UK parliament.

- **Utilise Cross-Party Support**: Action is not confined to one party; interest spans Labour, Conservative, Green, Liberal Democrat, and cross-bench peers, as evidenced by a range of lords and MPs highlighting the gut-brain axis and members of many parties being involved in the APPG on the human microbiome. A future information event or new APPG or restarted APPG could be formed to further involvement in this area.

- **Highlight Policy Gaps:** Despite political recognition, the UK Government emphasises that evidence is not yet strong enough to revise official dietary guidelines. Producing policy briefs in key areas could highlight where policy could be driven off the back of gut-brain axis research.

Parliamentary interest and attention on the microbiome and the gut-brain axis have steadily grown over the last decade, primarily led by the now disbanded APPG on the Human Microbiome and contributions by MPs, peers and committees in the devolved administrations. Whilst the gut-brain axis is now part of parliamentary discourse, further exposure and engagement would be required to drive the evidence-driven research into policy incorporation.