10 Year Health Plan Supporting Documentation - Genomics

1. Widening the use of Genomic Testing to Drive the Transition to Prevention

The UK has a strong global advantage in genomics research and clinical application of genetic testing and can leverage this leadership in genomics research and clinical applications to advance preventative healthcare.

Genomics can identify individuals at heightened risk of disease, allowing for early interventions that prevent disease onset or progression. Incorporating this into the NHS will shift healthcare from reactive to proactive and is critical in tackling long-term public health challenges such as cancer, cardiovascular disease, and rare genetic conditions. Furthermore, understanding the genetic drivers of disease and key individual risk factors will allow for early behavioural and targeted medical interventions.

Recommendations:

- **Expand and simplify patient eligibility via the National Genomic Test Directory** to ensure equitable and appropriate access to genetic testing and to aim in mainstreaming more genomic testing and to cover a broader range of diseases beyond cancer and rare genetic diseases
- **To develop and monitor key performance indicators** on equity of access to genomic testing. To develop linkages between data holdings to allow for research on the impact of genomics including healthcare resource utilisation and patient outcomes (e.g., for whole genome sequencing).
- **Accelerate the integration of health data** and ensure these datasets are accessible for research to support future drug discovery.

2. Empower Patients and Workforce with Genomic Literacy

A truly preventative system requires providing both patients and healthcare professionals with the knowledge to interpret and act on genomic information. Enhancing genomic literacy in the public and the healthcare workforce ensures informed decision-making and will maximise the impact of preventive measures.

Recommendations:

- **Incorporate genomics education** into training curricula and provide ongoing professional development for current clinicians.
- **Develop patient-facing tools and resources** that explain the significance of genetic testing in clear, actionable terms, enabling individuals to make informed choices about their health.
- **Invest in digital health platforms,** in the longer term, to provide personalised risk assessments and lifestyle recommendations based on a combination of genetic profiles, healthcare records, and up to date wearables data, fostering a culture of prevention.
- **Develop a framework for industry collaboration** to allow for the Genomics Education Programme to strengthen their impact, co-develop materials with industry partners, to work across several aligned priorities, and to set priority areas and commit to delivery in different focus areas.

3. Drive Research and Innovation for Next-Generation Genomic Tools

Maintaining the UK's leadership in genomics will require sustained investment in research and development to support innovation and attract global investment. Advancing genomic tools can revolutionize prevention, early detection, and treatment strategies

Recommendations:

- **Fund translational research** that bridges the gap between genomic discoveries and clinical applications, with a focus on preventive therapies.
- **Support the development of advanced technologies** such as polygenic risk scoring, and multi-omics research to provide a more comprehensive understanding of disease risk and development.

4. Pharmacogenomics: A Key Pillar of Precision Health

Pharmacogenomics is a critical component of precision health. By integrating genomic insights into prescribing practices, pharmacogenomics enables healthcare providers to tailor drug therapies to each patient, improving outcomes and reducing the risk of adverse drug reactions (ADRs).

Recommendations:

- **Support pharmacogenomic trials** across primary and secondary care settings to establish how best to integrate Pharmacogenomics into routine healthcare.
- **Support the development of decision support tools** to provide real-time genomic insights at the point of prescribing.
- **Increase workforce education** to support the application of pharmacogenomic data in clinical decision-making.

5. Benefits of Newborn Genomic Screening

The Generation Study, run by Genomics England, is a world-leading study screening 100,000 babies for inherited conditions. Integrating genomic screening into routine newborn care could bring transformative benefits for patients, families, and the healthcare system.

Recommendations:

- **Support and expand rollout of the Generation Study** to benefit more families.
- **Integrate genomic data into electronic health records,** ensuring insights are available throughout a patient's life.
- **Make data accessible for research** building on the UK's global leadership in genomics, making anonymised newborn data available for research would build on existing success.

Conclusion: A Vision for Preventative Healthcare

The UK's strength in genomics provides a unique opportunity to lead the global shift toward preventative healthcare. By expanding access to genetic testing, empowering individuals and clinicians, the UK can create a sustainable, equitable, and data-driven model of preventative care that will improves health outcomes.