

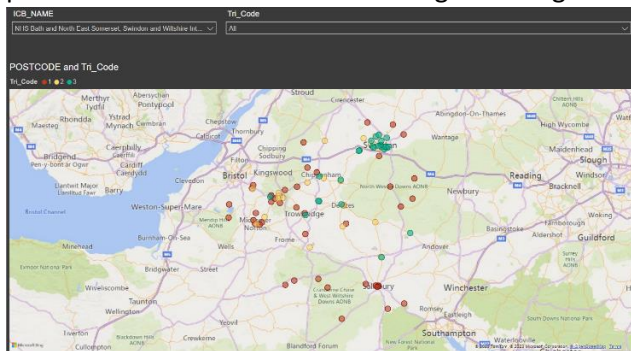
Patient Discovery & Early Diagnosis

Targeting and Segmentation

This model uses a targeting and segmentation methodology commonly used within the pharmaceutical industry to target undiagnosed patients with an early-stage health condition likely to benefit from a new drug or treatment. The calculations are based on practice disease registers, local conditions, and disease demographics, indicating the likely incidence of the appropriate disease (Diabetes). These data are used to define risk factors by calculating the average score for each risk factors appropriate to each and all GP Practices.

The Model

The model allows for the selection of England as a whole or any ICB and provides a breakdown of the Ethnic Mix by GP Practice as a guide to ethnicity effects on Diabetes prevalence. It provides a breakdown of the Index of Multiple Deprivation by GP Practice as a guide to possible Deprivation effects as well as a breakdown of the selected Key Influencers, local conditions, and disease demographics etc... The model uses quintile scores for each of the influencers and identifies which Quintile they belong to by GP Practice. Quintile 1 represents the Highest 20% with Quintile 5 the Lowest 20%. It shows how the calculations are constructed to produce an Early Diagnosis Indicator based on a Tri-Code or Traffic Light approach. 3 = Above Average Patient Discovery, with 2 around Average and 1 = Below Average and where there is a Potential for improving Patient Discovery and Early Diagnosis. Finally, the model provides a visualisation of the findings showing Tri-Code approach.



The model provides a visual that allows for the selection of any ICB in England and any or all Tri-Code Patient Discovery or Early Diagnosis indicators. These are presented in a ICB Map visual showing the Tri-Code scoring where 3, shown as Green Practices are Above Average, with 2 Amber Practices being around Average & finally 1, the Red Practices being Below Average & therefore having the Potential for improving

Patient Discovery and Early Diagnosis. The use of a targeting and segmentation model to enhance patient discovery and early diagnosis is of great significance in the context of healthcare, and it aligns with the NHS focus on prevention. This approach can offer several benefits and help mitigate the downsides associated with late diagnosis, both for patient outcomes and NHS costs.



Patient Outcomes:

- **Timely Interventions:**
 - Targeting and segmentation based on risk factors and disease demographics can identify individuals at higher risk for specific health conditions, such as Diabetes. By doing so, healthcare providers can intervene early and initiate treatment or preventive measures, improving patient outcomes.
- **Reduced Disease Progression:**
 - Early diagnosis enables healthcare professionals to catch diseases at a stage when they are more manageable. Patients with Diabetes, for example, can benefit from early lifestyle interventions and medication, reducing the risk of complications.
- **Enhanced Quality of Care:**
 - By identifying patients at risk, healthcare providers can tailor their care plans, offer education and support, and monitor these individuals more closely, leading to a higher quality of care.
- **Psychosocial Benefits:**
 - Early diagnosis can also alleviate the anxiety and stress often associated with late diagnoses. Patients who receive early attention and information about their condition are better equipped to manage their health.

Costs to the NHS:

- **Preventive vs. Reactive Care:**
 - Targeting undiagnosed patients with early-stage conditions can shift the NHS's approach from reactive and costly care to preventive measures. Preventing the progression of diseases saves substantial healthcare costs.
- **Reduced Hospitalization:**
 - Early diagnosis may reduce the need for hospitalization and complex treatments, resulting in significant cost savings.
- **Optimized Resource Allocation:**
 - By focusing resources on high-risk populations, the NHS can optimize the allocation of healthcare services, reducing inefficiencies and costs.
- **Data-Driven Decision-Making:**
 - The model's use of data analytics, quintile scores, and visualizations can help healthcare decision-makers identify areas where early diagnosis potential is low (e.g., "Red Practices"). This information can guide resource allocation and strategic planning.
- **Economic Efficiency:**
 - Preventing late diagnoses not only improves patient outcomes but also saves individuals and the healthcare system from the economic burdens associated with advanced diseases.

It's well-documented that the cost of not diagnosing patients with diabetes early can have a substantial financial impact on healthcare systems like the NHS. The costs can be attributed to various factors:



- Treatment Costs:
 - Late diagnosis often means that patients are diagnosed when their condition has progressed to a more advanced stage. Managing advanced diabetes typically involves more intensive medical interventions, including costly medications, insulin, and in some cases, hospitalization.
- Complications:
 - Late-diagnosed diabetes can lead to complications such as heart disease, stroke, kidney failure, and neuropathy, among others. Treating these complications is not only costly but also results in a reduced quality of life for patients.
- Hospitalization:
 - Patients with uncontrolled diabetes may require hospitalization for acute complications like hyperglycemic crises or diabetic ketoacidosis. These hospital stays are expensive and consume healthcare resources.
- Long-Term Care:
 - Late-diagnosed patients may require long-term care and support due to the progression of their disease. This includes ongoing medical visits, medications, and monitoring, all of which contribute to healthcare expenditures.
- Loss of Productivity:
 - Late diagnosis can result in patients being unable to work or needing extended medical leave. This affects not only the individuals' income but also the overall productivity of the workforce.
- Medication and Equipment Costs:
 - Late-diagnosed patients often require more medications, insulin, and monitoring equipment, all of which add to the financial burden.
- Preventable Costs:
 - Early diagnosis and effective management of diabetes can prevent or delay the onset of complications, thus reducing healthcare costs.

Patient Discovery & Early Diagnosis can play a vital role in leveraging targeting and segmentation methodologies to analyze and visualize the impact of early diagnosis strategies. By providing actionable insights and evidence-based recommendations, modelling results can contribute to the NHS's goal of improving cost-effectiveness and patient outcomes, ultimately benefiting both patients and the healthcare system. We know from previous modelling exercises that the early diagnosis of patients with diabetes and other diseases varies across the UK. Patients recorded on GP registers as having diabetes range from a high of 29% to a low of less than 1% with an average of 7.6%.

Evidence has shown that the NHS spends around £10 billion a year on diabetes – around 10% of its entire budget – and the NHS DPP is highly cost effective in the long term. New data suggests that the healthy living programme resulted in a 7% reduction in the number of new diagnoses of Type 2 diabetes in England between 2018 and 2019

<https://www.england.nhs.uk/diabetes/diabetes-prevention/>