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TYPE 2 DIABETES IN 2020

The battle rages on,
but can it ever be won?

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The number of people in the UK living with diabetes has **more than doubled** in the last 20-years, with a shocking **100,000+ diagnoses** in 2019 alone.^{1,2} It's thought that this is mainly due to the growing number of Type 2 diabetes (T2D) cases.¹

No longer just a problem of older age, thousands of children and young people are now developing the condition.¹

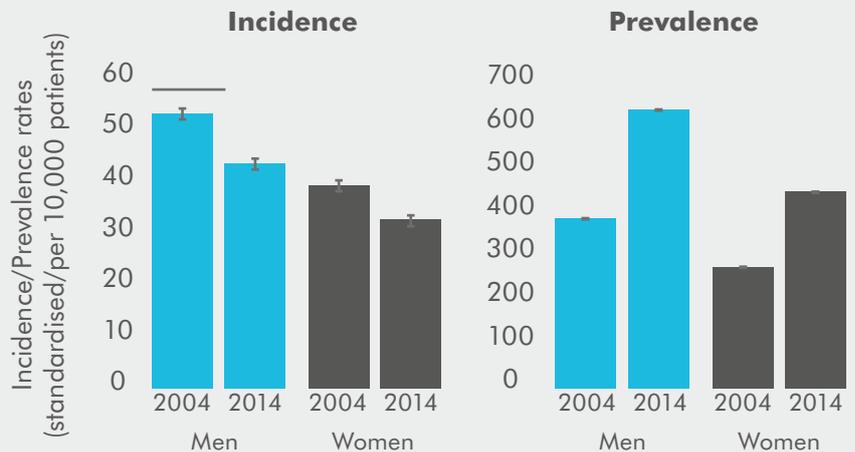
With an estimated

12.3m

people in the UK considered at risk,¹
the issue is only deteriorating

In 2017, an investigation into the trends in T2D patient data across the UK³ helped to provide a deeper understanding of the current diabetes crisis. So how can we use these new insights to improve outcomes in T2D?

A 10-year observational study in T2D patients showed a stark rise in prevalence whilst incidence rates remained relatively stable



Gender specific changes in T2D incidence and prevalence from 2004–2014.
Adapted from Zghebi, 2017.³

The scale of the problem

Thought to affect approximately 4.8 million people in the UK, with many more at risk,² diabetes mellitus is one of the fastest growing health conditions both nationally and across the globe.^{4–7} This encompasses both Type 1 diabetes (an autoimmune disorder which results in the body being unable to produce insulin)^{1,8} and T2D (a condition where the body loses its ability to respond to insulin).⁸



The economic burden and impact on the NHS is considerable,^{*9} and the potential to cause detriment to a patient's quality of life multi-faceted. With potential complications including vision impairment,¹⁰ necrotic foot ulcers,¹¹ and cardiovascular disease.¹² A diagnosis of T2D can be devastating in so many ways.

*Diabetes and the NHS¹



Diabetes accounts for 10% of the NHS' annual budget (most of this goes toward treating the complications)



1 in 6 people in a hospital bed have diabetes



On average, someone with diabetes is twice as likely to be admitted to hospital than someone without



90% of all cases are thought to be Type 2¹

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Understanding the diabetes crisis

In 2017, a study³ by researchers at the University of Manchester set out to characterise the occurrence of T2D in the UK in more depth than ever before. Their hopes were to gain a deeper understanding of this public health issue.

This involved analysing patient data from primary healthcare records for trends in **incidence, prevalence** and **mortality rate** over a period of 10 years (2004–2014) in context with factors such as:



age range



gender



socioeconomic background



geographical region

The results of this study were interesting, drawing attention to two key conclusions:



There was a **demonstrated increase in T2D incidence** in younger patients, between the **ages of 16–34**



Although **prevalence rates of T2D increased** from 3.21% to 5.26%, **overall incidence rates remained stable**

When combined with the fact that mortality rates for all patients declined over the decade, this led to the main conclusion of this study:

The rising T2D prevalence in the UK is mainly due to diabetic individuals (along with the population in general) living longer, rather than an overall increase in incidence³

However, it must be mentioned that although mortality rates for T2D patients declined over the time period studied, **T2D is associated with a 50% higher probability of premature mortality when compared to the unaffected.²**

Why is T2D on the increase?

In order to combat the issue, it is important to understand the factors that contribute to the development of T2D:

T2D is a chronic metabolic disorder characterised by **hyperglycaemia, insulin resistance** and a **relative deficiency of insulin.¹³**

Its pathogenesis is complex with contributing factors including genetic, environmental and behavioural elements.

A hereditary component of T2D has been demonstrated,¹⁴ with a family history strongly increasing the likelihood of developing the condition.¹⁴ Mutations within many different risk factor genes (mainly

those involved in the regulation of plasma glucose levels or the synthesis of glucoregulatory hormones) have also been identified.¹⁵

However, it is believed that overall, T2D develops as a result of interacting genetic and lifestyle factors.^{14,16}

Factors influencing the development of T2D

GENETIC	ENVIRONMENTAL
Ethnicity ³³ Mutations to genes involved in: ¹⁵ <ul style="list-style-type: none"> Glucose production Insulin production and regulation Sensing of glucose levels Biological sex ³	Smoking ²³ Diet ^{17–19} Stress ²² Physical inactivity ^{20,21} Socioeconomic background ³
Obesity²⁵	

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The modern lifestyle

Lifestyle factors that are strongly associated with a likelihood of developing T2D include:



a processed and carbohydrate-rich diet¹⁷⁻¹⁹



physical inactivity^{20,21}



stress²²



smoking²³



excessive alcohol consumption²⁴

There is also a strong correlation between obesity and T2D occurrence.²⁵

As childhood obesity rates are increasing,^{26,27} perhaps this is contributing to the increasing T2D incidence in the younger generations?²⁸

Many of these risk-increasing behaviours are more common in today's society than ever before and are thought to have a large role in the current T2D rates.²⁹

To emphasise the impact that lifestyle factors are having, evidence suggests that many cases of T2D could have been prevented had different habits been in place.^{30,31}

Cultural and societal patterns have also been identified in the occurrence of T2D, with a higher prevalence observed in both men and those who grow up in deprived backgrounds.³

Other studies have also found evidence that our background can affect T2D predisposition with socioeconomic status and ethnicity influencing the risk of both childhood obesity and T2D.^{32,33}

An ageing population

As a society, we are living increasingly longer lives. This has resulted in an ageing population.^{34,35} Coupled with an apparent decrease in diabetes-related mortality,³⁶ there are more people than ever living with T2D.

With the average diabetic patient requiring more resources than an unaffected patient, the pressure on

healthcare services is a problem that is only forecasted to get worse without intervention.³

In light of this, it is necessary that we address the key factors contributing to the problem.



The current dangerous pro-diabetic lifestyle must be challenged.

This requires the consideration of both cultural and societal influences in order to prevent the development of new T2D cases



Changes must be made

to either reverse the increase in prevalence or to reduce the impact of these patients on healthcare services

How can we turn these new insights into practical solutions?

The current standard

At present, there are millions of people living in the UK who have already developed T2D.

The goal of existing treatment is to manage the condition by minimising any complications whilst ultimately maintaining healthy blood sugar levels.³⁷



In practice, it will first be recommended that the patient improves their diet and increases their activity levels. If this does not decrease blood sugar levels, medication will then be prescribed.³⁸

Prevention is better than cure

In recent years, there has been a movement towards preventative rather than reactive healthcare.³⁹ This approach is particularly appropriate for addressing T2D.

There are some instances where genetic dispositions to T2D result

in development of the condition even with low levels of risk factors.⁴⁰ However, the large influence of environmental factors means that many cases of diabetes could have actually been prevented.³⁰

As many lifestyle choices considered standard in modern society can contribute to T2D, such as high energy foods, high work-life stress and our work and home lives becoming more sedentary, **a society-wide overhaul of attitudes toward diabetes and health may be called for.**

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Campaigns promoting preventative care for T2D are already in place, including:

The Healthier You NHS Diabetes Prevention Programme⁴¹:

a **free service** providing lifestyle advice for patients at high risk both face to face and online

Diabetes UK are also contributing with efforts including the **'Food Upfront'** campaign, which advocates for clearer food labelling in order to make healthy choices more accessible; and **'Check Your Health'**, an awareness campaign urging the UK public to check their own T2D risk.⁴²

Positive outcomes have been demonstrated through these campaigns, with 'Check Your Health' leading to novel diagnoses which may otherwise have gone ignored.

Early intervention

Perhaps the best approach is through early intervention?

Dedicated education on the topic for young school children, at an age when opinions around diet and health are most malleable just might be enough to challenge the cultural norm.



Creating a greater understanding of the factors contributing to T2D at a young age will allow children to make more informed decisions regarding their health. They can then make more considered choices when it comes to their lifestyle by the time they reach adulthood.

If T2D development is beginning earlier in life, then preventative measures need to begin even earlier.

Diabetes in remission?

Although medication may be initially effective at maintaining healthy blood sugar levels, **diabetes often worsens over time.**⁴³ As a result, dosage or even medication type may need to be altered to continue to manage the condition successfully.⁴³ However, recent developments have indicated a potential solution to this problem.

Several alternative treatment methods

have been demonstrated to cause a reversal of symptoms or even complete T2D remission⁴⁴⁻⁴⁶

Surely, this is an avenue of research worth pursuing, with the ability to reverse the symptoms of a disease generally considered incurable having the potential to massively impact the pressures on healthcare services.

As well as a preventative measure, lifestyle changes have been found to promote remission of T2D in some patients.⁴⁷⁻⁴⁹ **It has even been acknowledged by the World Health Organisation that weight loss through a low calorie diet is capable of fully reversing T2D.**⁴⁴

Perhaps an unexpected method of T2D treatment, **bariatric surgery has also been demonstrated to result in diabetic remission alongside a significant improvement to glycaemia.**^{46,45} Effects on glucose levels occur rapidly after surgery and even precede weight loss.^{45,50,51}



However, there are key setbacks to the use of bariatric surgery in this way. Surgery is by no means a cost-effective solution in the short-term, alongside the current criteria for bariatric surgery requiring patients to demonstrate at least 6 months of unsuccessful weight loss attempts.

Although their efficacy in reversal of diabetes symptoms have been demonstrated, neither specifically designed low calorie/low carbohydrate diets or surgical interventions are currently included as first line approaches for T2D treatment. This is despite various governing bodies recommending both approaches.⁵²

With the overwhelming prevalence of T2D, the ability to reverse diabetes is the ideal scenario.

It has been suggested that healthcare practitioners (HCPs) should be made more aware of the efficacy of these alternative therapies in order to give patients a wider range of options when it comes to diabetes management.⁵²

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A patient's perspective

Despite the commentary around the economic impact and challenges to the NHS, it's vital not to lose sight of how the changing trends in T2D impact the most important stakeholder of all: the patient.

When taking a wide perspective on the situation, **it is easy to get so lost in the statistics that we lose sight of how the impact of living with diabetes is changing on an individual level.**

With all of the narrative about patients using up NHS resources and the emphasis on causative lifestyle factors, it's understandable that patients may

be feeling a certain level of shame in response to their condition.^{53,54}



One cross-national investigation set out to uncover the extent to which physicians are aware of T2D patients' perceptions of their illness.⁵⁵ This demonstrated a common lack of understanding between the two groups.

Results found that:

1. HCPs were often **underestimating how serious** patients perceived their condition to be
2. Patients largely did not want more time for consultation, rather the ability to be **actively involved in the management** of their condition along with **access to more information**

Directions for the future

Through the evaluation of current trends in T2D, a reoccurring theme can be identified: **a need for communication.**

Going forward, this could involve:

Increasing awareness and education on T2D for the general public

Be it by national campaigns or introducing T2D into the school curriculum, if our lifestyles are putting us at risk of diabetes, we all need to be made aware of that.

Encouraging more open communications between patient and HCP

Studies have shown that not only are patients less likely to experience complications when given an active role in their treatment plan⁵⁶ but that there is currently a lack of understanding between physicians and patients on this topic.⁵⁵

Giving sufferers a voice

An increased level of shame is impacting patients with diabetes. By removing the stigma and opening the dialogue around diabetes management, awareness around the condition will spread and patients will feel more able to ask for advice.

In conclusion...

As the diabetes epidemic progresses, so does our understanding of the problem. With the number of UK cases predicted to reach 5 million by 2025,⁵⁷ it's time to put these new insights into action.

Overall, in the fight against diabetes, information is key: information for policymakers, information for HCPs and information for patients.

The platform occupied by pharmaceutical companies creates huge potential to reach wider audience, to develop invaluable educational material and to ultimately shape the conversation around diabetes.

The issue continues to grow, but so does our knowledge and ability to disseminate expert guidance that could change millions of lives for the better.

Are you up for the challenge?



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