Non-Diabetic Hyperglycaemia, 2019-20 Diabetes Prevention Programme

England

01 Jan 2019 – 31 Mar 2020

08 July 2021

Contents

Published by NHS Digital
Part of the Government Statistical Service

Responsible Statistician: Peter Knighton, Principal Information Analyst

This audit report is part of the National Diabetes Audit programme; for more information, please visit the NDA webpage at **https://digital.nhs.uk/NDA**.

Or for further information, please contact NHS Digital's Contact Centre on **0300 303 5678**, or email **enquiries@nhsdigital.nhs.uk**.

.

Executive Summary and Recommendations

More than 2 million people are currently recorded as having non-diabetic hyperglycaemia (NDH). These people have similar characteristics to people with type 2 diabetes.

10 per cent of people with NDH recorded in 2018 had progressed to type 2 diabetes by 2020. Obesity and higher levels of HbA1c (blood glucose) were associated with greater risk of progression.

56 per cent of people with NDH had both recommended care processes in 2019-20 - glycaemic tests (e.g. HbA1c) and BMI checks.

The Diabetes Prevention Programme (DPP) began operating throughout England in 2018. Its lifestyle modification programmes are designed to reduce progression to type 2 diabetes in people with NDH. Future reports will track the identification of NDH, referral to the DPP and its impact on progression to type 2 diabetes.

Recommendations

GP practices should…

1) continue to identify and appropriately record non-diabetic hyperglycaemia diagnoses in their clinical systems
2) conduct annual glycaemic tests (HbA1c, or fasting plasma glucose) and BMI checks for people with non-diabetic hyperglycaemia
3) appropriately offer to refer people to the Diabetes Prevention Programme, who are eligible and would benefit from the programme.

Introduction: Non-diabetic hyperglycaemia

The NHS Diabetes Prevention Programme (NHS DPP) is a joint commitment from NHS England, Public Health England and Diabetes UK to deliver, at scale, evidence based behavioural interventions that can prevent or delay the onset of Type 2 diabetes in adults who have been identified as having non-diabetic hyperglycaemia.

This report primarily uses data from English GP practice systems for the period January 2019 to March 2020 inclusive, and data generated by providers of the Diabetes Prevention Programme relating to referrals up to March 2020 inclusive. The GP data is only for people diagnosed with non-diabetic hyperglycaemia.

Table 1: Registrations and prevalence[1,2], GP-recorded non-diabetic hyperglycaemia (NDH) and type 2 diabetes, 2019-20, England

Registered at GP practice	Diagnosis of Type 2 diabetes recorded		Diagnosis of non- diabetic hyperglycaemia recorded	
	Number	Per cent	Number	Per cent
49,746,150	3,174,000	6.4%	2,138,350	4.3%

Source: NHS Digital

Non-diabetic hyperglycaemia (NDH) refers to blood glucose levels that are above normal but not in the diabetic range. These are: HbA1c 42-47 mmol/mol or fasting plasma glucose (FPG) 5.5-6.9 mmol/l.

Status	HbA1c (mmol/mol)	FPG (mmol/L)
Normal	≤ 41	≤ 5.4
NDH	42 to 47	5.5 to 6.9
Type 2 diabetes	≥ 48	≥ 7.0

People with non-diabetic hyperglycaemia are at increased risk of developing type 2 diabetes. They are also at increased risk of cardiovascular conditions.

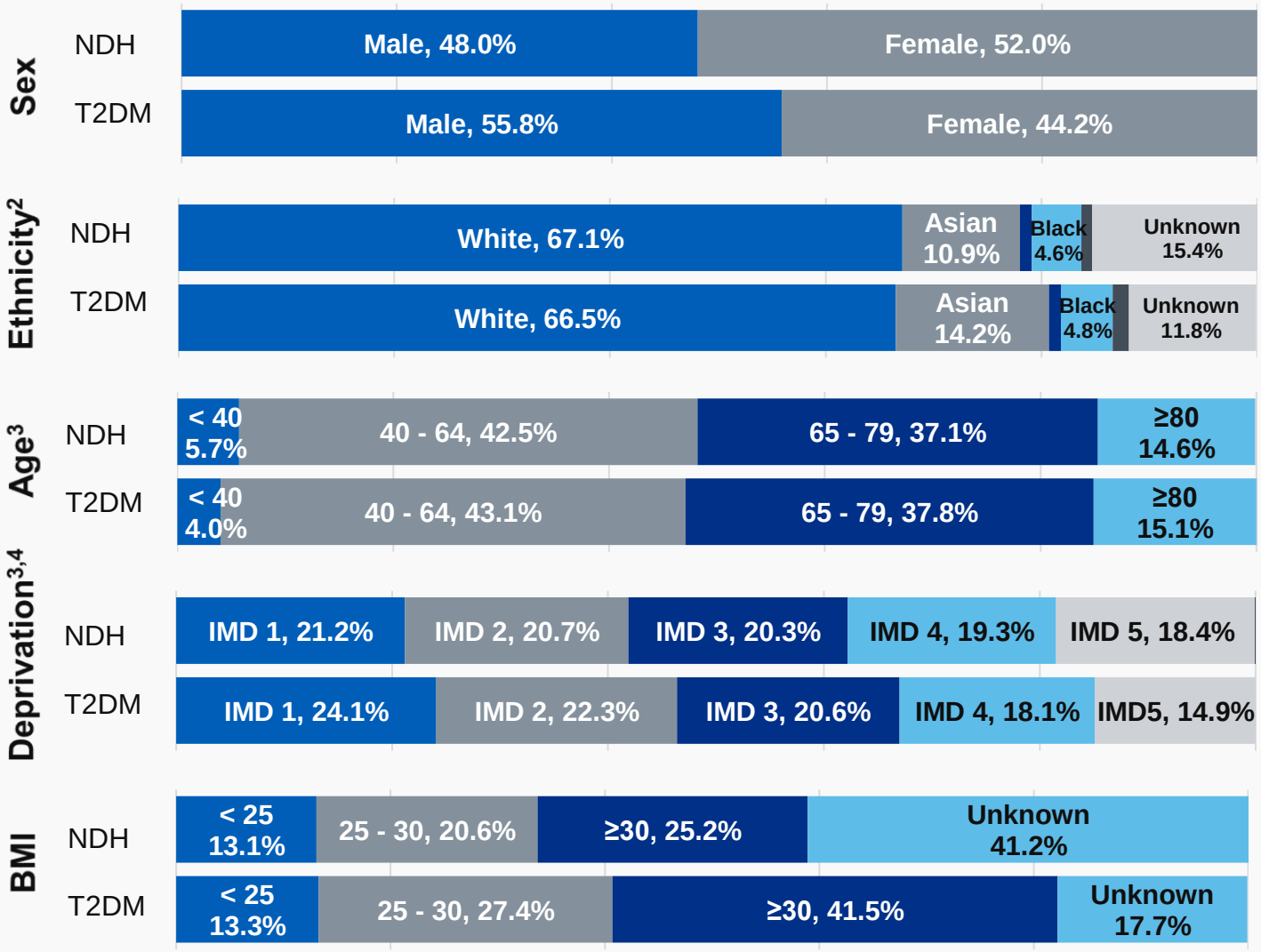
Notes:

1. People included: aged 15 years and over (with a known, valid date of birth) and registered at a GP practice that participated in NDA 2019-20.
2. Overall, 2,140,090 people were recorded with non-diabetic hyperglycaemia in NDH 2019-20. (Includes people with age unknown / under 15 years).
3. Public Health England (2015): **Diabetes prevalence estimates for local populations** and **Analysis of non-diabetic hyperglycaemia prevalence in England**.

Public Health England has estimated[3] that there are 4 million people with type 2 diabetes and 5 million people with non-diabetic hyperglycaemia in England.

Demographics: NDH and type 2 diabetes

Figure 1: Demographic breakdown[1], GP-recorded non-diabetic hyperglycaemia (NDH) and type 2 diabetes (T2DM), 2019-20, England[5]



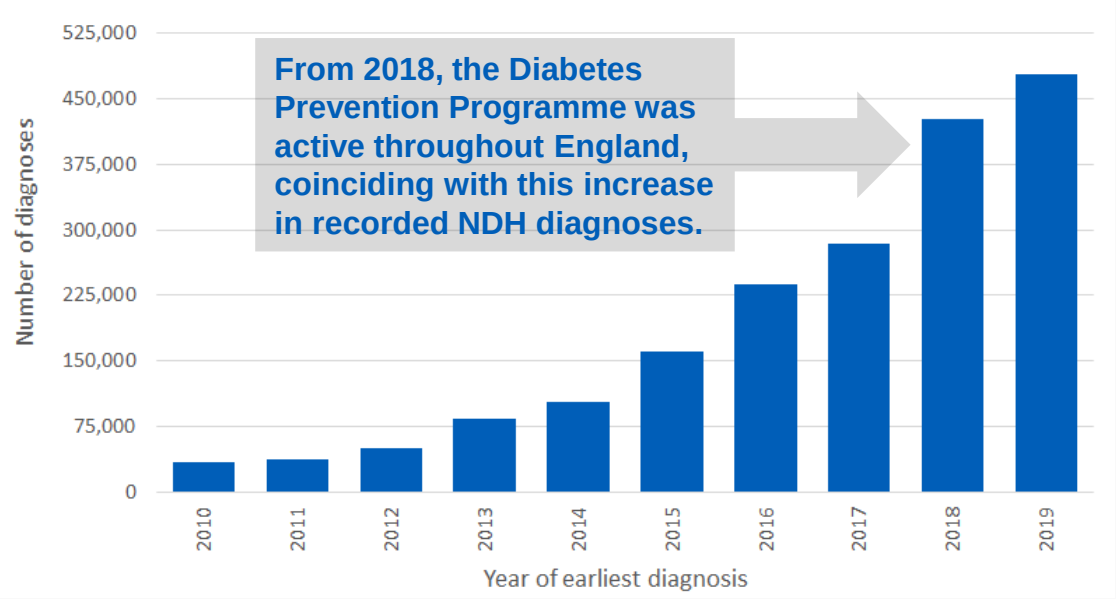
People with NDH have very similarly distributed demographics to people with type 2 diabetes; although a greater proportion of men, and people from more deprived areas, have been diagnosed with diabetes than NDH.

Notes:

1. People included: those registered at a GP practice that participated in NDA 2019-20.
2. The unlabelled ethnicity categories with very low volumes are **'Mixed'** and **'Other'.** Ethnicity is categorised using the 2011 census categories for ethnic group.
3. The low volume 'Unknown' categories have not been labelled for the Age and Deprivation characteristic breakdowns.
4. Index of Multiple Deprivation (IMD) used to assign levels of deprivation by person's home address where IMD 1 is for the most deprived and IMD 5 is for the least deprived areas.
5. Sum of individual percentages may not equal 100 due to rounding.

Demographics: Year of NDH diagnosis

Figure 2: Registrations[1], by year of earliest diagnosis[2,3,4], GP-recorded non-diabetic hyperglycaemia (NDH), 2019-20, England



Earliest year of diagnosis	Number	Per cent
2010	34,675	1.7
2011	37,725	1.9
2012	50,330	2.5
2013	84,615	4.2
2014	102,870	5.1
2015	161,670	8.0
2016	238,465	11.8
2017	284,470	14.1
2018	426,295	21.2
2019	478,310	23.8
2020	114,475	5.7

Source: NHS Digital

There has been a consistent increase in the number of people diagnosed with non-diabetic hyperglycaemia, as more of the estimated 5 million people with NDH[5] are identified and recorded on GP systems.

Recommendation 1

GP practices should continue to identify and appropriately record non-diabetic hyperglycaemia diagnoses in their clinical systems.

Notes:

1. People included: with a current diagnosis of NDH at the time of the 2019-20 collection, and registered at a GP practice participating in NDA 2019-20.
2. People may have multiple dates of diagnosis recorded, and may have experienced elevated levels of blood glucose for some time before they received a non-diabetic hyperglycaemia diagnosis.
3. Figure 2 only includes earliest diagnoses made before 2020.
4. Low figures for year of diagnosis in 2020 due to incomplete year in the data.
5. Public Health England (2015): **Analysis of non-diabetic hyperglycaemia prevalence in England.**

Care processes: Blood glucose and BMI

Table 2: Patient monitoring within the audit period[1,2], GP-recorded non-diabetic hyperglycaemia (NDH), 2019-20, England

Care process	Number	Per cent
Any glycaemic test	1,670,925	78.1
- Fasting plasma glucose	101,425	4.7
- HbA1c	1,655,190	77.3
Body Mass Index	1,367,825	63.9
BMI and glycaemic test	1,199,455	56.0

Source: NHS Digital

Notes:
1. People included: those registered at a GP practice that participated in NDA 2019-20.
2. 2,140,090 people were recorded with non-diabetic hyperglycaemia in NDA 2019-20.

‘People at high risk of developing type 2 diabetes should be offered a blood test and assessment of their BMI at least once a year.’

NICE(PH38, recommendation 1.6.5): Type 2 diabetes: prevention in people at high risk

Recommendation 2

GP practices should conduct annual glycaemic tests (HbA1c, or fasting plasma glucose) and BMI checks for people with non-diabetic hyperglycaemia.

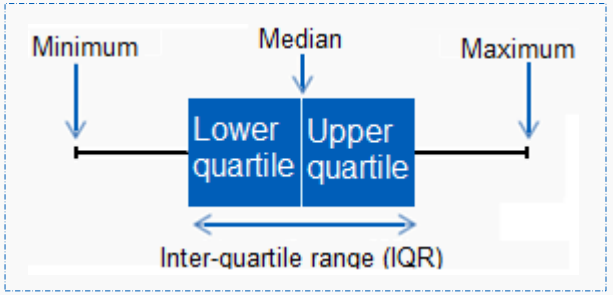
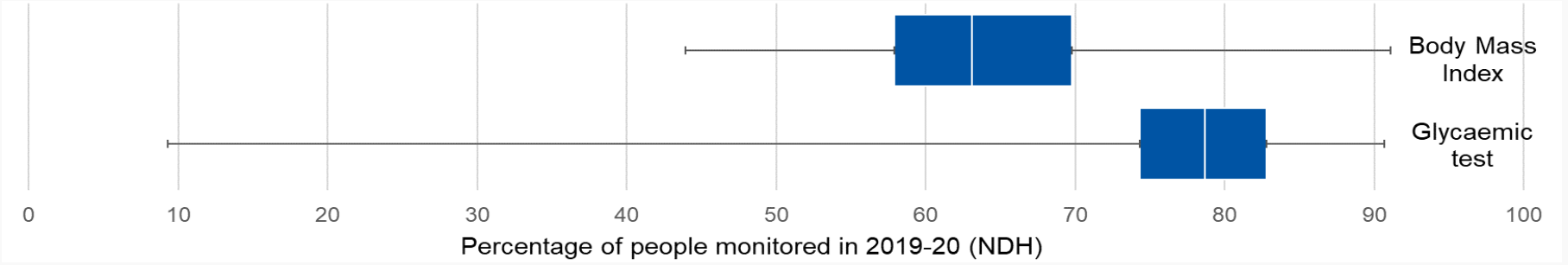


Figure 3: Patient monitoring within the audit period[1,2], by CCG, GP-recorded non-diabetic hyperglycaemia (NDH), 2019-20, England



Progression to type 2 diabetes

Figure 4: Follow up[1] of NDH / diabetes status over previous audit periods, GP-recorded non-diabetic hyperglycaemia (NDH), 2017-18 / 2018-19 / 2019-20, England

2017-18	1,294,495 people were recorded as having non-diabetic hyperglycaemia.			
2018-19	**Diabetes: 69,565 (5.4%)**	NDH: 1,168,465 (90.3%)	No diagnosis[2]: 25,690 (2.0%)	Deceased[3]: 30,775 (2.4%)
2019-20	**Diabetes: 132,690 (10.3%)**	NDH: 1,068,055 (82.5%)	No diagnosis[2]: 29,730 (2.3%)	Deceased[3]: 64,020 (4.9%)

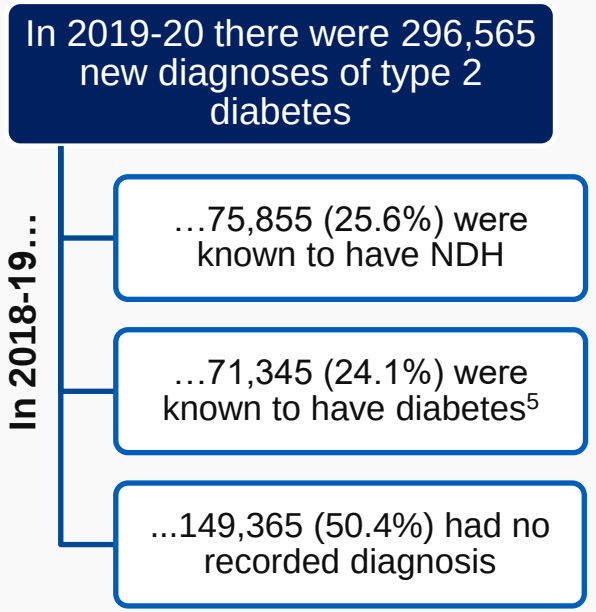


Figure 5: GP-recorded type 2 diabetes (T2DM), by NDH / diabetes[4] status in the last audit period, 2018-19 / 2019-20, England

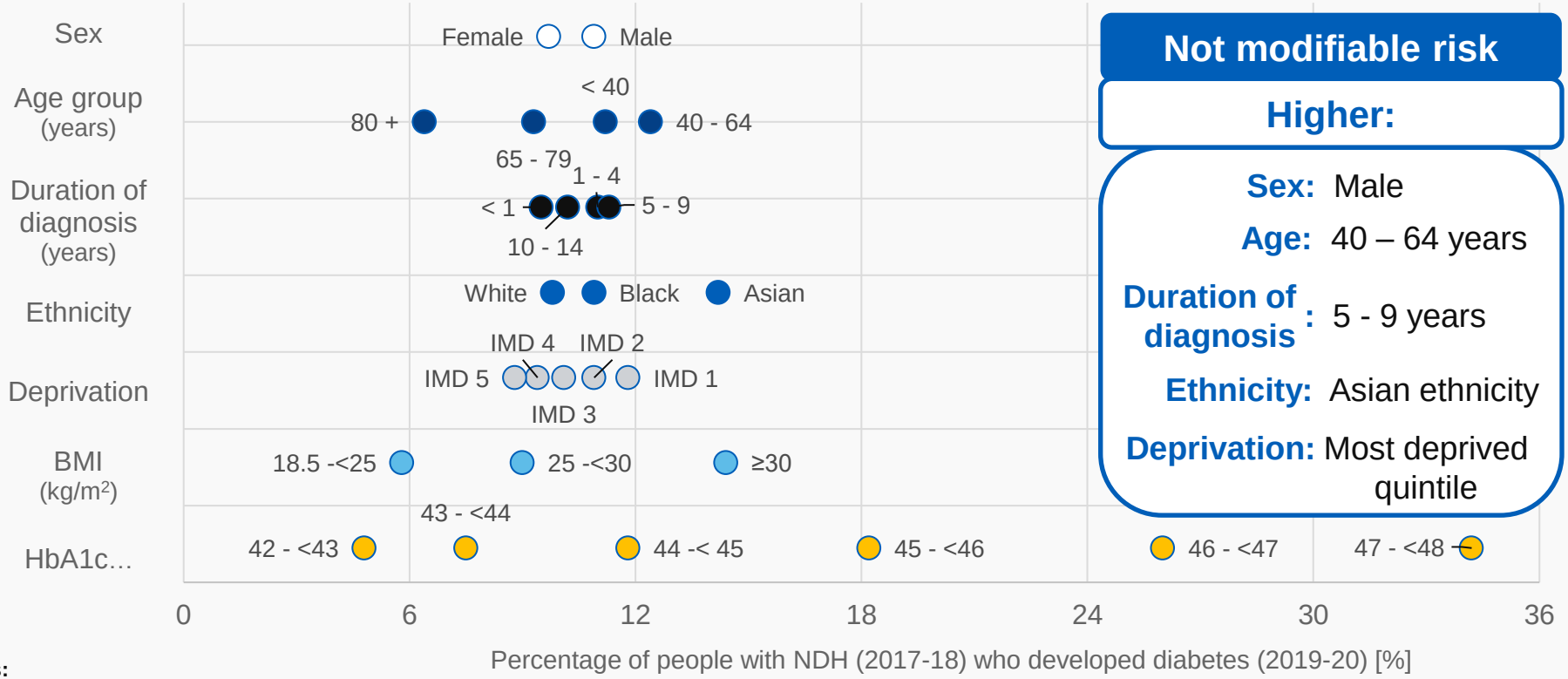
1. Includes all people diagnosed with NDH as recorded in the data taken for the 2017-18 DPP report. Includes people registered at GP practices in 2017-18 that did not participate in later NDA collections.

2. It is not known why people no longer have an NDH diagnosis recorded. Their diagnosis may have been removed, or their records may not have been collected if they moved to a GP practice not participating in the NDA collection. **3.** People who did not appear in the NDH or NDA collection for this audit period, and who are known to have died by the end of the same audit period.

4. Includes people with diabetes, as recorded in the data taken for the 2019-20 NDA report, from GP practices in England, excluding those diagnosed with type 1 diabetes. Includes people registered at GP practices in 2019-20 that did not participate in the 2018-19 NDA collection. **5.** NDA 2018-19 and NDA 2019-20 are 15 month audit periods. A person diagnosed with diabetes in Jan-Mar 2019 would be newly diagnosed in both the 2018-19 and 2019-20 collections.

Progression to type 2 diabetes (by characteristic)

Figure 6: Rate of diabetes progression from NDH, by characteristic[1,2,3], GP-recorded non-diabetic hyperglycaemia (NDH), 2017-18 / 2019-20, England



Not modifiable risk

Higher:

Sex: Male

Age: 40 – 64 years

Duration of diagnosis: 5 - 9 years

Ethnicity: Asian ethnicity

Deprivation: Most deprived quintile

Notes:

1. Characteristic breakdowns are presented for 'known' demographic groups, where at least 2.5% of the NDH population developing diabetes had that characteristic.
2. Breakdowns are univariate and do not consider any potential interactions between characteristics.
3. Index of Multiple Deprivation (IMD) used to assign levels of deprivation by person's home address where IMD 1 is for the most deprived and IMD 5 is for the least deprived areas.

Modifiable risk

Higher:

BMI: 30 kg/m^2 or more (obese)

HbA1c: 47 – 48 mmol/mol

Diabetes Prevention Programme: Introduction

The NHS Diabetes Prevention Programme (DPP) offers courses of intervention to people who are identified with a high risk of developing type 2 diabetes in order to reduce that risk.

People are eligible[1] for referral to the DPP if they have had a glycaemic test result in the appropriate range (HbA1c: 42 – 47 mmol/mol; fasting plasma glucose: 5.5 – 6.9 mmol/l) within the last 24 months (this was 12 months, but has been extended during the COVID-19 pandemic). Not everyone with an NDH diagnosis will be eligible to be referred to the DPP; some will have a diagnosis from prior to the last 24 months, without test results in the appropriate range over the last 24 months.

Some people with a GP recorded DPP offer do not have a provider record of their DPP referral, and some people with a provider recorded DPP referral are not recorded on their GP system with a GP diagnosis of NDH.

90 per cent of people with a recent[4] NDH diagnosis (from Jan 2019 onwards) had a blood glucose reading in 2019-20 that meant they could be referred to the DPP.

386,025 of people with a current GP record of NDH, have been offered DPP and not declined it, according to their GP record. 336,470 people with DPP referrals recorded by programme providers had a GP diagnosis of NDH at the time they received a DPP referral.

Table 3: Blood glucose eligibility[2,3] for the DPP within the audit period, GP-recorded non-diabetic hyperglycaemia (NDH), 2019-20, England

Total[5]	Blood glucose tested in audit period		Eligible for NHS DPP in audit period	
	Number	Per cent	Number	Per cent
2,140,090	1,670,925	78.1	1,192,365	71.4

Notes:

1. NHS England: 2019 NHS Diabetes Prevention Programme National Service Specification, NHS England: 2020: Briefing: COVID-19: New Healthier You referral route.
2. People included: registered at a GP practice that participated in NDA 2019-20.
3. Blood glucose monitoring may include a HbA1c or a fasting plasma glucose test. Eligibility is based on test results within the 15 month audit period.
4. People may have multiple dates of diagnosis recorded.
5. Total number of people with GP recorded diagnosis of non-diabetic hyperglycaemia in 2019-20.

Diabetes Prevention Programme: Diagnoses

DPP providers record information about the people who have been referred to them, and how people interact with the service.

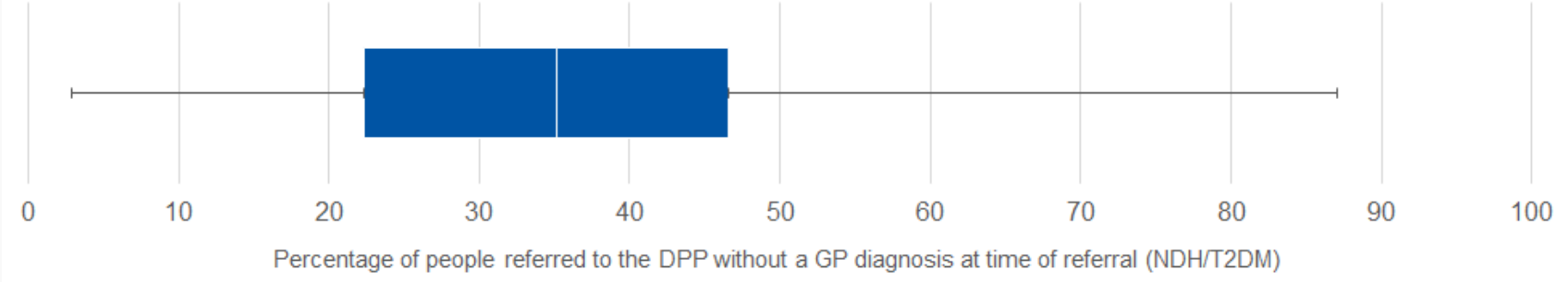
More than 1 in 3 people referred to the DPP had no GP-recorded[2] NDH diagnosis associated with elevated blood glucose levels. This proportion varies widely across CCGs.

Table 4: People with a DPP referral[1], by GP recording of diabetes or non-diabetic hyperglycaemia, 2019-20, England

Diagnosis in GP record	Number	Per cent
Total	535,400	
- NDH diagnosis present	336,470	62.8
- Diabetes diagnosis present	10,215	1.9
- No diagnosis present	188,715	35.2

Source: NHS Digital

Figure 7: DPP referrals[1] without a GP recorded diagnosis, by CCG[2], GP-recorded non-diabetic hyperglycaemia (NDH) or diabetes, provider DPP referral, 2019-20, England

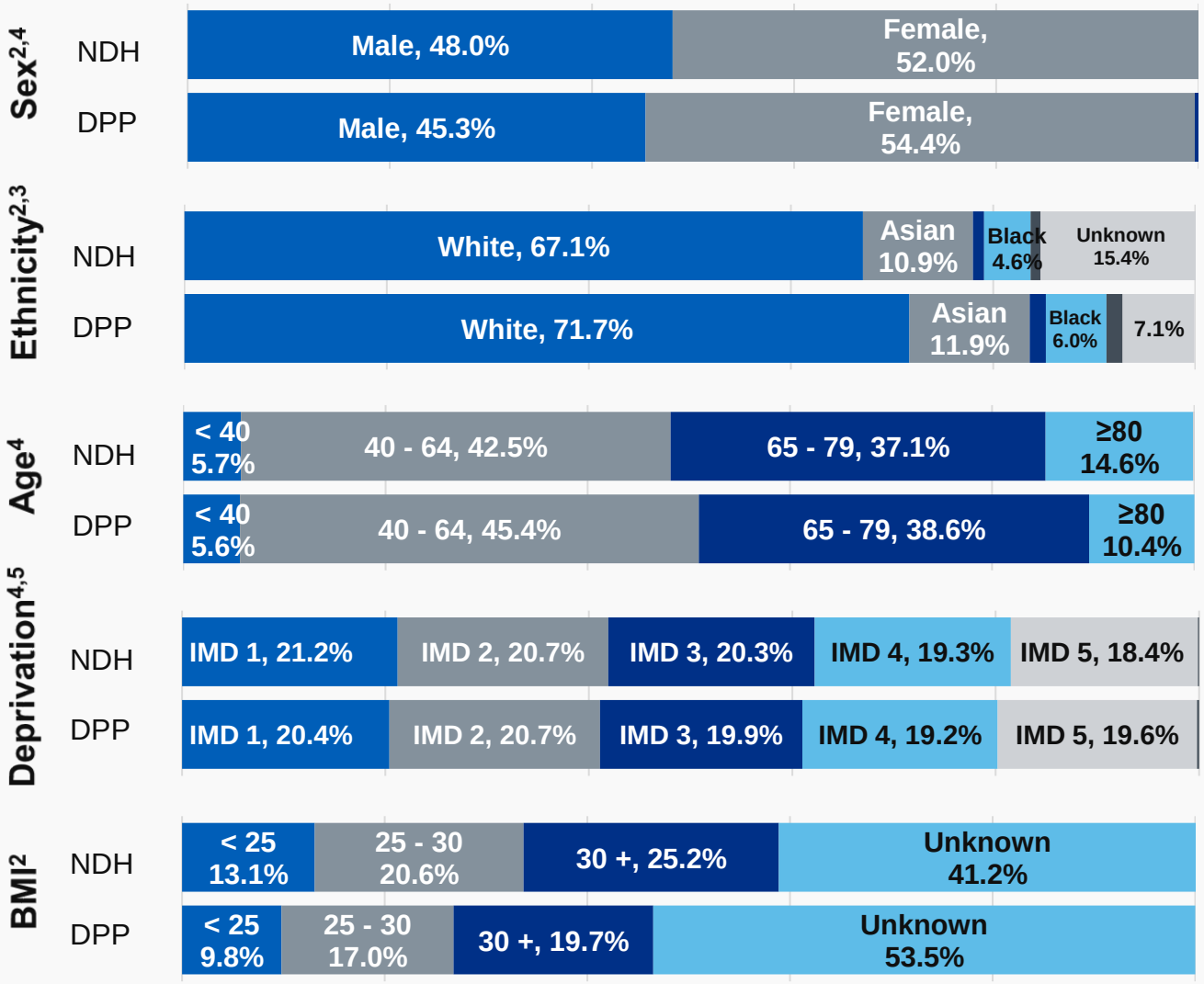


Notes:

1. People included: with a known valid NHS number; registered at a GP practice that participated in NDA 2019-20, with a referral to the DPP programme as recorded by one of the DPP providers.
2. CCGs included: with at least 100 people referred to the Diabetes Prevention Programme (133 of 135 CCGs).

Diabetes Prevention Programme: Demographics

Figure 8: Demographic breakdown[6] of people, by NDH[1] diagnosis, DPP referral[2] status, GP-recorded non-diabetic hyperglycaemia / provider DPP referral, 2019-20, England



Recommendation 3

GP practices should appropriately offer to refer people to the Diabetes Prevention Programme, who are eligible and would benefit from the programme.

Notes:

1. People included: those registered at a GP practice that participated in NDA 2019-20.
2. People included: with a referral to the DPP
   (i) Sex and Ethnicity are only recorded at initial assessment. People who have been referred but not attended an initial assessment are not included in these breakdowns.
   (ii) BMI as recorded during 2019-20, as part of a referral that was open during 2019-20.
3. The unlabelled ethnicity categories with very low volumes are **'Mixed'** and **'Other'.** Ethnicity is categorised using the 2011 census categories for ethnic group.
4. The low volume 'Unknown' categories have not been labelled for the Sex, Age and Deprivation characteristic breakdowns.
5. Index of Multiple Deprivation (IMD) used to assign levels of deprivation by person's home address where IMD 1 is for the most deprived and IMD 5 is for the least deprived areas.
6. Sum of individual percentages may not equal 100 due to rounding.

Non-Diabetic Hyperglycaemia, 2019-20

Prepared in collaboration with:

HQIP
Healthcare Quality Improvement Partnership

The Healthcare Quality Improvement Partnership (HQIP) is led by a consortium of the Academy of Medical Royal Colleges, the Royal college of Nursing, and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage, and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations, and crown dependencies. www.hqip.org.uk/national-programmes

NHS Digital

NHS Digital is the trading name for the Health and Social Care Information Centre (HSCIC). NHS Digital managed the publication of the 2019-20 annual report.

DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

Diabetes UK is the charity leading the fight against the most devastating and fastest growing health crisis of our time, creating a world where diabetes can do no harm.

Supported by:

Public Health England

The National Cardiovascular Intelligence Network (NCVIN) is a partnership of leading national cardiovascular organisations which analyses information and data and turns it into meaningful timely health intelligence for commissioners, policy makers, clinicians and health professionals to improve services and outcomes.