

# National Diabetes Prevention Programme

## Pilot Study for the collection of data from GP practices in England

Published 20 October 2017

### Key findings

- People at high risk of developing type 2 diabetes are recorded within GP practices with diagnosis codes for either non-diabetic hyperglycaemia, pre-diabetes or impaired glucose tolerance, therefore all codes should be collected.
- The new read codes for the prevention programme were able to be extracted in the dataset.
- When a practice enrolls onto the NHS Prevention Programme they should check and use appropriate read codes for diagnosis recording for those at high risk of developing type 2 diabetes. This will ensure that the full population suitable for referral to the programme are identified during systematic searches.
- GP practices, local health economies and intervention programme providers need to work together to make sure that patient records are complete for referrals and attendance, particularly before extraction dates.
- NHS Digital, NHSE, Diabetes UK and PHE should work together on joint communications to patients, CCGs and GP practices to inform them about the DPP extract.

# Contents

<b>Key findings</b>	<b>1</b>
<b>Introduction</b>	<b>3</b>
NHS Diabetes Prevention Programme	3
National Diabetes Audit	4
Future Plans	5
Aim of the Pilot	6
<b>Methodology</b>	<b>6</b>
Practice Recruitment	9
Legal Basis for collection	10
Fair processing	10
Burden Assessment	10
<b>Results</b>	<b>10</b>
Registrations	10
Patient Characteristics	11
Intervention Programme Recording	13
Care Processes and Observation Recordings	14
Burden Assessment	15
<b>Conclusions and Recommendations</b>	<b>16</b>
<b>Next Steps</b>	<b>17</b>

## Introduction

### NHS Diabetes Prevention Programme

The NHS 'Five Year Forward View' and Public Health England's (PHE) 'Evidence into Action' set out a joint ambition "to be the first country to implement at scale a national evidence-based Type 2 diabetes prevention programme". The programme is a joint collaboration between NHS England (NHSE), PHE and Diabetes UK.

There are currently 2.8 million people with Type 2 diabetes in England with around 200,000 new diagnoses every year<sup>1</sup>. If current trends persist this will rise to 4.6million by 2030<sup>3</sup>. While Type 1 diabetes cannot be prevented, Type 2 diabetes is largely preventable through making lifestyle changes.

Non-diabetic hyperglycaemia, also known as pre-diabetes or impaired glucose regulation, refers to raised blood glucose levels, but not high enough to be in the diabetic range. People with non-diabetic hyperglycaemia are at increased risk of developing Type 2 diabetes. They are also at increased risk of other cardiovascular conditions.

There is strong international evidence which demonstrates how behavioural interventions, which support people to maintain a healthy weight and be more active, can significantly, reduce the risk of developing Type 2 diabetes. The NHS Diabetes Prevention Programme (NHS DPP) will identify those at high risk, people with a blood glucose level above normal but not in the diabetic range, and offer them an evidence-based behavioural intervention with the aim of reducing their risk of developing Type 2 diabetes.

Those referred will get tailored, personalised help to reduce their risk of Type 2 diabetes including education on healthy eating and lifestyle, help to lose weight and bespoke physical exercise programmes. All of these together have been proven to reduce the risk of developing Type 2 diabetes.

Over a minimum of nine months patients will be offered at least 13 education and exercise sessions of one to two hours with at least 16 hours contact time in total. Previous studies<sup>2</sup> have shown that those people that complete a behavioural intervention programme decrease their risk of developing Type 2 diabetes by 26% compared to those undergoing usual care over an 18 month follow-up period.

Four providers (Reed Momenta, Pulse Healthcare Limited trading as ICS Health and Wellbeing, Health Exchange CIC and Ingeus UK Limited) have been contracted nationally to deliver the intervention programme and local health services will work with their chosen provider/s to deliver a service in their area.

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<sup>1</sup> National Diabetes Audit Report 1 Care Processes and Treatment Targets 2015-16 <http://digital.nhs.uk/catalogue/PUB23241>

<sup>2</sup>Adult Obesity and Type 2 Diabetes

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/338934/Adult\\_obesity\\_and\\_type\\_2\\_diabetes\\_.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/338934/Adult_obesity_and_type_2_diabetes_.pdf)

<sup>3</sup>A systematic review and meta-analysis assessing the effectiveness of pragmatic lifestyle interventions for the prevention of type 2 diabetes mellitus in routine practice; <https://www.gov.uk/government/publications/diabetes-prevention-programmes-evidence-review>

## Timeline for the Prevention Programme Roll Out

Seven sites worked with the NHS DPP in 2015-2016 to co-design the service model and support development and implementation of the national programme. The DPP will then be rolled out nationally adopting a scale up approach to encompass all areas of England

The first Wave of implementation took place in 2016 and involved 27 areas covering 26 million people; half of the population. By April 2017 over 48,000 people had been referred to the service with 18,000 people commencing on programmes. Wave 2 areas were brought on board from April 2017, covering a further 25% of the population, with an estimated 130,000 referrals expected and up to 50,000 additional places made available. The ambition is to roll out the service to all remaining areas of England, which are not currently included in the programme, during 2018. More information about the DPP along with which areas are included in each Wave can be found at <https://www.england.nhs.uk/diabetes/diabetes-prevention/>

## National Diabetes Audit

The National Diabetes Audit (NDA) was established in 2003 and forms part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP) which is funded by NHSE and managed by the Healthcare Quality Improvement Partnership (HQIP). NHS Digital (formerly the Health and Social Care Information Centre) have delivered the audit since it started and are currently contracted to deliver the audit until 2020. The NDA began in 2003 with what is referred to as the NDA Core audit, and over the years has grown to encompass new work-streams for specialist areas of diabetes care; these include Inpatient Care, Pregnancy, Foot-care, Insulin Pumps and Transition from paediatric to adult services.

The NDA is a major national clinical audit which measures the effectiveness of diabetes healthcare against National Institute of Health and Care Excellence (NICE) Clinical Guidelines and NICE Quality Standards<sup>4</sup>, in England and Wales. The NDA collects data from both primary and secondary care sources and analyses data on over 2 million people each year for a range of stakeholders to drive changes and improvements in the quality of services and health outcomes for people with diabetes.

The NDA aims to answer five key questions:-

1. Is everyone with diabetes diagnosed and recorded on a practice diabetes register?
2. What percentage of people registered with diabetes received the NICE key processes of diabetes care?
3. What percentage of people registered with diabetes achieved NICE defined treatment targets for glucose control, blood pressure and blood cholesterol?
4. What percentage of people registered with diabetes are offered and attend a structured education course?
5. For people with registered diabetes what are the rates of acute and long term complications (disease outcomes)?

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<sup>4</sup>NICE Quality Standard for Diabetes <https://www.nice.org.uk/guidance/qs6>

The NDA data is used in a number of different products including, but not limited to, the Clinical Commissioning Group's (CCG) Improvement and Assessment Framework (IAF), the Diabetes Outcome versus Expenditure (DOVE) Tool, CCG Profiles (PHE Fingertips) and Clinical Services Quality Measures (CSQMs). The NDA is also the measuring tool which will be used to show any improvements in diabetes care as part of the Sustainability and Transformation funding bids.

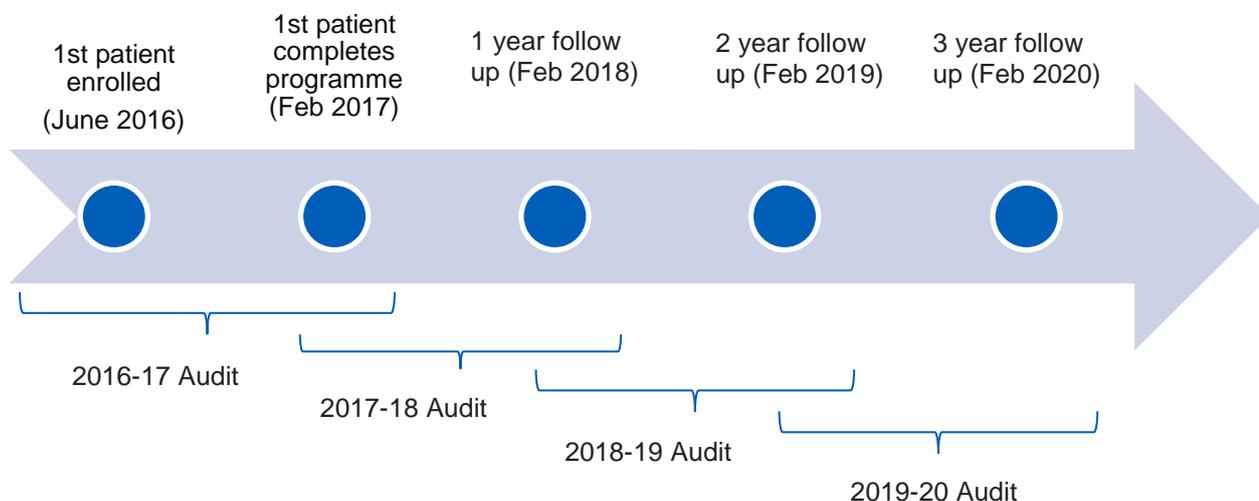
## Future Plans

As part of the evaluation of the NHS DPP, data is collected by intervention providers on the number of people that have been offered and attended the programme and any short term benefits, including decrease in HbA1c or BMI. This will allow evaluation of the uptake of the programme and also any immediate benefits. However, it will not capture any long term benefits and whether the risk of diabetes and its associated complications are reduced.

The aim is for the NDA 2017-18 collection onwards to be modified to capture information for people with non-diabetic hyperglycaemia. The primary care specification for the NDA 2017-18 will be updated to include information on patients that are at high risk of developing Type 2 diabetes and have been recorded with a diagnosis of either non-diabetic hyperglycaemia, impaired glucose regulation/tolerance or pre-diabetes. Demographic information will also be collected along with information about BMI, blood glucose level (HbA1c), blood pressure, cholesterol and whether people were offered/attended the intervention programme.

The audit will report on the number of patients with a diagnosis, and their referral to/attendance at/completion of the intervention programme. The audit will also track over time what happens to these patients and whether they sustain weight loss and blood glucose control or go on to develop Type 2 diabetes and its associated cardiovascular complications.

The NHS DPP was first rolled out in June 2016. As the intervention programme takes nine months to complete we would expect the first people to be completing the programme, at the earliest, in February 2017. The 2017-18 NDA will provide information on the number of people with a diagnosis and the uptake of the intervention programme; however any follow up period will be short. The 2018-19 extract will provide 1 year follow up from completion of the course and any initial improvement in HbA1c and BMI, with subsequent years of the NDA providing longer term benefits. A longer term follow up (5yr, 10yr) will be needed to measure the full impact of the NHS DPP and whether it reduces the risk of developing Type 2 diabetes or cardiovascular disease. Figure 1 shows the timeline of the NDA audit years and the roll out of the DPP in the first Wave of areas for the next NDA contract period up to June 2020.

**Figure 1: Timeline for the first Wave of the DPP and alignment with the NDA collections**

## Aim of the Pilot

Before developing the NDA to include people with non-diabetic hyperglycaemia we undertook a Pilot exercise with a small cohort of GP practices to understand more about the data held on GP systems for patients with non-diabetic hyperglycaemia.

The aim of the Pilot was to understand the quality of information for non-diabetic hyperglycaemia (NDH) held within GP practices to help inform the specification development for the NDA. The Pilot tested the proposed data specification within approximately 20-25 practices in England. This was to understand if the data could be collected, if the data items were well populated and if the new read codes for the DPP programme were being used.

## Methodology

The NDA collects data from primary and secondary care sources in England and Wales. Currently, system suppliers for primary care in England develop in-house queries for GP practices to run which extract data on patients with diabetes. Each system supplier builds the query based on the NDA primary care specification which includes all the relevant read codes including those taking into account patient preferences. Where a system supplier does not enter into a contract to build diabetes related queries, Miquet queries are developed based on the NDA primary care specification; these can be run on any clinical system. For the Pilot Miquet queries were developed. The benefit of Miquet queries are they are not system specific and can be run on any clinical system; they are also well established and robust, therefore data quality is usually of a high standard.

New read codes for pre-diabetes diagnosis and for offered/attended a DPP intervention programme were added to the June 2016 edition of READ. The layout of the Miquet queries are shown in Figure 2 along with the read codes for diagnosis and the intervention programme in Table 1.

The full primary care specification for the Pilot including read codes for extraction can be found at [http://content.digital.nhs.uk/media/23810/NDADPP-Pilot-Primary-Care-Extraction-Specification/pdf/NDA\\_DPP\\_Pilot\\_Primary\\_Care\\_Extraction\\_Specification.pdf](http://content.digital.nhs.uk/media/23810/NDADPP-Pilot-Primary-Care-Extraction-Specification/pdf/NDA_DPP_Pilot_Primary_Care_Extraction_Specification.pdf).

The Pilot took place between 13 March and 21 April 2017. The data provided were current at the time of extraction from the GP systems during this period. Recruited practices ran the Miquet queries within their clinical systems and uploaded the resulting 3 csv files containing patient information to a secure submission tool called Data Landing. This is the same tool used for the NDA collections. The results from Query 16 provide information on the number of people with elevated blood glucose levels (but not in the diabetes range) and without a diagnosis of non-diabetic hyperglycaemia. This provided information about the quality of diagnosis recording within practices. The results of Query 17 and Query 18 provided information on people with a diagnosis of non-diabetic hyperglycaemia.

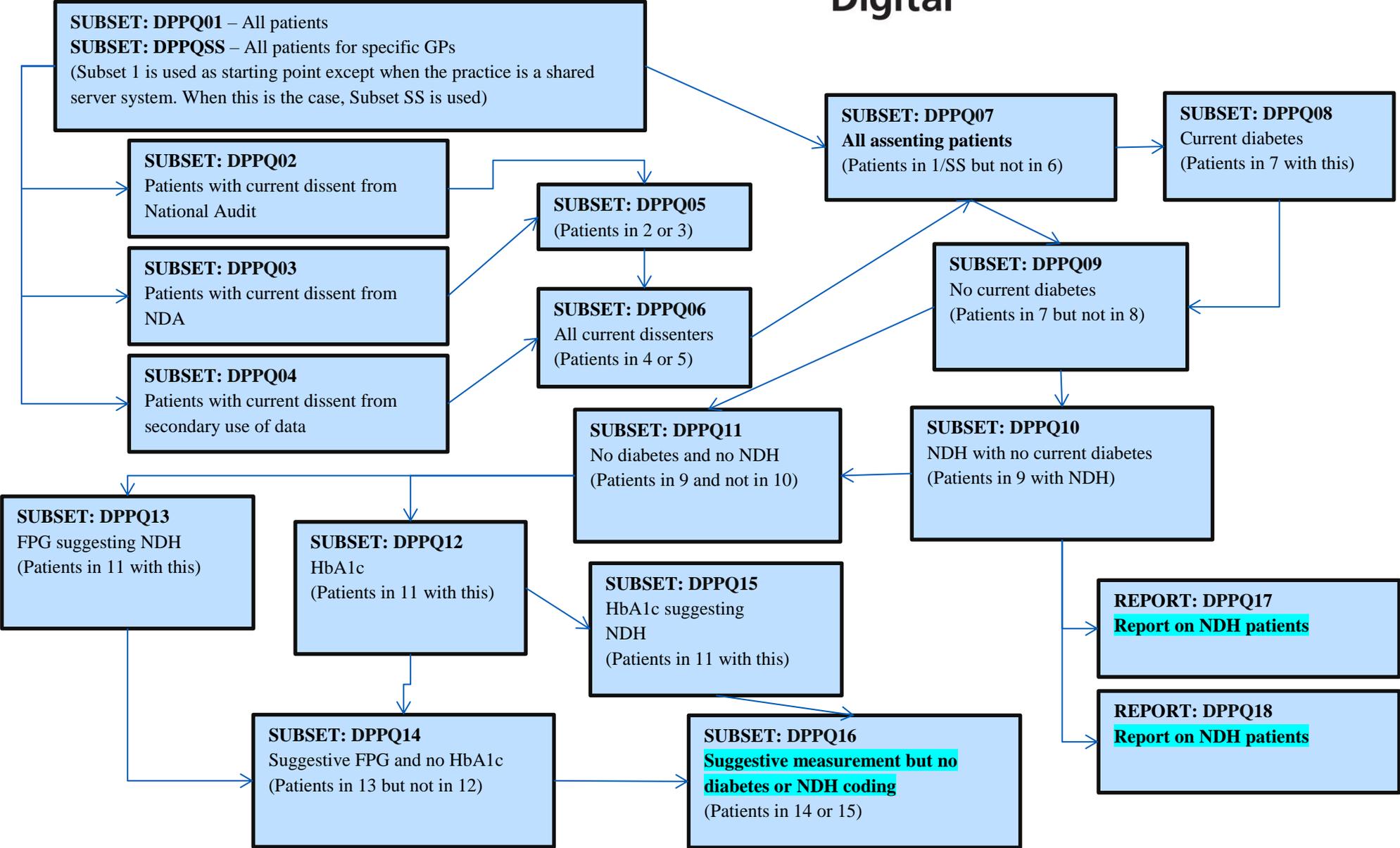
The data from the recruited practices were analysed to understand demographic information for people with non-diabetic hyperglycaemia (ethnicity, age, gender), whether checks have been carried out for blood glucose, blood pressure, BMI, cholesterol and smoking, how many patients had been referred to the intervention programme and how many had attended and/or completed the programme.

Aggregate intervention programme data for the recruited practices was also requested from the Clinical Support Unit (CSU), commissioned to provide informatics support to PHE/NHSE for the DPP. This was to allow comparisons for how many people had been referred/attended the intervention programmes to understand the quality of the data held on GP practices for the intervention programme compared to the data captured directly from intervention programme providers.

**Table 1: Read Codes for diagnosis and the DPP Intervention Programme**

DESCRIPTION	CODES	
	Read codes v2	CTv3 codes
diagnosis codes	C11y5 Pre-diabetes C317. Non-diabetic hyperglycaemia C11y2 Impaired glucose tolerance C11y3 Impaired fasting glycaemia C11y4 Impaired glucose regulation	XaZq8 Pre-diabetes XaaeP Non-diabetic hyperglycaemia XaZfw Impaired glucose regulation X40Jh Impaired glucose tolerance XaIRY Impaired fasting glycaemia
DPP Offered	679m4 Referral to NHS Diabetes Prevention Programme 679m3 Referral to NHS Diabetes Prevention Programme declined	XaeDH Referral to NHS Diabetes Prevention Programme XaeDG Referral to NHS Diabetes Prevention Programme declined
DPP Attended	679m2 NHS Diabetes Prevention Programme started 679m0 NHS Diabetes Prevention Programme not completed	XaeD0 NHS Diabetes Prevention Programme started XaeCw NHS Diabetes Prevention Programme not completed
DPP Completed	679m1 NHS Diabetes Prevention Programme completed	XaeCz NHS Diabetes Prevention Programme completed

Figure 2: Layout of the Miquet Queries for extraction



## Practice Recruitment

PHE recruited practices to the Pilot based on those that were already enrolled on the NHS DPP and had good uptake for referring patients to the programme. In total 22 practices were recruited to the Pilot from a range of CCGs (Table 2).

**Table 2: List of practices recruited to take part in the Pilot**

Name of Practice	Practice Code	CCG
Hobs Moat Medical Centre	M89019	Solihull CCG
Khattak Memorial Surgery	M85146	Birmingham South and Central CCG
Oakwood Surgery	M85078	Birmingham South and Central CCG
Beaconsfield Medical Practice	G81042	Brighton and Hove CCG
Preston Park Surgery	G81018	Brighton and Hove CCG
Stanford Medical Centre	G81038	Brighton and Hove CCG
Warmdene Surgery	G81036	Brighton and Hove CCG
Martins Oak Surgery	G81023	Hastings and Rother CCG
Cantilupe Surgery	M81032	Herefordshire CCG
Greyfriars Surgery	M81014	Herefordshire CCG
Colwall Surgery	M81076	Herefordshire CCG
Greenbrook Heston	E85739	Hounslow CCG
Crosslands Surgery	E85114	Hounslow CCG
West4 GPs	E85040	Hounslow CCG
Springfield Medical Centre	G85673	Lambeth CCG
Evington Medical Centre	C82088	Leicester CCG
Nettleham Medical Practice	C83031	Lincolnshire West CCG
Richmond Medical Centre	C83025	Lincolnshire West CCG
Falkland Surgery	K81017	Newbury and District CCG
Chapel Row Surgery	K81103	Newbury and District CCG
Woodlands Medical Practice	P85010	Oldham CCG
Sheerness Health Centre	G82023	Swale CCG

## Legal Basis for collection

NHSE has directed NHS Digital under the Health and Social Care Act S254 to collect the information for the Pilot. The requirement and technical specification can be found at [http://content.digital.nhs.uk/nda\\_dpp](http://content.digital.nhs.uk/nda_dpp)

## Fair processing

Patient information leaflets and posters for the Pilot were developed by Diabetes UK with input from patient representatives and were made available to participating GP practices. The patient leaflet and poster can be found at [http://content.digital.nhs.uk/nda\\_dpp](http://content.digital.nhs.uk/nda_dpp)

## Burden Assessment

As part of the Pilot recruited practices were also asked to complete a burden assessment form to understand the time and costs associated with taking part in the Pilot.

## Results

Of the 22 practices that were recruited to the Pilot 19 submitted data, the remaining 3 practices did not participate due to resource and/or timing issues. The NDA collects information for an audit period which relates to a 15 month period; for the Pilot this was 1 January 2016 to 31 March 2017. The results displayed below relate to the 19 practices that participated in the Pilot and are categorised as the "Pilot cohort" unless otherwise stated. Unless otherwise stated when discussing non-diabetic hyperglycaemia this also included patients that had a diagnosis of pre-diabetes or impaired glucose tolerance.

## Registrations

For the NDA in 2015-16 the prevalence of diabetes was 6.4 per cent of the general population with 2,327,524 people having Type 2 diabetes in England. Within the practices taking part in the Pilot Type 2 diabetes prevalence was 5.0 per cent (range 2.0 to 10.4 per cent).

The number of people within the Pilot practices with a diagnosis of either non-diabetic hyperglycaemia, impaired glucose regulation or pre-diabetes was 2,152 resulting in a recorded prevalence of 1.2 per cent.

Where a diagnosis had been recorded, 189 people (8.8 per cent) had more than one type of diagnosis; the majority (56.8 per cent) had a diagnosis of non-diabetic hyperglycaemia. Table 3 shows the recorded diagnosis types.

**Table 3: Recorded diagnosis within 19 practices taking part in the Pilot**

People with a recorded diagnosis	Pre-diabetes		Non-Diabetic Hyperglycaemia		Impaired Glucose Regulation <sup>1</sup>	
	Number	Per cent	Number	Per cent	Number	Per cent
2152	394	18.3	1222	56.8	732	34.0

<sup>1</sup>Impaired glucose regulation is comprised of people with a recorded diagnosis of impaired fasting glucose (151), impaired glucose regulation (298) or impaired glucose tolerance (283).

However, whilst the average prevalence for the pilot practices was 1.2 per cent, there was wide variation ranging from 0.0 to 10.1 per cent. The variation was largely due to the number of people (5,957) that were recorded on the clinical system as having an elevated glucose level in the pre-diabetes range but no corresponding diagnosis.

This means that for the pilot cohort 73.5 per cent of people at high risk of developing diabetes were not recorded with a diagnosis on the clinical system and therefore would not be extracted when using the diagnosis read codes (Table 4). The level of non-recording of diagnosis ranged from 9.2 to 99.7 per cent within practices.

In total 8,109 people had either an elevated glucose level in the pre-diabetes range and/or a recorded diagnosis. This equates to 4.6 per cent of the Pilot practice population (range 1.3 to 11.1 per cent).

# 73.5%

Of people at high-risk of developing diabetes were not recorded with a diagnosis in the Pilot

**GP practices should check diagnosis recording for patients at high risk**

**Table 4: Number of people at risk of developing Type 2 diabetes for practices participating in the Pilot**

Total people at risk	Diagnosis recorded		No diagnosis recorded	
	Number	Per cent	Number	Per cent
8109	2152	26.5	5957	73.5

Percentages shown are the percentage of people with or without a recorded diagnosis for the Pilot practices

## Patient Characteristics

In the Pilot cohort 2,152 people were recorded with a diagnosis of non-diabetic hyperglycaemia, impaired glucose regulation or pre-diabetes and therefore are classified as high risk of developing Type 2 diabetes. Of those at high-risk 53.5 per cent were female and the majority (77.9 per cent) were diagnosed at risk between the ages of 40 to 79 years of age (Figure 2). There was no obvious relationship for ethnicity or deprivation (Figure 3 and 4).

When considering patient characteristics for those at high-risk of developing diabetes it must be remembered that the Pilot only took place within 19 practices and may not be representative of the general population.

Figure 2: Age at time of diagnosis within 19 practices in England

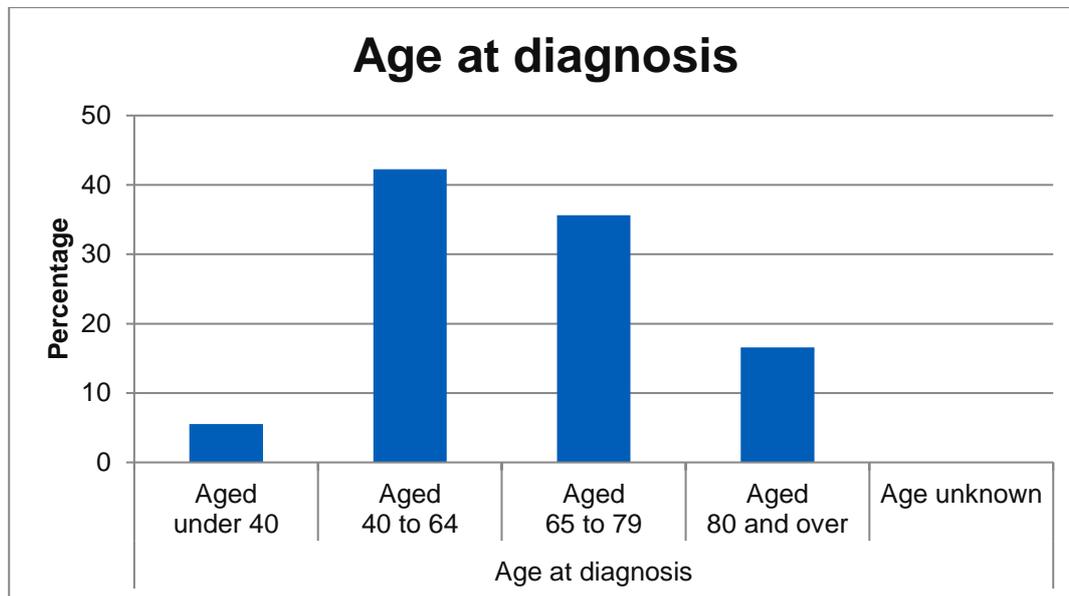


Figure 3: Deprivation of people at risk of developing diabetes within 19 practices in England

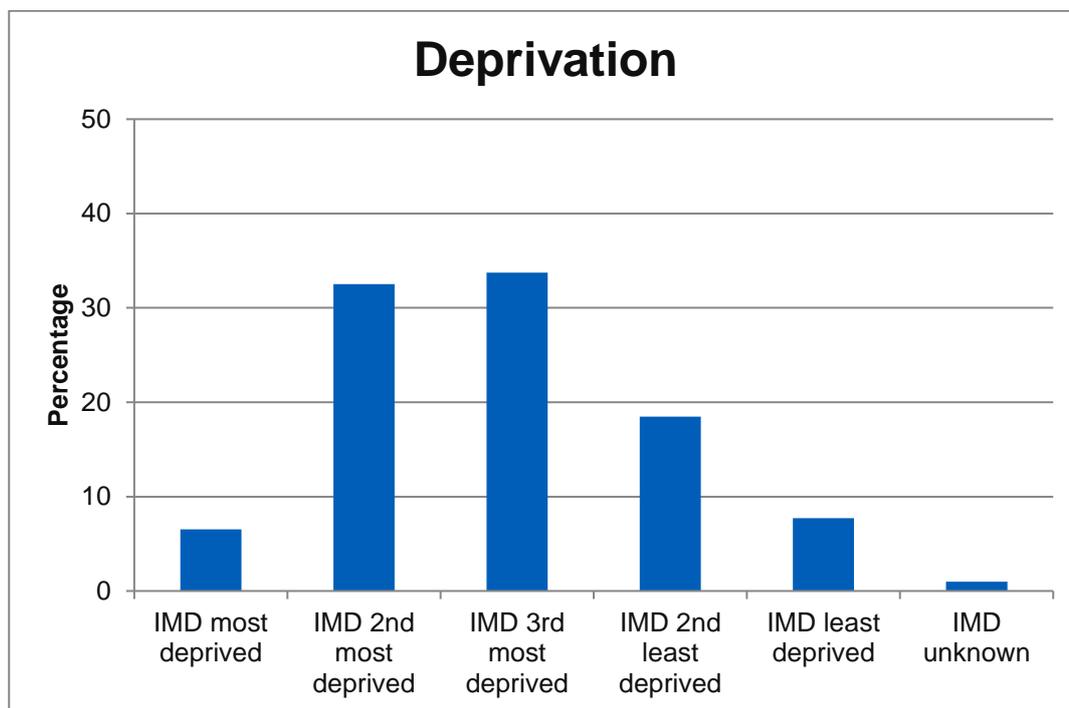
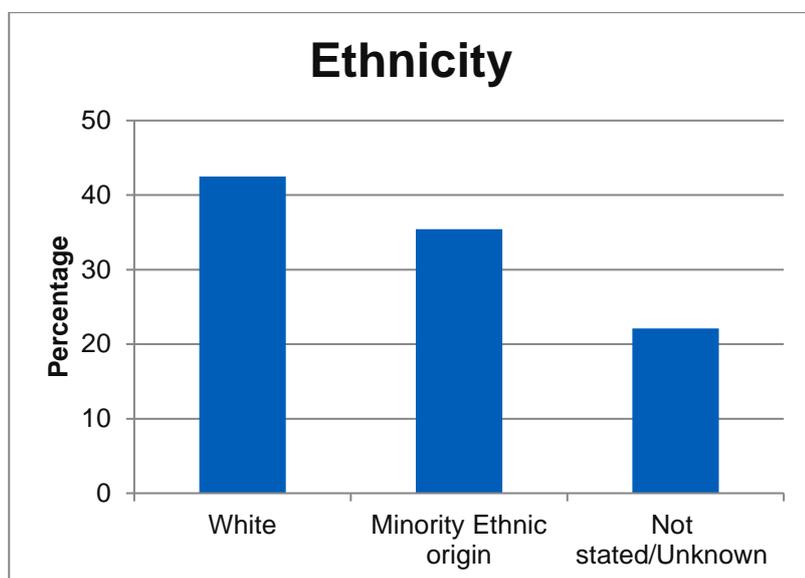


Figure 4: Ethnicity of people at risk of developing diabetes within 19 practices in England



**When considering patient characteristics for those at high-risk it must be remembered that the pilot may not be representative of the general population.**

### Data Quality

Date of birth and gender were well recorded within the data, with no missing values, however ethnicity was missing for 20.3 per cent of people. This is similar to the NDA cohort and is reflective of practice data.

### Intervention Programme Recording

In the 19 practices, 424 people had been referred onto an intervention programme; of these 97 had declined the offer. Only 11 people were recorded as having started the programme with 1 person then not completing the programme and withdrawing. When compared to the data captured directly from the intervention providers there are large discrepancies with the intervention programme providers recording higher levels of referrals and numbers for starting the programme (Table 5).

**Table 5: Number of referrals and attendances of the intervention programme as captured by GP practices and the intervention programme providers**

	Referred	Declined offer	Started	Not completed	Completed
GP practices	424	97	11	1	0
Education Providers	873	114	397	26	0

## Data Quality

The Pilot data from GP practices was extracted between 13 March and 12 April 2017 and relates to data recording as of 31 March 2017 or at the time of extraction if before. The data from intervention programme providers showed numbers as of 31 March 2017 therefore largely representing the same time period. However the intervention programme data were not taken until June 2017, therefore giving the intervention programme providers more time to check and update records for this time period.

In the GP practice data 10 of the people recorded as started the intervention programme did not also have a recording of referral onto the intervention programme.

**Intervention programme providers need to ensure that information about referral and attendance are passed to GP practices in a timely manner and in a way that allows for easy and consistent recording.**

**GP practices need to ensure that they are engaged with providers and data is up to date on systems prior to extraction dates.**

## Care Processes and Observation Recordings

The NICE guideline<sup>3</sup> for people at high risk of developing Type 2 diabetes recommends the following:-

“For people at high risk (a high risk assessment score and fasting plasma glucose of 5.5–6.9 mmol/l, or HbA1c of 42–47 mmol/mol [6.0–6.4%]), offer a blood test at least once a year (preferably using the same type of test). Also offer to assess their weight or BMI.”

For people with diabetes NICE recommends that they have 9 care processes completed each year. The NDA currently collects 8 of the 9 care processes. For the Pilot we collected information about 7 of the diabetes-related care processes (foot checks and eye screening were not included). Information about fasting plasma glucose readings were also collected.

Information was recorded for the time period 1 January 2016 to 31 March 2017 and whether they had received any of the care checks during this time (Table 6).

**Table 6: Percentage of people with a recorded diagnosis receiving care checks during 2016-17.**

	BMI	BP	HbA1c	FPG	Creatinine	Albumin	Cholesterol	Smoking
DPP Pilot	48.8	80.3	74.2	20.2	73.9	2.9	61.4	53.5

FPG = Fasting Plasma Glucose, BP= blood pressure

<sup>3</sup>NICE Guideline for Type 2 diabetes: prevention in people at high risk <https://www.nice.org.uk/guidance/ph38>

## HbA1c and Fasting Plasma Glucose

The NICE recommendation is that for those people at high risk, blood glucose is monitored at least once a year. The Pilot collected the latest reading, and the latest reading in the pre-diabetic range for HbA1c or fasting plasma glucose. For the Pilot cohort 73.5 per cent of people had a HbA1c recorded in the audit period; the mean HbA1c was 42.3mmol/mol. For 34.9 per cent of people the latest HbA1c reading was below 42mmol/mol.

Fasting plasma glucose was recorded during the audit period for 20.2 per cent of people. The use of fasting plasma glucose recording as a method of glucose monitoring varied within practices with only 9 of the 19 practices using this. Within these practices recording varied from 4 per cent of patients to 76 per cent, the average fasting plasma glucose level was 5.5 mmol/l.

## BMI

The NICE recommendation is that BMI is monitored at least once a year; 48.1 per cent of people classed as high risk had a recording for BMI at least once in the audit period. The average BMI for patients was 29.1.

## Other care checks

High blood pressure and high cholesterol are a risk factor for cardiovascular disease and creatinine measurements help to identify early kidney disease. Whilst NICE does not recommend any other care checks as routine, creatinine annual checks were recorded in 73.9 per cent of people, cholesterol checks in 61.4 per cent and blood pressure checks in 80.3 per cent. Where readings had been recorded 54.6 per cent of people had a blood pressure reading less than or equal to 140/80 and 49.6 per cent of people had a cholesterol reading less than 5mmol/L.

## Burden Assessment

Five of the practices also completed and returned a burden assessment questionnaire. Practices had until the 21 April 2017 to complete the assessment.

Taking part in the Pilot exercise took between 30minutes to 2.5 hours, this included reading guidance documents, preparing and running the Miquet queries, registering and uploading the queries to Data Landing. Factors impacting on timings depended on the level of knowledge within the practice for running Miquet queries and whether they were already registered for data landing and had previously submitted data for the NDA. In most practices the practice manager ran the queries and uploaded them to data landing. Those practices that completed the burden assessment found the guidance helpful, although some suggestions were made for improvements. Some of the practices also needed to seek out further help from the NDA team to help with running the queries and found this support helpful. All the practices thought that collecting data for non-diabetic hyperglycaemia patients would be beneficial to patient care however some practices expressed comments on wanting to know more information about how the data would do this.

## Conclusions and Recommendations

The Pilot Study has allowed us to understand more about the quality of data recorded in GP practices for people with non-diabetic hyperglycaemia ahead of modifying the NDA extract for the 2017-18 collection to collect DPP data.

**Conclusion 1:** People at high risk of developing type 2 diabetes are recorded within GP practices with diagnosis codes for either non-diabetic hyperglycaemia, pre-diabetes or impaired glucose tolerance, therefore all codes should be collected.

**Conclusion 2:** The new read codes for the prevention programme were able to be extracted in the dataset.

The Pilot prevalence for non-diabetic hyperglycaemia was 1.2 per cent. However there was under recording of diagnosis within GP practices, with approximately 73.5 per cent of people deemed high risk not having a diagnosis recording. Depending on prevalence rates the national extract size could potentially be 700,000 people up to 3million people; if the latter it would make it a similar size to the NDA extract.

**Recommendation 1:** When a practice enrolls onto the NHS Prevention Programme they should check and use appropriate read codes for diagnosis recording for those at high risk of developing type 2 diabetes. This will ensure that the full population suitable for referral to the programme are identified during systematic searches.

**Recommendation 2:** When planning collection methods, data storage and analysis consideration for the size of the national cohort (up to 3million people) should be taken into consideration.

The NDA from 2016-17 started collecting multiple readings for blood pressure, HbA1c, BMI, and cholesterol. This allows us to do more targeted analysis for what is happening during the audit period rather than only recording the latest figure and allows for greater linkage to other audits (e.g. Pregnancy and Footcare). Collecting multiple readings for DPP will provide information about what happens to BMI, HbA1c, blood pressure and cholesterol prior to and on completion of the intervention programme, along with long-term changes.

**Recommendation 3:** Collect multiple readings for BMI, HbA1c, blood pressure and cholesterol.

There were large differences in the data completeness for referral and attendance at the prevention programme when comparing practice data to the prevention provider dataset. Data collection time periods may explain some of this difference but there could potentially be an issue with data recording locally.

**Recommendation 4:** GP practices, local health economies and intervention programme providers need to work together to make sure that patient records are complete for referrals and attendance, particularly before extraction dates.

**Recommendation 5:** NHS Digital should explore data linkages to the prevention programme provider dataset to understand more about data completeness.

The inclusion of the DPP dataset within the NDA will increase burden on the NDA team and also GP practices who return the data. Under the current method of extraction for the NDA the DPP extract will mean the addition of 5 new files for extracting and uploading to Data Landing. Miquest is only one extraction method, and the exact burden on GP practices of the addition of DPP needs to be fully explored.

**Recommendation 6:** Once the data collection method is known for 2017-18 a burden assessment should be conducted to understand the burden on practices.

Whilst there was a general support for the inclusion of information about non-diabetic hyperglycaemia there also was a lack of knowledge about what the data will be used for and the benefits, therefore for the 2017-18 extraction additional communications are needed to ensure that GP practices and CCGs know the data is being extracted and the benefits of this. This should be joint communications between Diabetes UK, NHSE, PHE and NHS Digital.

**Recommendation 7:** NHS Digital, NHSE, Diabetes UK and PHE should work together on joint communications to patients, CCGs and GP practices to inform them about the DPP extract.

## Next Steps

- The above recommendations should be reviewed by NHS Digital, NHSE, PHE and Diabetes UK and acted upon where required.
- The results of the Pilot should be reviewed to help finalise the DPP extract for inclusion in the NDA 2017-18 data extraction.
- NHSE, PHE and NHS Digital should work together to agree audit questions for analysis and reporting and responsibilities for analysis.

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